By email: brian.westgate@gov.bc.ca

April 22, 2014

BC Environmental Assessment Office (BCEAO)
836 Yates Street
Victoria, BC
V8W 1L8

Attention: Brian Westgate
Project Assessment Manager, BCEAO

RE: Review of Coastal GasLink Application for Environmental Assessment Certificate

Please find enclosed a table of review comments on behalf of Doig River First Nation (DRFN), McLeod Lake Indian Band (MLIB), Saulteau First Nations (SFN) and West Moberly First Nations (WMFN). We represent four signatories to Treaty 8. Our four communities stand to be directly impacted by the proposed Coastal GasLink pipeline ("the Project"), as acknowledged by our inclusion on "Schedule B" of the Project's Section 11 Order.

These comments are primarily technical in nature, focusing on the methodology and conclusions of the Application. While our technical comments make frequent reference to the Environmental Assessment (EA) conclusions in the context of our Treaty Rights, this submission in no way represents a fulsome assessment of consultation with our respective communities. Similarly, while our technical comments address aspects of Aboriginal Traditional Knowledge (ATK) and Traditional Land Use Studies (TLUS), these are restricted to those topics in the technical context of EA methodology. We continue to pursue the "identification / protection/ avoidance / mitigation / compensation" hierarchy of our collective Treaty Rights in parallel to this process, through government-to-government discussions and through direct discussion with Coastal GasLink.

We continue to try to keep pace with development proposals in Treaty 8 territory and to pursue our governance obligations. This includes our best efforts to meet timelines imposed by the BC Environmental Assessment Office (EAO). However, due to relentless and overwhelming pressure of incoming referrals, we were unable to undertake any meaningful review of the draft Application Information Requirements (dAIR) for the Project in 2013. Thus, we have included comments in our review that would have been most readily addressed at the dAIR stage. We do not feel it is too late for these issues to be raised and addressed, nor do we acknowledge that these comments should be dismissed by virtue of missing EAO-imposed timelines.

Our comments in the attached table are categorized under the following subject headings:

- Administrative and Organizational
- Baseline Data
- Methodology
- Mitigation, Monitoring and Management
- Effects Characterization
- Cumulative Effects Assessment

In our opinion, many of the attached comments can be readily addressed through supplemental materials from Coastal GasLink. In a number of cases, however, we found that the Application jumped from baseline data to conclusion on residual effects without a transparent and well-

reasoned application of standard EA methodology. In these cases we have reserved judgement on the adequacy of the conclusions until the methodology can be clarified. We feel it is incumbent upon your office (EAO) to do the same, as per your mandate.

While some comments may have rather simple editorial fixes, in other cases we simply do not agree with the conclusions drawn in the Application, most often due to gaps in baseline data and/or inappropriate methodology.

All of these are noted in the attached comments table.

Our primary "big picture" technical concerns with this project fall under three main themes: (1) implementation of mitigation, (2) cumulative effects, and (3) impacts on the rights of our communities and members. Each of these is discussed below.

Implementation of Mitigation

Notwithstanding any discussion on the assessment methodology, the conclusions on residual effects for each discipline *fundamentally rely* on the identified mitigation being carried out. With few exceptions, the assessment for each discipline concludes that without mitigation, the Project would result in significant adverse effects, but with mitigation, the predicted effects are not significant.

As with many EAs, it is simply presumed, but not explicitly stated, that the prescribed mitigation will be implemented perfectly. Implementation error can occur for a variety of reasons:

- Incompatibility of mitigation with actual field conditions
- Lack of oversight by relevant authorities
- Insufficient resources (financial, human, technical)
- Vague definition of practices or expectations
- Lack of authority or unrecognized authority for environmental inspectors
- Complex discipline-specific requirements tasked to generalist environmental inspectors

The potential for implementation error to undermine the credibility of the Project is not effectively considered, and yet compliance and/or effectiveness of mitigation has been cited recently as a glaring weakness in the EAO mandate[1]. We recognize that EAO has made efforts in recent years to rectify that weakness; this project and our comments provide another opportunity to do so. While we acknowledge that post-EA Certificate work will be necessary to refine the implementation approach for the Environmental Management Plan, we feel that considerable improvement and/or clarification to commitments are required prior to the EA Certificate, and our attached comments provide specific examples of this.

In addition to concerns about implementation of some of the mitigation, we have identified concerns about the effectiveness of other mitigation. For instance, "standard industry BMPs" are relied upon heavily in the Application. We remain unconvinced that blanket and standardized approaches are effective. We feel there is readily apparent evidence that existing pipeline projects – presumably subject to the same standard industry practices – are causing ongoing residual effects. For example, our members who make seasonal rounds have already voiced concerns about the potential for increased access into previously inaccessible areas – in particular, areas of high cultural significance such as the Sukunka Valley – by recreational users and poachers. When representatives from SFN were provided a helicopter overflight of the proposed Project route, it

[1] BC Auditor General's report, "*An Assessment of the Environmental Assessment Office's Oversight of Certified Projects*" (July, 2011)

was obvious that this concern is valid. Existing rights-of-way are being used extensively as back-country access corridors. Nevertheless, the Application has a poorly developed Access Management Plan; related high-level mitigation that seems to rely on generically defined Best Management Practices.

It is our opinion that meaningful inclusion of First Nations interests into this process requires not standard BMPs but rather extraordinary and site-specific mitigation (and monitoring) plans be developed in all high-priority areas. Note that "extraordinary" does not mean "unreasonable". It means that details and commitments must be developed that recognize the specific concerns and sensitivity in key areas, and that First Nations communities be directly involved with reviewing, approving, and overseeing these plans. Furthermore, it is important that these plans be developed *before* the Project is granted an EA Certificate. It is not sufficient to presume that all such details can be resolved at a later date. This does not mean there is no allowance for future on-the-ground re-evaluation of mitigation measures. It does mean that for the purposes of this Project, it is inadequate to assume that future plans will be developed to completely avoid adverse impacts.

Cumulative Effects

The development pressure of oil and gas extraction activities in Treaty 8 territory has been enormous in the past decade. Our communities, government regulators, and industry have all struggled to oversee and manage the cumulative effects that these activities have had and are having on our environment and mode of life. Now, we are faced with as many as seven major pipelines through our territory, with the potential that they be constructed simultaneously. Concerns about cumulative effects that these projects may have – in synergy with other existing or proposed projects that have left our Treaty rights diminished and stressed – are obvious. And while such concerns are not new, our review of this Application reveal that they have not been adequately addressed by this latest proposal.

A thorough Cumulative Effects Assessment (CEA) for a project of this scope is an enormous undertaking, and we note that the Application contains an arduous book-keeping exercise on this topic. However, there are cases where sweeping assumptions are subtly presented but which may have considerable bearing on the outcome of the assessment. In these cases, there is no sensitivity analysis provided. Further, there are cases where methodology is not clearly explained and thus the conclusions are not verifiable. Such transparency is a necessary element of the scientific method. Finally, our communities have not yet concluded our Traditional Land Use studies on this project, meaning the Application does not incorporate this important information. Our attached comments identify sections where we have requested revision or clarification to the Application.

From a more general perspective, we are concerned with the ad hoc approach being taken to the proliferation of pipelines through our respective territories. At its most basic level, CEA is an exercise in regional planning. The responsibilities here fall above the Proponent, resting squarely with government. Our communities have advocated during government-to-government talks for a sensible and reasonable planning approach that would create a capped number of pipeline corridors. We also recently learned of a "Pipeline Corridor Analysis": a quasi-CEA being undertaken by EAO in partnership with OGC[2]. We are unaware of the particular scope or intent of this analysis, but interpret its existence to be tacit acknowledgement that the number of overlapping and redundant pipelines being proposed requires exceptional CEA. We welcome any thoughts from your office on if and how the intent and outcome of the analysis is reflected in this assessment.

[2] Letter from Trish Balcaen, EAO Executive Project Director to Tribal Chief Terry Teegee, Carrier Sekan Tribal Council, dated March 13, 2014. Ref. 103964, File 30050-20-ENER-04-01



Impacts on Aboriginal Communities

Within the purview of a technical review of the Application, impacts on First Nations communities can be effectively achieved through detailed scoping, thorough baseline data collection, and interpretation of project-environment interactions at the appropriate scales. In other words, there are elements of Crown consultation and legal protection of Treaty Rights that are umbrellas above the EA, but standard EA methodology itself can provide a meaningful forum of engagement and issue resolution on this topic.

From an EA perspective, our Treaty Rights in terms of traditional land uses are grounded in a combination of biophysical elements that underpin our targeted land use and the availability of those resources in such a way that allows ongoing cultural identity and practice. Too often, we see EAs boiled down to include only consideration for the former (biophysical conditions), and not the latter (use, access, and identity). To effectively include the latter requires understanding the spatial and temporal scales at which family groups use the land. Traditional land use is not exercised in an unstructured manner. At the March 2013 Working Group meeting, an Office of the Wet'suwet'en delegate stated: "*The spatial size of the house territory needs to be considered. Wildlife population density can affect ability for people of a house territory to get food, and influence cultural practices. Loss of food shows that that territory is poor, and this represents a potential loss of cultural identity*".

With the above points in mind, it becomes clear that there is a persistent discrepancy in the Application whereby biophysical VCs such as wildlife habitat, fisheries impacts, or vegetation are assessed at spatial scales that are irrelevant to considering impacts to our individual communities. It is too simple to conclude that, for instance, a fish species within the Peace River watershed will not be adversely affected and so the availability of this species for traditional harvest will also not be affected. This would have to be proven at the sub-basin level that is relevant to one or more houses at the community level.

It is not unreasonable to ask that work be concluded at the community level to explore potential impacts at this scale before concluding the EA. Community-led Traditional Use Studies for the Project are in process and would provide a much stronger starting point for Coastal GasLink to continue working directly with our communities in this part of the EA. We wish to see time provided to allow the proper studies to be completed. Coastal GasLink can then sit down with community representatives and we can review their assessment of the resources and our assessment of the spatial and temporal use of those resources. This collaborative approach is more likely to lead successfully to conclusions on how the use of resources may be affected.

The points above are limited to traditional land and resource uses, which does not reflect the full extent of potential impacts on First Nations interests. Heritage sites, gathering places, burial places, or other sacred sites are all mentioned in the EA and represent "valued components" for our members but the baseline data for them are either incomplete or non-existent.

Finally, there is also the matter of benefits to First Nations communities. We are not naïve about the politics of LNG industry in BC. We are aware of the perception that these projects must proceed for provincial economic interests. In that line of thought there is a reliance by decision-makers to point out projected benefits of the project, one of which being the benefits that could specifically accrue to First Nations communities. Workforce development, capacity building, and financial contributions are mentioned in the Application as key benefits, but we believe these should be explored further prior to promoting the benefits in the EA. Further details of our concerns are provided in the attached table.

Conclusion

Our attached technical review comments stand on their own and represent our best attempt at participating in the EA process on your office's terms. However, we continue to find the relentless deluge of referrals to our respective Lands Departments to be a heavy burden, which renders the provincial review timelines unreasonable. As we progress through the remaining four months of the EAO review of this Project, we will continue to try to engage in discussions with EAO and with Coastal GasLink to address our concerns with this Project. We retain the right to voice our concerns as new issues come to light. Our final opinions on the Project will be reflected in our joint Independent First Nations Report during Stage 2 (Minister's Referral Package) of the EAO Review Process. At this time, owing to the issues outlined herein, we find the Project requires supplemental work prior to concluding our review and prior to the Application advancing any further and allowing any final opinions.

Please contact the undersigned should you wish to discuss further.

Mussi,

Lisa MacArthur
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West Moberly First Nations

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c. Pottinger Gaherty Environmental Consultants Ltd.

Encl: Comment Tracking Table, April 2014

Table 1. Coastal GasLink EAC Application: Technical Review Comments from Doig River First Nation, McLeod Lake Indian Band, Saulteau First Nations, and West Moberly First Nations. April 22, 2014.

Topic Heading	Document	Location	Comment
All	All	General	There is considerable reliance throughout the Application on professional opinion. In virtually every instance where definitive quantitative effects thresholds are absent, the opinion of expert practitioners is referred to as a stand-alone rationale for conclusions. While we do not disagree with this approach in general, there are relatively few instances where the rationale behind the subjective interpretations are well explained, and we find no instances where the accredited professionals have signed off on the work. Please provide a list of study authors, CVs and professional sign-off by discipline leads.
Mitigation, Monitoring and Management	Appendix 2A	Access Management Plan	The importance of the Access Management Plan has been raised with CGL since the first discussions, and is of considerable importance. It has not yet been developed. The Plan in the Application amounts to a commitment to make a plan. We request that no project approvals be granted prior to the development of a comprehensive Access Management Plan, and an opportunity to review and comment on it for our communities.
Mitigation, Monitoring and Management	Appendix 2A	Appendix C	The "*Ecological Community and Species of Concern Discovery Contingency Plan*" identifies a Vegetation Resource Specialist which should have some additional definition of this role. Presumably the same as the "Vegetation Specialist", which is referenced elsewhere in Appendix C.9, but what are the qualifications required, how many VRS's will be on staff, and what will their capacity be? The project will have multiple construction sites moving forward concurrently, which may have multiple management issues requiring immediate attention in order to a) ensure appropriate mitigation/best practices are being implemented, and b) to avoid delays in construction progress. How will this role accommodate the demands of both construction planning and the stated conditions of approval?

Topic Heading	Document	Location	Comment
Mitigation, Monitoring and Management	Appendix 2A	page C-1	We collectively would like to be added to the notification list of spills within Treaty 8 boundaries.
Mitigation, Monitoring and Management	Appendix 2A	page C-10	The Wet Soils Contingency Plan does not in general appear to realistically account for normal conditions in much of the route, particularly coastal sections.
Mitigation, Monitoring and Management	Appendix 2A	page C-21	Line 23-24: "*before allowing filtered water to enter the watercourse, ensure the TSS level is within 10 mg/L of the background TSS level*". Would like some clarification on this item, as TSS requires laboratory measurements - which makes for a highly impractical field method. This is perhaps confusing TSS with turbidity?
Mitigation, Monitoring and Management	Appendix 2A	page C-28 and C-29	This section commits to responding appropriately if historical resource sites or traditional land use sites are discovered during construction. We are not confident that historical sites or resources or "traditional land use sites" will be adequately detectable without a proper monitoring strategy. We would like to see Heritage Resources Monitors hired, from Treaty 8 membership, for all earthworks in Treaty 8 territory. These persons can work directly with CGL's Heritage Resource Specialist to develop monitoring protocols.

Topic Heading	Document	Location	Comment
Mitigation, Monitoring and Management	Appendix 2A	page C-8	The adverse weather contingency plan and flood/excessive flow contingency plan imply an enormous amount of subjective discretionary authority on the part of the Environmental Inspector - which is fine, subject to appropriate qualification. But it is concerning that terms like "major storms" or "adverse weather" or "excessive flow" are so vaguely described, particularly given some of the terrain and coastal weather systems that will be encountered. Line 2-3 of page C-8 states that in the event of a "major storm", "qualified personnel will inspect all watercourse crossings where construction is in progress or has been completed". This is admirable but feasibility is suspect. These are the sort of vaguely defined and unenforceable conditions that were identified in the BC Auditor General's 2011 critique of EAO project compliance.
Mitigation, Monitoring and Management	Appendix 2A	page D-9	Under section D.2.2, CGL has committed to notifying rural road users of construction disturbances via local and regional newspapers. This is not an adequate means of communicating with many First Nation citizens within Treaty 8 territory, particularly elders or those who travel on the land extensively. Please commit to having door-to-door communication services. This can be arranged through the administrative offices of our respective communities. Please also be mindful of the advance notice that is required when our members are out on the land.
Mitigation, Monitoring and Management	Appendix 2A - EMP	Section 8.4	EA Section 3 identifies that watercourses are classified with specific Riparian Management Zones (RMZ), Riparian Reserve Zones (RRZ) and Riparian Management Areas (RMA), yet Section 8.4 of the EMP only describes a mandatory 10m buffer, or a 100m buffer at "select locations" based on a result of pre-construction surveys. The 100m buffer at select locations requires more specific accounting of which locations this applies to. Every crossing location has now been field-assessed so there should be reasonable certainty on this. And the use of RMZs, RRZs and RMAs versus a 10m riparian buffer does not make any sense at all, please clarify how these are applied to effective riparian habitat protection.



Topic Heading	Document	Location	Comment
Baseline Data	Appendix 2E - Air Quality TDR	Page 15	Ambient air monitoring data was collected from five existing Ministry of Environment monitoring stations to evaluate baseline conditions. With the exception of Kitimat Rail, all remaining stations are located outside of the Local Study Area and the Regional Study Area (Burns Lake Fire Centre is located within the RSA but outside of the LSA). The majority of the data were collected outside of the proposed project's spatial boundaries and no monitoring data specific to the study area was collected to confirm that the MOE data is reflective of the study area's atmospheric environment. This is an error in methodology that undermines the credibility of the conclusions. Please address with more complete data, or a credible rationale as to why this approach is adequate.
Baseline Data	Appendix 2E - Air Quality TDR	Page 15	Ambient air monitoring data were collected from five existing Ministry of Environment monitoring stations, four of which do not share the same topography and landscape characteristics as the majority of the study area. The majority of the proposed project routing occurs overland while the monitoring stations are all located within broad river valleys. Please explain how this was addressed in the assessment of effects, particularly regarding confidence and uncertainty.
Baseline Data	Appendix 2E - Air Quality TDR	Page 18	No climate data were collected from the project's air quality spatial boundaries, nor for the project footprint. Meteorological data collected to characterize the project's footprint and for modelling purposes do not necessarily reflect the projects conditions. This uncertainty is neither acknowledged in the discussion, and presumably was not accounted for in any quantitative analyses. Please provide a sensitivity analysis that can demonstrate the uncertainty is not influential on predicted outcomes.

Topic Heading	Document	Location	Comment
Characterization of Effects	Appendix 2E - Air Quality TDR	Page 9	PM10 should be considered as an additional key indicator due to the potential for generation of fugitive dust emissions during construction activities.
Mitigation, Monitoring and Management	Appendix 2G - FAFH TDR	Appendix A - page C-8	Highhat River has many important fish species and contributes directly to Sukunka River. Rationale for proposing isolation vs. trenchless crossing is warranted.
Mitigation, Monitoring and Management	Appendix 2G - FAFH TDR	Appendix A, p. C-11	Burnt River is proposed for possible winter isolation crossing for pipeline. We have significant concerns about crossing of any sort for this watercourse given the cultural and practical importance, but certainly do not support any in-stream construction in Burnt River.
Administrative and Organizational	Appendix 2G - FAFH TDR	Appendix B - general	Stream classification often has letter suffix D. (eg. S3D). This isn't defined anywhere. Is it "default" for fish bearing status?
Administrative and Organizational	Appendix 2G - FAFH TDR	Appendix B - general	The "NS" abbreviation isn't included in the Acronym (Appendix A). "Not sampled"?
Administrative and Organizational	Appendix 2G - FAFH TDR	Appendix B - general	Orthophotos lack UTM grids, makes it difficult to cross-reference to other map databases.
Administrative and Organizational	Appendix 2G - FAFH TDR	Appendix B - general	Creek crossings do not indicate fish species present unless actually sampled and caught by CGL (which was very infrequent). While Appendix C (Master Table of watercourse crossings) does include those species in the summary box, it creates an effect on the map of suggesting no fish present at most crossing locations, if one were to review this at a high level (e.g. public comments where individuals may be very time constrained).

Topic Heading	Document	Location	Comment
Baseline Data	Appendix 2G - FAFH TDR	Appendix B - sheet 12	Historic data points / FISS records show longnose dace in Dickebusch Creek and rainbow trout, mountain whitefish, slimy sculpin, and longnose sucker in Sukunka River near the crossing location. Provincial records also include arctic grayling, rainbow trout, longnose dace, burbot, bull trout, slimy sculpin, mountain whitefish, northern pikeminnow, redside shiner, Dolly Varden, longnose sucker, finescale dace, largescale sucker at the Dickebusch / Sukunka confluence (point not shown on map). Similarly, for the point that is shown at the Highhat River confluence with Sukunka, burbot, rainbow trout, white sucker, round whitefish, arctic grayling, slimy sculpin, mountain whitefish are all shown as present, whereas the application map only shows sub-set of known species. (source: iMapBC). Other historic points (Hatfield) that are shown on the map further upstream in Highhat do acknowledge MW, BB, GR, CCG, LNC, WSU, RB. Fish species are better summarized in Appendix A of the TDR (crossing master table), which shows 9 species present in Sukunka at this location, but iMapBC shows 11. This has potential implications for the timing window.
Mitigation, Monitoring and Management	Appendix 2G - FAFH TDR	Appendix B - sheet 17 and 18	ROW is in Sukunka Valley, along west side of creek, from km 89 to km 97 and again from 118 - 120. This is an area raised as very sensitive to Treaty 8 Nations' interests many times in discussion for this project and others. This is also the area where it crosses the Burnt River (km 96.5). Extraordinary mitigation is expected here. Cross-referencing the ROW stream crossing in this area to the Master Table recommendations in Appendix A (of Appendix 2G) and Section 8.4 of the EMP (Appendix 2A) for watercourse crossing mitigation, this section of ROW appears to have stock recommendations as opposed to specific prescriptions in light of the sensitivity of the area. We request site-specific crossings plans for all watercourses in these kilometre post ranges, and a cultural monitor from Treaty 8 membership to observe the work.

Topic Heading	Document	Location	Comment
Baseline Data	Appendix 2G - FAFH TDR	Appendix B, sheet 20	Many of the sampling zones are well off of the proposed route alignment in this section, (upstream and downstream), whereas others were assessed directly at the crossing point. Does this reflect route uncertainty or previous alignments?
Baseline Data	Appendix 2G - FAFH TDR	Appendix B, sheet 27	Provincial records show DV/BT present around crossings 134 - 140, but this is not shown on the maps. This is relevant as streams classified as potentially fish bearing via field assessment have least-risk timing windows but the species column of Appendix A shows nothing of potential species for these crossings.
Baseline Data	Appendix 2G - FAFH TDR	Appendix B, sheet 28	Crossing 42C was not sampled, and is classified as S5 (non-fish-bearing). Presumably this is based on the mapped falls downstream of the crossing location? But, it is very close to confirmed bull trout presence. Bull trout are very often found above barriers in resident fluvial stocks. So the ROW is either in direct bull trout habitat or is immediately upstream of bull trout habitat. Given the nature of the most likely crossing effects (near-field downstream sedimentation), and that bull trout are within the stated zone of influence for the project, should have timing window for works here.
Administrative and Organizational	Appendix 2G - FAFH TDR	Appendix D - general	Date of document is January 2014, but it is the "Field Crews Technical Orientation -Inventory Standards and Procedures" document. Field work was done in 2012 and 2013. The orientation document cannot therefore post-date the work.
Administrative and Organizational	Appendix 2G - FAFH TDR	Appendix D, general	Figures and large sections of text are copied verbatim from reports copyrighted by Province of BC and authored by industry professionals, without acknowledgement.
Methodology	Appendix 2G - FAFH TDR	Appendix D, page 1-2.	Instructions for field assessments at creeks states a downstream assessment minimum of 100m for creeks 1.5m wide or less and minimum 300m downstream for creek greater than 1.5m wide. This is inconsistent with page 4 of the TDR and also page 20 of the TDR. So in total there are three different versions of field methods.
Methodology	Appendix 2G - FAFH TDR	Appendix F, crossing 28B1	We opted to pick a random portion of the Appendix F datasheets for review, as it is not feasible to do so for each of the hundreds of creek crossings. Crossing 28B1 is purported as non fish bearing in the TDR, but is very close to Pine River (<2km). A 5m waterfalls exist

Topic Heading	Document	Location	Comment
			downstream of the site, electrofishing was done (607s), no fish were caught… but the sheet gives no information on the date and conditions of the fishing effort. Site is described as having "*unstable, highly erodible banks, numerous slumps impacting the channel*". Carry this over to Appendix C for list of recommended mitigation: "*standard for non-fish bearing stream*", and no timing window necessary. Numerous problems here: (1) we do not consider the sampling sufficient to conclude non-fish bearing here; (2) even if fish are absent, the work is in close proximity to fish downstream; (3) highly erodible banks and numerous slumps, given the location, seems to warrant more specific mitigation than "*standard for non fish bearing*". Please revise, or explain rationale here.
Baseline Data	Appendix 2G - FAFH TDR	Appendix F, general	Why only 25 stream crossing forms when the TDR refers to this Appendix as having field assessment forms for all the crossings?
Methodology	Appendix 2G - FAFH TDR	Appendix G and H	The Risk Management Framework for assessing impacts on fish includes "*limiting habitat or cultural, ceremonial, recreational or commercial importance*". SFN, WMFN, MLIB and DRFN have been vocal about the cultural importance of many areas, mostly notably major rivers. However there are many other areas throughout the Treaty 8 territory of cultural or ceremonial importance. It is not at all clear how this aspect of species dependence was incorporated, it is not described in the methods at all. Fortunately, CGL has been proactive in facilitating Traditional Use Studies for the project area with Treaty 8 communities. Unfortunately the EA was submitted before the incorporation of that information. This risk-assessment framework needs to be redone, using species dependence codes that take into account cultural and ceremonial significance. At present only the big main rivers get scores of 5.



Topic Heading	Document	Location	Comment
Methodology	Appendix 2G - FAFH TDR	page 4	Local study area of 300m downstream is OK for field-based planning but we do not support that this is the downstream extent of "zone of influence"; spills and sedimentation effects can be carried well downstream of 300m. Further, it is not clear why the LSA boundaries and the field survey boundaries are different (LSA = 300m downstream, field surveys extended "*at least 100m downstream*").
Methodology	Appendix 2G - FAFH TDR	Section 2.2.3	Setting the RSA to include the combined watersheds of Peace, Skeena, Kitimat and Fraser Rivers is appropriate at a mapping level. It implies - and rightly so- that the context of individual sub-component species must be communicated separately for each watershed. However to do so at such large spatial scope as these watersheds overlooks the direct and important relevance of fish species and habitat status as the sub-basin level, when considering potential effects on Treaty Rights and on Traditional Use. Seasonal rounds and habitual harvest areas by individual families has always been and must always be possible at spatial scales relevant to these groups. Thus it is impossible to perform an effects assessment of Traditional Use or Treaty Rights by evaluating biophysical impacts within the context of such large spatial area as the Peace River basin. At minimum, the RSA for interpreting effects in the context of these VCs must be done at at each large sub-basin to the four listed watersheds. For example, Sukunka Rive , Murray River, Pine River, Burnt River, Anzac River, Pack River, Crooked River, etc.
Administrative and Organizational	Appendix 2G - FAFH TDR	Section 2.3.2	Please change description of Williston Lake to Williston Reservoir.
Administrative and Organizational	Appendix 2G - FAFH TDR	Section 3.1	"*Protection of recreationally, commercially, and/or culturally important fish and fish habitat*" is not an indicator, it is a sub component. In fact, the species and habitat are a sub-component, protection of them is an objective. This is in keeping with the BC EAO guideline document from 2013.

Topic Heading	Document	Location	Comment
Methodology	Appendix 2G - FAFH TDR	section 3.1	Key indicators are actually missing here - they would be some proposed means to measure and communicate the status of these sub-component species.
Baseline Data	Appendix 2G - FAFH TDR	Section 3.2.3	Aboriginal Traditional Knowledge is presented as being a thorough process of preliminary information followed by ground-truthing with First Nations field staff. This section has to acknowledge that the comprehensive ATK is not possible without inclusion of the Traditional Use Studies carried out by the respective First Nations for this project. These TUS were generally not incorporated into the EA (and not for issues of confidentiality - which can be addressed - but because of the Proponent's desired timelines), which we consider to be rushed.
Methodology	Appendix 2G - FAFH TDR	Section 3.5.1, p. 20	We are satisfied with the methodology of assigning fish bearing status on conservative basis, but to use a gradient of 25% for fish barrier to upstream habitat is not appropriate. It's one thing to assign that 25% section of creek as non-fish bearing but there are many, many examples of fish presence upstream of that sort of habitat - particularly bull trout, Dolly Varden, cutthroat trout that can thrive in steep mountain streams.
Baseline Data	Appendix 2G - FAFH TDR	Section 3.5.1, p.20	Discrepancy in the description of field surveys here (100m upstream, 300m downstream) and on page 4, where downstream is 100m.
Methodology	Appendix 2G - FAFH TDR	Section 3.5.4, page 35	We do not agree with the methodology for assigning non-fish bearing (S5 or S6) status in cases where no fish were captured. Reference is given to MOE / MOF documents that were later adopted into the O&G regs (EPMR). However, regarding those guideline documents: (1) the provision of "upstream of a barrier" only applies if fishing has been exhaustive, or there is no perennial habitat upstream of the barrier; (2) the fish sampling to go along with that designation has to be sufficient, and sampling must be done in the conditions that would maximize the likelihood of capturing fish. This applies to both methods and timing. June 25 - July 24 sampling would be mid-freshet in many locations, and April sampling would be winter conditions in many locations (temp <4˚C). From page 52 of the TDR:

Topic Heading	Document	Location	Comment
			"*although the intent of the OWFP was to assess streams during open water conditions and sample for fish presence where applicable, crews encountered snow and cold water temperatures during April and May, including some sites which were still snow covered. At some sites the snowpack persisted until June*". This has important implications on the type of mitigation and habitat protection so it is necessary to reconsider the adequacy of fish-bearing designation.
Methodology	Appendix 2G - FAFH TDR	Section 3.6	Statement, "*where warranted, field crews collected info downstream for larger mainstems*". After reviewing the rest of the document(s), it is not clear where this actually was applied. Please clarify.
Methodology	Appendix 2G - FAFH TDR	section 3.7.4, p. 39	The characterization of effect duration ("the amount of time that a residual effect will persist") within the Risk Management Framework is not clear. Winter work is characterized as having the minimal duration effect since it is done before the growing season. It is given the same duration as no work at all, which is incorrect. However in-stream construction has potential for large sedimentation to downstream habitat and/or direct consequences on incubating redds. Strictly fluvial bull trout - particularly where adult size at maturity is less than 200mm - are adept at making use of seemingly benign, small creeks, and smaller spawning substrate than many people think. Areas of groundwater upwelling in small, snow-covered streams that may seem inconsequential may be active habitat. The duration of a large scale scour or burial of eggs would have a long term duration since it can affect multiple generations. There is also no consideration of riparian impacts, which will also be >1 year in duration. Please clarify if and how these concerns are addressed.
Methodology	Appendix 2G - FAFH TDR	section 3.7.4, p. 39	The method of ranking intensity based, apparently, squarely on the basis of least risk timing window is not explained.

Topic Heading	Document	Location	Comment
Methodology	Appendix 2G - FAFH TDR	section 4.5.5, p. 94	No explanation of how high-risk watercourse crossings are reflected in the specific mitigation for that crossing.
Mitigation, Monitoring and Management	Appendix 2G - FAFH TDR	Section 5.0, p. 95	"*The (BMP information provided in this section) will be the basis of detailed, site-specific crossing plans and recommended mitigation practices provided in the Application*". We have not found such site-specific information in the Application, just a long list of standard BMPs.
Baseline Data	Appendix 2I - Hydrogeology TDR	General	Disruption to groundwater flow where springs are encountered are identified as a potential residual effect in Section 7.8.1 of the application. The TDR provides no discussion of baseline data for springs, including the springs that have been identified by TEK. Springs are extremely important. Please provide baseline data for known springs that may be affected by the project.
Baseline Data	Appendix 2I - Hydrogeology TDR	General	It is our interpretation that effects to groundwater are less likely if trenching does not reach the water table. Thus, potential changes to groundwater quantity will be influenced by the depth to groundwater itself. The TDR identifies aquifers that may be affected, but does not provide information on the depth of the water table; if the water table is at greater depth than the trenching depth, groundwater flow may not be affected at all. The lack of baseline data or interpretation of depth to water for aquifers crossed by the project made conclusive technical review of this section very challenging.
Baseline Data	Appendix 2I - Hydrogeology TDR	General	Groundwater quality data includes little to no information on hydrocarbons, which presumably are the potential contaminants of concern. Please clarify if your assumption is that there is currently no hydrocarbon contamination along the proposed route.
Baseline Data	Appendix 2K - Wetlands TDR	Section 1.3.1	The Wetlands TDR acknowledges that no field surveys were conducted between KP 522 and 592 (70km of the Project route) due to active protesting activities and concerns for worker safety. Mapping for this area show extensive wetland ecosystems through which the proposed Project alignment occurs



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			(particularly between KP 555 to 575). The absence of field-collected data across 70km represents a notable gap in ground-truthed data potentially resulting in inconclusive assessments of wetlands, ecosystems of conservation concern, and plant species at risk. Please clarify how this gap will be addressed.
Baseline Data	Appendix 2K - Wetlands TDR	Section 2.5	The report indicates that 413 of the 2,225 detailed/ground/visual plots were observed during the TEM field surveys. Section 2.5 (p. 25, line 13) indicates that 541 wetlands were surveyed for wildlife habitat, but there is no indication that these assessments covered wetland function within the context of this VC. Presuming the same detailed to ground to visual plot ratio applies to the 413 wetland plots during the TEM surveys (i.e., 5 : 20 : 75), this would suggest that only 20 detailed wetland-focused plots were completed for the Project LSA. This is 20 wetland detailed plots across a total LSA of 133,400ha (667km x 2km = LSA), of which 12,511ha are known to be wetlands (Section 1.4.2, Page 15, Line 2). If this assumption is accurate, it is our opinion that the level of effort invested in ground-truthing wetlands in the LSA means there is significant uncertainty in the Application's conclusions for this VC. Please confirm the number of detailed to ground to visual plots completed in the 413 wetland plots surveyed, and please provide greater rationale for the confidence presented in the conclusions.
Administrative and Organizational	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.1, page 28	The methods section in the TDR for wildlife and wildlife habitat incorrectly defines the wildlife species/groups listed in this section as Key Indicators. Based on BC EAO methodology, wildlife species/groups are not indicators, rather they are sub-components. The BC EAO Guideline for the Selection of Valued Components and Assessment of Potential Effects defines indicators as "*metrics used to measure and report on the condition and trend of a VC and (furthermore) should be clearly identified to further focus and facilitate the analysis of interactions between the project and the selected VC. Indicators are distinct from sub-components that may be used to facilitate the assessment of a broadly defined VC; for example, for a*

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			broadly defined VC such as wildlife, individual species or species groups (e.g., grizzly bear or large carnivores, Northern Goshawk or avifauna, Western Toad or amphibians) may be used as sub-components to structure the assessment."
Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.5.1, page 35	Regarding the analysis of remote camera data, what are the assumptions of the occupancy models? How were these assumptions met?
Baseline Data	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.5.3, page 39	Baseline surveys for raptor nests may have underestimated the number of nests occurring in the LSA. As per RISC methods, although aerial surveys are efficient for searching large areas in a short period of time, boat or foot surveys should be used at least in part of the census area as a correction factor and to verify nest site locations (Inventory Methods for Raptors, Standards for Components of BC's Biodiversity No. 11, October 2001, Version 2.0). Please note that the AIR committed to adopting this protocol.
Baseline Data	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.5.3, page 39	Helicopter (aerial) surveys are not an appropriate method to survey for Great Blue Heron nests. As per RISC standards, aerial surveys can be used to detect Great Blue Herons foraging on tidal flats, lakeshores and open fields; however it is not feasible to survey breeding colonies for number of active nests (due to sensitivity during breeding). Helicopters are also not suitable for aerial surveys of GBH due to the high-degree of disturbance caused by low-level flights (Inventory Methods for Colonial-Nesting Freshwater Birds: Eared Grebe, Red-Necked Grebe, Western Grebe, American White Pelican, and Great Blue Heron, Standards for Components of BC's Biodiversity No. 8, March 1998, Version 2.0). Please note, the AIR committed to adopting this protocol.
Baseline Data	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.5.5, pages 42 and 43	The standard protocol for surveying for Yellow Rail and American Bittern (Presence/Not Detected) in BC is by nocturnal call playback or call playback respectively (Inventory Methods for March Birds: Bitterns and Rails, Standards for Components of BC's Biodiversity No. 7, October 7, 1998, Version 2.0). Given

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			that the methods used to survey for these species varied from the RISC methods (i.e., use of acoustic monitoring) please provide some rationale as to why these methods were selected over the BC standards that were committed to in the AIR.
Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.6.6, page 116	How were ponds and lakes defined for the basis of model development and what was the rationale behind assigning them a nil habitat rating? Depending on size and vegetation characteristics ponds/lakes may provide suitable habitat for wetland birds.
Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.6.6, pages 84-87	Were ratings adjustments for sensory disturbance considered for the Band-tailed Pigeon model? If yes, what was the rationale for adjustments not being made? Presumably breeding habitat suitability would be reduced near the Project footprint during the construction phase.
Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.6.7, page 130	Only land within a designated or proposed mountain goat ungulate winter range (UWR) or wildlife habitat area (WHA) was considered suitable mountain goat habitat within the project study areas. Given that there is likely suitable mountain goat habitat outside of these areas we would argue that the assessment of potential adverse effects will underestimate the impact on mountain goat habitat.
Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.6.7, page 141	Downgrading contiguous areas with ratings 1, 2 or 3 that were <15 ha to nil is not precautionary for the marten habitat suitability model. This is considering the reference used here (i.e., Synder and Bissonette, 1987), which reports that some marten detections were in habitat patches <15 ha. This would mean that the baseline habitat conditions have a bias to underestimate suitability for this sub-component species.
Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.6.8, page 153	It does not seem reasonable that structural stage 2 was rated nil within 500m of suitable streams. As discussed in the Habitat Use and Life Requisites section, coastal tailed frog are known to use clearcut areas adjacent to suitable streams. Since structural stage 2 ecosystems are early successional stage or herbaceous communities maintained by environmental conditions or disturbance that resemble clearcuts communities (Standards for Terrestrial Ecosystems Mapping in BC. 1998) it seems logical that they would provide some terrestrial habitat value to coastal tailed frogs.

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Methodology	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 3.6.8, page 159	A limitation of both the western toad and pond-dwelling amphibian models is that smaller ponds, although assumed to provide habitat, are not captured due to the inability to map these smaller habitats. Were any adjustments made in the model to account for this limitation? If not, please provide additional comment on whether this has potential implications for ultimate conclusions (e.g. sensitivity analysis in light of the uncertainty).
Administrative and Organizational	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 4.2, pages 172 - 177	This section is very repetitive largely due to the fact that it is organized by LRMP. It seems that it would have been more appropriate to organize the information by aboriginal communities.
Baseline Data	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 4.2, pages 172 - 177	The ATK described in this section is very general and rarely specific to individual First Nation communities as it seems to rely heavily on desktop review of third party reports and not TUS. In light of the fact that project-specific TUS studies are either in process or have been completed post-Application, we would like a commitment from CGL to review and potentially revise their Application upon consideration of all outstanding TUS studies, prior to construction.
Mitigation, Monitoring and Management	Appendix 2L - Wildlife and Wildlife Habitat TDR	Section 4.3 and 5.1.2	There are several tables in these sections that list issues and concerns identified by First Nations on particular segments of the pipeline route including requests for avoidance or buffers to be established around particular wildlife habitat features. It is important that these and ongoing input from First Nations be considered in the mitigation section for wildlife and wildlife habitat. It is not clear how these specific requests were addressed further on in the Application beyond very general statements along the lines of "First Nations concerns have been considered"
Methodology	Section 1	page 1-50 to 1-68	The AIR (p. 3 to 4) includes a commitment to use the listed evaluation criteria for this section. The Application (p 1-50 and 1-51) includes a similar but altered list of 22 criteria. More importantly, the listing of those 22 criteria is followed in the Application by a lengthy but difficult to follow timeline of how the

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			current route has been chosen. There is neither a detailed nor a structured account for how the listed criteria (either those from AIR or the ones outlined in the Application) are actually applied to the assessment. Given the number of pipeline projects proposed through Treaty 8 territory, comparison of alternative routes takes on a particularly high importance in the EA process. If additional time had been taken to better incorporate TUS for Treaty 8 communities, additional avoidance/mitigation measures for high-use areas could have been explored in a more comprehensive way. This should still be undertaken. The Treaty 8 nations - and many others - have been advocating for planned routing comparisons that will eliminate the unnecessary redundancy and extensive cumulative impacts on biophysical and cultural receptors that will arise from this stovepipe method. The lack of a structured comparison of alternatives, including not only identification of how different alternatives were identified but also then how they were compared to each other, is therefore a notable deficiency in the Application.
Effects Characterization	Section 1	Page 1-89	AIR committed to including "*projected benefits for Aboriginal economic development, including employment, contracting and business development, including small and medium sized enterprise*". The Application actually includes very scant detail on the specific projected benefits other than an intended course of action, such as to create Aboriginal hiring quotas for general contractor(s). Two problems here: first, it is the old standard model which has proven to provide fairly limited and very transient benefits to Aboriginal communities. Second, seeing as how the old model IS being pitched, then there should be information available to present projected benefits to Aboriginal groups in a much more detailed way based on past precedent and available data. Compare the level of research and methodology for this section as a Socioec KI compared to other more routinely applied disciplines. Aboriginal communities are arguably the groups most affected by the project, and the consideration of project benefits against impacts is a key

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			foundation of the assessment. This information gap is therefore highly material to the ability for EAO to complete this assessment properly, and should be addressed in parallel with ongoing government-to-government discussions and further consultation by the Proponent.
Administrative and Organizational	Section 1	Section 1.2.2, page 1-15	The number of pioneer camps doesn't add up (i.e., the Project Descriptions states that approximately 15 pioneer camps are needed for the Project, with 6 to be located in non-mountainous terrain and 14 in mountainous terrain).
Administrative and Organizational	Section 1	Section 1.4.3, Table 1-6	There is an explanation missing for pipeline section KP 24.1 to KP 26.5 under the column "Reason for Application Corridor Width." The Application width proposed for this section is 500m so presumably there are some major constraints being considered here (e.g., river crossing) – it is important from the reviewer's perspective to know what these are. Please clarify.
Methodology	Section 10	Section 10.1, pages 10-1 and 10-2	This section gives a very general description of the scoping process and although it describes the basis for selecting sub-components to assess within the wildlife and wildlife habitat VC, the section does not provide rationale for inclusion/exclusion of selected or considered sub-components (e.g., Species X was included because it is at-risk and is important to trappers; or, conversely Species Y was excluded because...). Documenting and providing rationale to support inclusion/exclusion of VCs and sub-components is important to provide assurance that species/species groups raised in the scoping process by stakeholders were considered. This rationale has not been provided to date for the CGL project (i.e., not found in the VC scoping doc, AIR, TDR or Application).
Administrative and Organizational	Section 10	Section 10.10.2, pages 10-102 and 10-103	Although we understand the context that this provides in this section of the Application, the bullet points summarizing typical movement patterns of pond-dwelling amphibian species would be more appropriate in the Wildlife and Wildlife Habitat TDR.

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Methodology	Section 10	Section 10.12	With regard to the determination of significance for wildlife and wildlife habitat sub-components, the Application is contradictory. It states that "*in the absence of accepted thresholds or standards for assessing the significance of residual adverse effects on wildlife key indicators, a qualitative significance threshold has been defined.*" A paragraph later the Application provides this definition of significance "*Potential residual adverse effects are considered not significant when they: do not exceed accepted biological thresholds or standards...*" If there are no thresholds or standards established for wildlife sub-components as stated earlier, how can the definition of significance include a decision as to whether potential residual adverse effects exceed accepted biological thresholds or standards? We find that the determination of significance is not clearly documented or explained in the Assessment. As per EAO guidelines, where legislated or regulated thresholds do not exist the significance definition should consider relevant VC-specific factors, such as population integrity, resource management objectives or other appropriate factors. The Application provides related information in other sections for wildlife sub-components, however it has not been clearly linked to definitions or determinations of significance. The assessment should identify the relevant VC-specific factors and explain how they were considered in the determination of significance. This methodology would also lend itself to thresholds that may vary by region. We believe this is necessary to avoid overly-generalized conclusions that can arise through very large geographic projects, and also as a means to effectively assess impacts on Traditional Use and Treaty Rights at the appropriate scale.
Cumulative Effects Assessment	Section 10	Section 10.14.1, page 10-174	Cumulative effects on Mountain Goat are underestimated as they only consider impacts to within UWR and WHAs.
Cumulative Effects Assessment	Section 10	Section 10.14.4, page 10-179, Table 10-27	As for the assessment of potential residual effects, the criteria for the cumulative effects assessment have not been defined (e.g., how is medium defined with respect to magnitude, when

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			"environmental or regulatory standards" that are embedded in the magnitude definition on p. 3-23 are not defined?).
Methodology	Section 10	Section 10.3.1, page 10-20, Table 10-4	The Application states that the "*spatial Footprint was defined as a 100m wide corridor, which would encompass the permanent ROW and likely temporary workspace, in addition to proposed permanent facility locations." Section 1.4.13 defines temporary workspace to include equipment storage, laydown areas, borrow pits, timber salvage and decking sites, and temporary construction camp facilities*". These areas can collectively create a much larger footprint than what is considered in the effects assessment. Construction camps alone are predicted to range from 1.5ha to 25ha as indicated in Table 1-7 of the Project description and approximately 25 of these camps are needed. The clearing for these additional areas and the subsequent loss of habitat could have a huge impact on wildlife that may not be considered in the effects assessment. We consider this to be a significant gap in the assessment and request that correction be made accordingly prior to any decisions being rendered.
Methodology	Section 10	Section 10.3.1, page 10-21, Table 10-5	Table 10-5: Study Area Segments and Project Components Corresponding to Key Indicator – this table should include roads and ancillary sites under Project Components for each of the wildlife species/groups since roads and ancillary structures will also impact many of these species. Roads and construction camps in particular can have specific and large impacts on wildlife and do not appear to have received due focus in this Application. We are concerned the Application underestimates the effect of the Project on wildlife and wildlife habitat (and by extension other related VCs such as Traditional Land Use).
Methodology	Section 10	Section 10.5.1, page 10-29	The Application states that "*caribou, mountain goat, grizzly bear and wolverine were specifically identified [by Aboriginal groups] as sensitive species that might be displaced from the vicinity of the proposed Project as a result of construction activities*." However, wolverine was not included as a sub-component - please provide rationale as to why wolverine was not considered in the assessment, as we believe it warrants specific consideration from a project-level and cumulative effects level.

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Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	The second mitigation point listed in this table is as follows "*Complete pre-construction wildlife surveys to identify habitat features that warrant site-specific mitigation. Survey locations should be selected to focus on habitats or segments of the proposed route determined to have the potential for occurrence of site-specific habitat features that could be adversely affected by the proposed Project.*" This is a measure where it would be valuable to include the input from local FNs. Reliance on habitat mapping would not identify site specific habitat features such as game trails, or other small features that cannot be identified through habitat mapping. All segments have the potential to have site-specific habitat features important to local wildlife. Similarly local FN input would be valuable for identifying where wildlife gaps should be placed in windrows as a measure to mitigate impacts on wildlife movement.
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	The mitigation measures identified here for sensory disturbance to wildlife should consider additional measures including implementing noise restrictions at construction camps, blasting restrictions in wildlife habitat during sensitive life cycle stages and for wildlife sensitive to noise (e.g., mountain goats) and ensuring that pilots during construction and operation use procedures that mitigate disturbance to all wildlife. We consider these to be highly important measures related to wildlife movement patterns and consequently availability from a Traditional Use perspective.
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Barriers/Filters to Wildlife Movement during Construction – if trenches need to be left open for extended periods of time an attempt should be made to prevent wildlife from falling and becoming trapped in the trench (e.g., temporary fences combined with wildlife overpasses, temporary covers stable enough for wildlife to cross etc.)
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Please commit to more stringent guidelines for speed limits and minimum height thresholds for potential wildlife barriers (e.g., windrows and snow berms) than the BC OGC, 2013 guidelines. The chances of avoiding wildlife during winter driving conditions

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			at 80km/hr does not seem realistic. Also, the “critical” barrier height for moose has been identified as 60cm (Peek et al., 1982) which is considerably less than the 1.5m minimum height threshold that triggers the creation of gaps as identified in the Application. Reference: Peek, J.M., Scott, M.D., Nelson, L.J., Pierce D.J. and L.L. Irwin. 1982. Role of Cover in Habitat Management for Big Game in Northwestern USA. Transactions of the North America Wildlife & Natural Resources Conference 47: 363-373
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Caribou Range - Local First Nations site-specific knowledge should be incorporated into the monitoring program to monitor the effectiveness of reclamation and access control efforts as part of Post-Construction Monitoring.
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Mountain Goat – additional mitigation measures should include implementing blasting restrictions in mountain goat habitat during critical life periods; adherence to helicopter procedures to mitigate impacts to mountain goat during construction and operation; and monitoring mountain goat behaviour if there are potential adverse effects to mountain goats during Project activities.
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Migratory Birds – the breeding bird window referenced here varies from the 2012 BC Ministry of Environment "Develop with Care Guidelines", which identify the least risk window for passerines as September 1 – February 28 (i.e., March 1 to August 31 breeding period). Also, least risk windows may vary according to Ministry Environment Region within the province. The Project should consider the appropriate least risk windows identified for each region.
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Migratory Birds – setbacks/buffers from identified active nests should be determined on a species-specific basis by a Qualified Environmental Professional (e.g., R.P.Bio. with suitable applied expertise).

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Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Raptor and Owl Nests – least risk window for "other raptors" is identified as October 1 - February 28 in the 2012 BC MoE Develop with Care Guidelines (not October 1 – February 15 as identified in the Application).
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Bear Dens – We request that the Application be revised to include additional measures to mitigate impacts on bears during denning season, specifically including the implementation of blasting restrictions and establishment of no-go areas in high-potential denning habitat.
Mitigation, Monitoring and Management	Section 10	Section 10.6, Table 10-6	Environmental Inspection and Monitoring – All project personnel should be responsible for recording and reporting on wildlife sightings, encounters, issues and collisions. Reporting should not just be limited for species with special conservation status.
Effects Characterization	Section 10	Section 10.9, page 10-64	This section of the Application indicates that selection rationale for each wildlife and wildlife habitat VC sub-component (referred to in the Application as key indicators) are described in the Wildlife and Wildlife Habitat TDR, however we find that rationale was not adequately provided. This extends to the exclusion of certain species identified during First Nations consultation as important, such as wolverine. The general selection process that is provided in the TDR implies many cases of subjective judgement, but the rationale behind each of the sub-components is absent. This is necessary for transparency of process.
Administrative and Organizational	Section 10	Section 10.9.1, page 10-80, Table 10-9	"Effective habitat" in this section is not clearly defined. We have assumed it refers to habitat that is given a habitat suitability rating of moderate, moderately high or high. Please confirm.
Effects Characterization	Section 10	Section 10.9.1, Table 10-9	Again we would argue that Mountain Goat habitat is underestimated in this assessment because only designated/proposed UWR was used in the area analysis. Habitat suitability modelling based on TEM (similar to what was completed for other wildlife sub-components), would have provided a more accurate quantification of mountain goat habitat.
Cumulative Effects Assessment	Section 10	Section 10-17, page 10-207	As for the assessment of potential residual effects, the determination of significance is not clearly documented or

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			explained in the Application. It is not possible to provide final comments given the ambiguity in CEA.
Baseline Data	Section 10 and Appendix 2L	General	There are no figures provided in either the Wildlife and Wildlife Habitat Technical Data Report or the Application showing the results of the habitat suitability mapping at baseline or with the Project footprint applied. It would be helpful to provide reviewers with a visual representation of the modelling at an appropriate scale (e.g., 1:20000) so that it can be compared to known existing habitat conditions.
Effects Characterization	Section 16	General	The Working Group meeting on April 11, 2013 included a request by OGC that trapping and hunting data be included in the Application. These are quantitative data available from regional regulatory staff and provide measurable parameters that vary over space and time. These data should be used to supplement the completed Traditional Use Studies by each of the participating nations to refine the understanding of resource use intensity in space and time. This would consequently provide an ability to actually assess potential impacts on resource availability in a way that is meaningful to respective First Nations and the family groups. Note, this has intrinsic relation to impacts on Aboriginal Rights and Title and/or Treaty Rights.
Effects Characterization	Section 20	20-43	Human receptor locations were identified as farms and residences around the compressor stations. What about transient users that are closer to the exposure source and receive higher dosage but for shorter periods? If it is decided that there is not a need to consider such users that may camp/hunt/fish/trap in areas closer to the stations, then this should be clarified as it is a valid effects linkage.
Administrative and Organizational	Section 20	General	The whole section about standards/guidelines that are used for each media are really not necessary here. With the exception of a few media (air quality, sediment and noise), there is no use of the other standards/guidelines discussed in this section in the remainder of the Application. This contributes to the extensive irrelevant information in this section. It should be more general

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			and just reference the jurisdictions etc. that were relied on when doing this report. It was at times difficult to make sense of this Section for review, and if other edits are necessary we would appreciate editorial revision for overall clarity of this Section.
Administrative and Organizational	Section 20	General	A statement at the outset of the HHERA is necessary to explain how and why catastrophic events were not considered in the HHERA, as it is clearly scoped to only include routine activities.
Methodology	Section 20	General	There is no consideration of humans that may be in the area of the pipeline. The only receptors that are discussed in the HHERA are those that live in areas within the study boundaries, however the Application does not address individuals that may be closer to the pipeline while they are conducting activities such as hunting, fishing camping etc. Although they have limited exposure as they are in this area for a small amount of time, discussion regarding this receptors is needed where exposure that is considered insignificant is included.
Methodology	Section 20	General	There is no consideration of workers as receptors. Is this dealt with elsewhere in the Application? Effects pathways on workers should be scoped into the Application, particularly as Treaty 8 Nations have been advised that jobs for their citizens will be a key benefit of the Project.
Methodology	Section 20	page 20-1	The term Conceptual Site Model is used, but it is not defined or clearly presented. The CSM is an integral part of an HHERA and thus it should be clarified that it is what underpins the entire HHERA. It is essentially the point of a screening level Risk Assessment, as it summarizes the following key items: (1) location and type of contamination/stressor, (2) Potential receptors, (3) Potential exposure pathways between receptors and contaminants. It defines the specific contaminants/ stressors and associated pathways that require quantitative assessment with respect to the potential to cause adverse effects.
Administrative and Organizational	Section 20	page 20-45	Line 11 references Appendix B, Table B-4, but there is no Table B-4. This makes it difficult to confirm the statement "*No exceedances of the standards/guidelines for the locations of identified receptors*".

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Methodology	Section 20	Section 20.4, in general	The use and consumption of resources by First Nations communities is a gross over-simplification of actual usage, spatially and temporally. While our subsequent review of the HHERA agrees with the general conclusions that the risks are low enough to not warrant detailed quantification of exposure, we would like it clearly acknowledged in this section that the "*publicly available ATK"* summarized in this section does not represent the usage or views of Doig River First Nation, Saulteau First Nations, West Moberly First Nations, or McLeod Lake Indian Band.
Effects Characterization	Section 20	Section 20.6, General	There is no consideration of direct exposures to spill materials. Many of the exposure pathways have been dismissed as irrelevant based on perfect implementation of mitigation (e.g., assuming that spills will be cleaned up perfectly, or avoided altogether). However, spills can occur in areas where there are receptors, thus there is a potential for direct exposure. Although the number exposed is likely to be limited, this should be discussed. There should be distinction between scenarios where no exposure is anticipated: incomplete exposure pathway (i.e. ARD - mitigation avoids mobilization of metals to the environment, subject to post-construction confirmation) and those where some exposure could occur but number of receptors exposed would be small (spills): completed but insignificant exposure. This ties in with the above comment about Species at Risk.
Methodology	Section 20	Section 20.6, General	Discussion pertaining to the protection goal/level for the Ecological Risk Assessment is needed. We have assumed that protection at a community level is the objective, as opposed to a more stringent goal of protecting individual organisms. Since events such as spills could potentially affect a few organisms that may be in the area of the spill (i.e. plants in the spill zone), protection goals on an individual basis would not be met. Protection goals on a community basis is generally the approach used in ERAs, however protection levels for endangered species is at the individual. Given this, discussion of potential exposures

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			to endangered species is needed and risk associated with these exposures (if complete exposures are identified) should be discussed/evaluated. This extension of the ERA should be achievable using existing assessments on Species at Risk from the terrestrial and aquatic biophysical sections of the Application.
Administrative and Organizational	Section 20.6.1	page 20-47	We do not agree with the statement on line 21, "*exposure to a stressor must be of substantial magnitude and duration in order to elicit a biological effect*". This should be revised to reflect that effects can occur at low levels of exposure.
Effects Characterization	Section 20.6.1	page 20-57	There is no mitigation for use of herbicides listed. We do not, in fact, support use of any chemical herbicides as the water and fish in Treaty 8 territory are already highly stressed. But specific to this point, wildlife can ingest treated weeds, which creates adverse effects on wildlife and indirectly, an exposure pathways on traditional land users.
Methodology	Section 21	21.3, p. 21-30	The section on pipeline leak / failure in accidents and malfunctions is of considerable interest to our communities. We appreciate the new quantitative review of historical failure rates provided in the revised application. Rates are provided for "failures" and "significant failures", in units of incidents per 1000km of pipeline. Please define this categorization of "failure" vs "significant failure". It is noted that in the past decade, 29% of failures have been "significant" failures (CEPA, 2013a).
Methodology	Section 21	21.3, p. 21-30	Failure incidents are provided as incidents per 1000km of pipeline. We followed up with the cited source of these rates (CEPA, 2013a): rates for 10 year period are climbing. Mean rate for 11 years from 2002 through 2012 was 0.29 failures per 1000km of line. Using this as a mean value for predictions, this equates to a failure of the 650km CGL line in approximately once every 5 years. Based on this, the "likelihood" within the risk assessment matrix (as per Table 21-1) would be "may". We acknowledge that this calculation is using statistics from a wide range of existing pipelines and that this ignores the necessarily related likelihood of the rupture then also having an adverse impacts on a VC, but if TransCanada is able to provide better



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			predictions, please do so. It is a necessary aspect to proper communication of risk for a project that travels through pristine areas of Treaty 8 territory.
Methodology	Section 21	21.3, p. 21-30	Similar to above, please provide some description for the nature of the 42 pipeline failures within TransCanada's pipeline network since 1990. This will assist in understanding the typical nature of such an event, were it to occur on the CGL line.
Methodology	section 21	p. 21-32	Line 5, refers to the CGL lines having to cross over or under numerous other pipelines, one of which carries "*an unknown substance*". Can CGL provide more details on this unknown pipeline? (related to interpreting the risk).
Methodology	Section 21	page 21-3	Applications states that "*The assessment of likelihood and consequence is based on historical trends and predictive models, if available*". No follow up found (yet) on this statement… where were predictive models used?
Methodology	Section 21	page 21-3, table 21-1	Methods for characterization of likelihood has categories of "may" (event every 3 to 5 years), then "unlikely" (once during the lifetime of the project). This project includes a proposed 30+ year operational life, likely longer - so there is a gap here in how one would classify decadal-cycle events. Because the methodology is such that this gap also includes a cut-off between high and medium risks (Table 21-2), it does have potentially influential outcomes on the proponent's risk assessment process.
Mitigation, Monitoring and Management	Section 21	page 21-4	"*where uncertainty exists in the conclusion of risk, appropriate follow up and monitoring programs are provided*". We do not believe this statement is accurate. Uncertainty in risk is not accurately acknowledged, nor is it clear in cases where it is acknowledged that monitoring programs have been developed in light of that uncertainty.
Effects Characterization	Section 21	Table 21-3	The interaction matrix identifies many possible VCs that would interact with project accidents, but many of these aren't explained in the assessment of effects. E.g., how would a rupture impact groundwater, given the explanation that it is non-

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			toxic, low-soluble and would dissipate to atmosphere immediately?
Mitigation, Monitoring and Management	Section 21	Table 21-4 and 21-5	Generally satisfied with approach to spills under "accidents and malfunctions", depending of course on the diligent implementation of a spill prevention and response plan. However, would note that the likelihood of a small spill must realistically be considered "almost certain", regardless of mitigation. That is not to say, however, that mitigation and preparedness are lost causes. Given the proximity of much of the work to watercourses, we request commitment to only using biodegradable hydraulic oil within RMZs. Not sure if this is already included in the management plan(s) anywhere, but didn't see it. Research shows conclusively the toxicity of biodegradable hydraulic oil is an order of magnitude lower than petroleum based lubricants (Cecutti and Agius, 2008).
Mitigation, Monitoring and Management	Section 25	page 25-4, and most of Appendix 2A - App C	For the record, we strongly agree with the statement that "*the environmental monitoring program is a key component of the Coastal GasLink environmental compliance strategy*". Furthermore, the contingency planning and management plans all have a significant amount of professional discretion, as opposed to a prescriptive approach. We support this approach but only on the condition of sufficient qualification. Given the geographic size, intensity of construction activity, and diversity of disciplines involved, it is fundamentally important that the mitigation identified is undertaken by experienced professionals, with sufficient financial and human resources, and logistic and regulatory support, to do the job effectively.
Mitigation, Monitoring and Management	Section 25	page 25-5	The availability of resource specialists to assist the environmental inspectors is positive. A main challenge with this sort of model is that it puts considerable onus on the environmental inspectors - often generalists, or trained specifically in environmental monitoring - to understand when and where to call in resource-specific specialists. Conversely if the specialists are enabled to be reviewing and planning work ahead of the construction process - aided by the Application and



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			by site-specific work plans - then there are better odds that potential incidents can be avoided instead of responded to once there is clearly an issue with construction in progress. Also, some of the mitigation measures are quite subjective (particularly where weather-dependency is involved), and the EI must be given clear authority to make decisions, knowing that contractors have been briefed on the rationale for such decisions. In general, the extent of monitoring and contingency planning is formidable, but necessary to achieve the desired outcome. It has been our experience that this level of planning and mitigation can conflict with construction schedules. We urge CGL and BC EAO to demonstrate some forethought for implementation and compliance monitoring, if this project is going to be approved.
Mitigation, Monitoring and Management	Section 25	Section 25.2, page 25-11, Table 25-2	One of the main concerns raised by Treaty 8 Nations and many others was the increase of predation on ungulates by wolves – monitoring this effect should be included in the post-construction monitoring program. The program should include ongoing communication with the local FN and other hunters, trappers and resource users in the area. Without information from the local community on wildlife there will not be a comprehensive understanding of ongoing impacts on wildlife including this particular effect.
Methodology	Section 3	Section 3.1.2, Table 3-2 Identified Spatial Boundaries of Valued Components	The Project Description (Section 1.4.3) describes the Application corridor width as varied (i.e., between 150m – 2000m) to allow for flexibility given constraints identified in particular areas (e.g., watercourses, challenging terrain etc.). The LSA and RSA for wildlife and wildlife habitat is narrower than this corridor width. Please confirm that any route alterations that fall outside of the LSA will be the subject of supplemental assessment.
Effects Characterization	Section 3	Table 3-5 / p 3-22, and all disciplines that follow	We are unable to find clear definitions for the criteria used for characterizing residual effects. In the case of 'context' according to 2013 EAO Guidelines for the Selection of Valued Components and Assessment of Potential Effects, the Application should, with regard to context, "*indicate the level of sensitivity and/or*

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			resilience (e.g., using qualitative terms, like 'low', 'medium', or 'high', clearly defined for each VC [or sub-component]), and explain the factors contributing to the ranking of sensitivity and/or resilience." The Application describes a supporting narrative for context, however the ranking is not there and the intent of including context appears to have been dismissed. Similarly we find the 'magnitude' ratings are neither quantitatively nor qualitatively described, nor accompanied by distinct definitions with respect to each VC (the definitions of each level of magnitude may vary by VC). Magnitude ratings have been assigned in Table 3-5 in relation to "*environmental and/or regulatory standards*", but in most cases no clarification is provided as to what these standards may be for VCs or sub-components. Without a clear definition of criteria the nature of residual effects cannot be clearly understood, and the conclusions are not supported by a transparent and logical application of EA methodology.
Cumulative Effects Assessment	Section 3.8.9	CEA	In checking the assumptions that went into the calculations for cumulative effects assessment on riparian areas, we note that ROW for pipelines is considered 20m. However, the Project ROW is given in the Project Description as 32m, and temporary construction clearing (e.g. riparian impacts) at 60m, and 100m for "major watercourse crossings". Presumably this will also be the case for the other pipelines included in the cumulative effects assessment on fish and fish habitat. So this calculation, and therefore the conclusions, are not based on accurate assumptions.
Methodology	Section 5.7	page 5-54	The set of defining criteria for identifying and classifying PAG is narrow. While there is supporting literature (e.g. Price, 2009), these criteria should be used for screening, as opposed to diagnosing, PAG. In fact, the cited reference, Price (2009), states on p. 14-11: "*procedures that specify which criteria are to be used in calculating the AP and NP without due consideration for site specific factors may produce errors if the selected analyses are insufficient or inappropriate for the site conditions*".

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			As above, we request that the adequacy of qualification by the "trained personnel" be externally vetted for this project, prior to earthworks beginning.
Methodology	Section 5.7	page 5-54	"*Because no potential residual environmental adverse effects … are expected, a summary of the characterization of potential residual environmental adverse effects of the proposed Project on ARD is not required.*" This is an overly narrow outlook. The Application appears to consider ARD strictly a construction planning issue that does not warrant post-construction follow up, given the screening-level mitigation that is proposed. We do not consider the confidence in these conclusions to be as high as what is presented in the Application, and request that follow-up monitoring for ARD be added to the conditions of Certificate, if granted. Linear projects are different than mines in that they can involve long, funneled exposure pathways. The persistent and serious ARD issues following construction of Highway 97 are a good example: this was a modern-day project (presumably with what seemed like reasonably strong environmental planning) and yet the ARD problem was not identified until well after construction.
Mitigation, Monitoring and Management	Section 5.7	page 5-54	We are reasonably comfortable with the desktop review of ARD generating potential, but wish to emphasize the importance of following through with the field assessment. There will be heavy reliance on the "*trained personnel will visually inspect the rock for presence of sulfide mineralization*" (p. 5-54), and ARD is a topic that does indeed rely very heavily on the level of training by the practitioner. The individual(s) should be able to identify more than just sulfide mineralization, given the complexity of ARD. We request that the personnel assigned to this task be identified and their qualifications verified by BC MFLNRO prior to the field work. ARD is best managed by AVOIDANCE. Once encountered, it is extremely problematic to contain and/or stop.
Methodology	Section 6	Page 6-34	Surface water and soil acidification resulting from NOx emissions is not identified or considered in the effects assessment. Please provide credible rationale for this exclusion.

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Mitigation, Monitoring and Management	Section 6	Page 6-36	Mitigation strategies for managing fugitive dust during construction are lacking. Provide additional recommendations if access to water for spraying is not available or practical. Additional mitigation strategies are required to manage fugitive dust for clearing and grubbing stage, and not just for when clayey or silty sub soils are exposed. This was reviewed in the context of Air Quality but the implications carry forward to vegetation, wildlife, fish resources and human health.
Mitigation, Monitoring and Management	Section 6	Page 6-36 and 6-37	Mitigation examples provided in the Air Quality TDR are not referenced in Section 6. This includes: use of low sulphur fuel and deployment of tall stacks for compressor engine exhaust.
Characterization of Effects	Section 6	Page 6-39	Increases in VOC concentrations resulting from emissions associated with scheduled and unscheduled maintenance at compressor, valve, metering and pigging stations are expected. Details should be provided on expected frequency and duration of venting to justify the statement that the magnitude will be low. Modeling of venting should be included on a short term basis as a separate result.
Mitigation, Monitoring and Management	Section 6	Page 6-41	The Proponent indicates that detailed follow up and monitoring is proposed for the first operating compressor. In addition to maintaining records of vented volume amounts and recording emission estimates, an air quality monitoring program should be established to verify modelled results to ensure compliance.
Baseline Data	Section 6	Page 6-8	Local Study Area has been established as a 2km band centered on the proposed route. LSA should be increased around compressor stations to include the 20km x 20km dispersion modelling domain used to determine the effects of the project emissions on air quality.
Cumulative Effects Assessment	Section 7	CEA	The level of work that went into providing a quantitative CEA on riparian and instream habitat disturbance is appreciated. However a big issue here is application of scale, and context. Cumulative effects felt at the watershed level for key sub-basins of relevance to traditional use is requested. This would include, at minimum, sub-basins for Anzac, Parsnip, Sukunka, Pine and Burnt Rivers, in particular.

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Cumulative Effects Assessment	Section 7	Cumulative Effects, general	No inclusion of the potential for simultaneous disturbance of multiple pipelines constructed in the same watershed with respect to sedimentation of watercourse. We have raised concerns herein about the proposed acceptable TSS values in the creek, given scientific literature (e.g. Newcombe and MacDonald, 1991) has noted values below the proposed thresholds can cause significant mortality of Arctic Grayling, among others. The synergistic effects of multiple simultaneous projects is at the heart of cumulative effects assessment, and the proposed multitude of pipelines constructed at the same time through Treaty 8 territory is an immense concern to the respective Treaty 8 communities. We request that this application be revised to identify anywhere that the ROW will be within 1km of another pipeline, and that commitments be made to manage the work timing to avoid significant sediment loading that would affect the same local fish populations.
Cumulative Effects Assessment	Section 7	General (groundwater)	The interaction of the project with groundwater - in synergy with other potential projects - does not consider the linkages between the project and the consumptive water use from upstream well site development that would not occur otherwise. To what extent does the pipeline facilitate additional LNG extraction?
Methodology	Section 7	p 7-79	Instream habitat alteration effects are predicted as "highly likely" within the ZOI. So, fish bearing status within the entire ZOI is what should be used for the timing windows. In general, this is an important inconsistency in zone-of-influence vs. timing windows for downstream fish status, even if crossing location is non-fish-bearing. S5 streams are particularly concerning, as they are larger watercourses, often present throughout the year, and represent bigger potential sediment loads. The TDR, p. 96 and 97, uses MOF allowance for conditions where no timing window applies (basically, complete isolation of work zone and no sedimentation), but sedimentation to some extent is highly likely for any in-stream construction work.
Methodology	Section 7	p 7-81	The AIR committed to assessing effects at species level within the VC. The Application instead reverted to a general habitat



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			assessment within DFO's Risk Management Framework. Then, when it comes to context, p. 7-81 just says "context varies by species". This is precisely why assessment should proceed based on habitat-level effects by species within the VCs. The way this is presented completely defeats the purpose of including context into the assessment at all.
Cumulative Effects Assessment	Section 7	p. 7-101	No definition of a cumulative effect threshold for instream disturbance?
Cumulative Effects Assessment	Section 7	p. 7-102, lines 2-3	"*Potential cumulative effects on fish are best considered at the watershed scale"*. We agree completely, but this should be at smaller watersheds compared to what is applied here. Especially when one considers effects on traditional uses, which are almost always based on family-use areas. To assess impacts on the availability of fish or impacts on fish habitat for harvest, this Application should include outcomes of the TUS done by participating communities, interpreted at this smaller spatial scale.
Methodology	Section 7	p. 7-81	Discussion on acceptable thresholds for TSS during open cut crossings refers to "low risk" (<100 mg/L above background), "medium risk" (100 - 200mg/L above background) and "high risk" (>400mg/L above background). A few issues here. (1) Graded risk jumps from 200 to 400mg/L, what about the 200 to 400 range? (2) What is the implication of this statement? How is it applied to managing risk during work? (3) It ignores published data cited elsewhere in the same section (Newcombe and MacDonald, 1991) that identifies a wide variety of high-risk exposure to TSS that varies by species. Here again is a rationale to consider effects on a species level, and in better local context. For instance, Newcombe and MacDonald report that only a 24 hour exposure to TSS increase of 65 mg/L results in 15% mortality of arctic grayling sac fry. A 72 hour exposure to 185 mg/L resulted in a 41% mortality of sac fry. Conversely, the same study reports rainbow trout as being more resilient to TSS. In the context of Treaty 8 territory, arctic grayling are highly valued and utilized, but are also highly sensitive (populations are

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			depressed relative to historic levels, and the species is generally sensitive to disturbance; Blackman and Hunter, 2001). The conclusion on line 21 and 22 (and again on subsequent pages) that the likelihood of mortality is low given the mitigation recommended in this application is not consistent with these findings; it is too broad a conclusion and, once again, better consideration for effects by species and by region - and consequently more site-specific mitigation - is necessary.
Mitigation, Monitoring and Management	Section 7	p. 7-83	Application points out the high risk of fish handling during salvages in mid-winter in Peace Country. (It is also quite difficult to actually capture fish at this time of year, if a salvage is necessary). The same page notes that with mitigation, there is negligible residual risk, but on review of Table 7.9 and Appendix 2A, cannot find any mitigation commitments specific to winter salvage techniques.
Methodology	Section 7	p. 7-84	Classifying the fish (or embryo) mortality as reversible within one year due to stock recruitment is possible but far from probable. There is high uncertainty here, and a huge body of literature to support the potential effects of a localized but high-magnitude loss of a year-class of fish.
Mitigation, Monitoring and Management	Section 7	p. 7-84 to 7-86	The likelihood of adverse impacts to fish and fish habitat due to increased site access is classified as low, on the basis that access-restriction mitigation approaches will be used. However it is also acknowledged that the time it takes for some of the mitigation to be in place will be years, as it is dependent on vegetation re-growth. This is an issue of highest concern for wildlife, but given the clear increase in back-country access that has resulted from other ROWs in the area (which has been pointed out to CGL by Saulteau First Nation (EBA, 2013)), we would like to know what specifically about the proposed mitigation in THIS CASE is different than the mitigation that would have been applied elsewhere, where it has clearly failed? Reliance on BMPs with no descriptive rationale only works where the BMPs are broadly accepted as being effective, and we are unconvinced that is the case here.

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Methodology	Section 7	p. 7-88	Despite the description provided, there is no magnitude threshold actually defined for riparian clearing nor for habitat alteration (e.g. what is the "regulatory or environmental limit" in this instance?). It is left to the reader to infer... in terms of mortality, our understanding of DFO's application of the revised Fisheries Act is that unauthorized fish mortality remains a "serious harm", so that would seem to be one measure of the significance threshold. The remaining aspects of "serious harm" in the Fisheries Act are either defined by the assessing professional or, if uncertainty exists, via collaborative review with DFO. So, some considerable clarity would be appreciated in terms of what is being defined as the threshold for significance determination on this VC and the sub-component species.
Cumulative Effects Assessment	Section 7	p. 7-96, (and section 3.8.9)	The description of approach on this page isn't clear. Perhaps the application of the disturbance hierarchy is mean to avoid double-counting disturbed areas? Please clarify.
Cumulative Effects Assessment	Section 7	Page 7-103	It is not clear if the cumulative effects assessment of in-stream disturbance includes the 60+ km of roads and the associated culverts and bridges. Given the absence of roads in the quantitative calculations in subsequent sections, we presume that is the case. This would be a considerable oversight and the assessment should be re-done including best-estimates of culvert crossings.
Methodology	Section 7	page 7-15	Discussion in several sections of the aquatics assessment, most notably page 7-15 and throughout Appendix 2G, lacks a specific description of process. There is the list of categorical VCs, but not the actual species that qualify in those categories. Then there is discussion of the species that may qualify, but other references to species that may not qualify as per EPMR. Then there is discussion on page 7-15 and throughout Appendix 2G about the risk management framework used for habitat-based biological assessment. Is this being used to represent the assessment for all species, through both the VCs? It is very difficult to review this section and identify how it relates back to the AIR.

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Cumulative Effects Assessment	Section 7	Page 7-164, table 7-34	Table 7-34 is very misleading, in that stream crossings due to access roads are not included because "*locations of permanent and temporary access roads were not known*" (p.7-166). Conversely, there are also "null" values for things that are known to be zeroes for the project, such as new railway crossings. It is disingenuous to even present the cumulative effects in this section as quantitative when one of the big project-specific and "foreseeable future projects" is roads, and is not included. And yet, this entire section presents conclusions with "high confidence" (p. 7-170) that there will be no significant effects. Over 60km of new roads, not scoped into this CEA. It seems reasonable that even a range of new road crossings should be estimated, to allow completion of this assessment. It is particularly notable that secondary and tertiary roads themselves are both either at or near the "high risk" threshold for cumulative watershed impacts (Table 7-34), particularly in the eastern part of the province (Treaty 8 territory) - attributable, as the Application notes, to the "*higher level of oil and gas activity and forest harvesting*". It is clear that existing pressure on aquatic habitat is intense; in other words, the context of the VC is already stressed. Further cumulative impacts are potentially significant and it is insufficient to present the CEA as-is.
Methodology	Section 7	page 7-19	This section seeks to expand on the species that actually fall under the two categorical VCs. We appreciate the clarification on fish species that are culturally used but not classified as "fish" (!) under the EPMR - but there is no clear explanation on how this applies. There is very frequent reference to the EPMR for fish bearing status, etc., but this doesn't appear to be consistent with the Fisheries Act or with the stated approach to protect all these species of fish. Amounts to inconsistency in methodology and logic. We do not support the exclusion of any fish species from classification as "fish", as all species either are culturally used or support other fish populations that are culturally used.



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Methodology	Section 7	page 7-20	Was necessary to read this whole section a few times to figure out what logic was being applied and how focal species within the "umbrella VC" were being derived. CGL please confirm if this is correct, but lines 1 - 5 on page 7-20 summarize the applicable species for Peace River watershed. There is no summary table, just the sentence where it is boiled down to 12 species. This does NOT seem to be consistent with the new Fisheries Act definitions of culturally / recreationally / commercially important fish since that definition also includes the habitat - and species - on which those species depend.
Mitigation, Monitoring and Management	Section 7	Page 7-60 and 7-61	Table 7-8, p. 7-61 commits to developing "*site-specific plans for all watercourses undergoing channel realignment*". The previous page commits to "*return the watercourse bed and banks to their pre-disturbance configuration with no realignment of the channel*".
Methodology	Section 7	page 7-75	The receptor of this assessment is fish and their habitat, so effects on riparian vegetation are not spatially bounded by only the footprint - this would be the case if the receptor was just the vegetation - but for fish, riparian contributions are both within footprint (shading, channel forming) and downstream (leaf litter, nutrient contributions, downstream effects from the shading, etc).
Methodology	section 7	page 7-76, and thereafter	This section and the pages that follow highlight the inadequacy of "context" in this Application. The potential residual effects are presented, describing context for each one. But context is defined by resiliency and sensitivity - and this varies greatly by region for such a long, spatially diverse project. It is impossible to describe the pre-existing state of stress of, for instance, riparian community, collectively for cities, towns, pristine areas and heavily logged ones, in one overarching sentence. This should be assessed at minimum at the sub-basin level, independently. This would also facilitate meaningful assessment of impacts on Treaty rights and land use (e.g harvestability varies regionally and different species are stressed in different ways by region). The context for riparian vegetation is basically

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			reduced to a statement that "context varies" but that is the very rationale for including context as part of the assessment in the first place. To do otherwise is to completely ignore the relevance of this portion of the assessment...which, it must be added, was a commitment in the AIR. There is no denying this makes for a lengthier assessment, but it must be acknowledged that simply by virtue of being a very long linear project, assessment at the site level shouldn't be scoped down. One may argue that if this was, for instance, a 3km long pipeline, more detailed consideration of local context would have been expected. Context may or may not influence how significance is determined, but at the very least it should see consideration of more intensive application, development, monitoring or review of site-specific mitigation measures to improve confidence and reduce implementation error.
Mitigation, Monitoring and Management	Section 7	page 7-77 (and Appendix 2A, p. 30)	Riparian vegetation maintenance during 30 year operational period is described as potentially involving pesticide use (and herbicide use is mentioned elsewhere throughout the Application). This is an area of high concern for the Treaty 8 membership regardless of permit / regulatory authority. Water quality in general is an issue. Fish have been poisoned, and people are already unable to harvest fish in traditional areas due to contamination (Rescan, 2012). Thus, in the context of Traditional Use, the LSA is already highly stressed insofar as chemicals in the environment are concerned. The concern is not only for the fish-bearing creeks but also the headwaters, which must be kept pristine as much as possible. Elders and community members also feel they cannot trust the health of berries when spraying occurs. The resource specific mitigation for use of herbicides (Appendix 2A, p. 30) is vague: "*restrict application of herbicide near sensitive resources*"; "*prohibit use of pesticides in proximity to an open body of water, unless herbicide application is...approved by relevant regulatory agency*". We are not comfortable that regulatory policies address our interests on this topic, and "sensitive resources" and

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			"proximity" are undefined but fundamentally important terms here. Given the TEK that is noted in the EA and the concern for water quality, we request specific and reasoned cases where chemical applications are necessary. The default should be no use of pesticides or herbicides in Treaty 8 territory unless approved by affected Nations.
Administrative and Organizational	Section 7	section on species at risk	Still lacks any summary table of "here are the species of conservation concern that are included within that open-ended VC".
Methodology	Section 7	table 7.8	The use of 10m riparian buffer requires clarification since RMZ, RRZ are specified as much more than this in the stream classification.
Mitigation, Monitoring and Management	Section 7	table 7.8	The table includes the commitment to *"inspect all erosion and sediment control structures after precipitation events and after snowmelt*". This lacks specificity and as worded is untenable. High focus here on implementation feasibility.
Mitigation, Monitoring and Management	Section 7	table 7.8	The restriction against taking no more than 10% of the instantaneous streamflow warrants some description for how this will be calculated and monitored. Particularly important where there are already upstream uses.
Mitigation, Monitoring and Management	Section 7	table 7.8	Table states that contractor is required to develop site-specific watercourse crossing plan and submit to CGL prior to undertaking the crossing. Is that the case for all crossings? Please clarify, as the table of mitigation measures in the master watercourse crossing table only lists major watercourse crossings as requiring site-specific plans.



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Mitigation, Monitoring and Management	Section 7	table 7.8, page 7-63	When using pumped isolation, "*monitor pumps at all times to ensure downstream flow is connected*". Does that imply full time night-shift pump watchers? We share the concern as pump failure has very high consequences, but would like to see a more specific and clearly achievable means of ensuring against this outcome.
Mitigation, Monitoring and Management	Section 7	table 7.8, page 7-68	Commitment to "*develop water quality monitoring plan*s", and "*threshold water turbidity levels*". When will those plans apply? What are the thresholds? Effects assessment would be appropriate to define these thresholds.
Administrative and Organizational	Section 7	table 7-17	Footnotes (1), (2), (3) appear to be missing?
Methodology	Section 7	Table p. 7-88, table 7-10.	The Application classifies that an effect on fish and fish habitat will be significant if: high likelihood, high magnitude (doesn't meet regulatory criteria), low reversibility (takes longer than 1yr to reverse). We argue that based on the above that the mitigation currently identified and the level of acceptable risk (e.g. for TSS when in grayling habitat), & the exclusion of zone-of-influence consistency for fish timing windows, the uncertainty around reversibility of localized but high-magnitude effects, etc., collectively this provides very low confidence that the project has applied mitigation to an appropriate level during construction in particular. It is not unreasonable that appropriate mitigation could be achieved, but better consideration of potential effects at regional and species level, consideration of context, and development of more thorough mitigation is necessary - and NOT at the permitting stage. And as noted, the "moderate confidence" stated for the potential for increased access and disruption of habitat due to new trails warrants better explanation, as similar standard mitigation has very often failed in this regard.
Administrative and Organizational	Section 7 and Appendix 2A	Page 7-73	The table refers reader to section 2.4 of Appendix F of Appendix 2A. But, appendix 2A does not have an Appendix F. (ends at appendix E, which is just the DFO operational statements).

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Effects Characterization	Section 7.8.1	Page 7-173, Table 7-38	The Project-Environment interaction matrix for groundwater is poorly developed (absent, actually). For example, potential effects are assessed only for the construction phase. There is no description of why this phase is of concern, nor why other phases are not. Please clarify why the construction period may have an effect on groundwater, while other periods will not.
Follow-Up	Section 7.8.1	Page 7-173, Table 7-38	The table notes that if springs and groundwater are encountered, appropriate mitigation actions will be determined, and references Section 7.1, Appendix 25. There is no Appendix 25. This perhaps was reference to Section 25 (Construction and Operational Environmental Management), but that section contains no details on groundwater mitigation. Similarly, Appendix 2A (Environmental Management Plan) has the same text copied from Table 7-38, with no further details. It is acknowledged that mitigation of effects on springs and groundwater will have to be completed on a site-specific basis, but there is insufficient information presented to allow review. Please provide a greater level of detail and commitment as to how this issue will be approached and managed.
Effects Characterization	Section 7.8.1	Page 7-174, Table 7-39	The characterization of potential residual effects, including the text in pages 7-174 to 7-175, does not provide sufficient justification to determine if ratings are appropriate. It is impossible to follow the line of reasoning presented. Please provide justification for the potential effects characterization.
Methodology	Section 7.8.2	Page 7-175, Line 13	Significance of effects on groundwater quality are only discussed in terms of groundwater that contributes to surface water. This is an important component, but Table 7-38 includes a "mitigation" for water wells within 200m of the project, implying that effects to groundwater quality in itself may occur to an extent that could affect well owners. Please present justification as to why no significance criteria for groundwater quality have been presented.

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Methodology	Section 7.8.2	Page 7-175, Line 17	Significance of effects on groundwater quantity are defined as a withdrawal rate greater than 75 L/s. This withdrawal rate limit is defined in Part 5 of the *Reviewable Projects Regulation* as applying to groundwater extraction projects, not Transmission Pipelines. Thus it is not clear how this determination applies to significance from either a regulatory limits or environmental limits standpoint, as defined in Table 3-5. This approach to significance criteria may be appropriate if the project affects aquifers used for water supply, but insufficient justification is presented to show that this criteria is appropriate for potential effects on springs, which are the only potential residual effect that has been identified. Does this imply that if a spring having a flow rate of less than 75 L/s is reduced to 0 L/s due to the project, the effect is insignificant? We have mentioned that springs are very important within the affected Treaty 8 communities. Please provide justification for how the chosen criteria are appropriate in regards to the potential residual effect.
Cumulative Effects	Section 7.8.4	Page 7-177, Table 7-42	The characterization of potential cumulative effects on groundwater, including the text in pages 7-177 to 7-178, does not provide justification to determine if ratings are appropriate. Please provide justification of potential effects characterization.
Cumulative Effects	Section 7.8.5	Page 7-178, Table 7-43	The determination of significance for cumulative effects on groundwater is presented as a series of qualitative statements about judgement. It is not possible to agree or disagree with the determination of significance or confidence for residual cumulative effects without some description of conclusions that were reached. In terms of transparency of process we consider this a highly relevant issue. Please provide justification for significance and confidence ratings for residual cumulative effects.
Effects Characterization	Section 8	Page 8-101	"*…adverse effects on occurrences of whitebark pine is not significant based on the anticipated efficacy of mitigation to reduce disturbance*…" - based on comments on Page 8-55, this may not be the case in alpine/subalpine environments in order to maintain safe work areas. Adverse effects to whitebark pine will

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			not likely be avoidable in these habitats and additional mitigation will be required.
Effects Characterization	Section 8	Page 8-27	Paragraph beginning on Line 18 indicates that the Project meets the objectives of the applicable LRMPs and SRMPs, specifically protecting and avoiding infrastructure development within Red and Blue-listed plant communities. Table 8-5, however, and the overall effects assessment contradicts this claim suggesting that 15.1ha and 448.3ha of Red and Blue-listed plant communities overlap with the proposed PR. The Project does not appear to meet the avoidance objectives noted.
Administrative and Organizational	Section 8	Page 8-30	The list of potential adverse effects during construction, operation and decommissioning does not mention soil compaction as an issue of concern. Soil compaction, however, is addressed in the EMP with prescribed mitigation (Section 8.8).
Baseline Data	Section 8	Page 8-49	Line 1 indicates that "*Approximately 2,407ha of old forest will be disturbed by the proposed Project (16% of the Vegetation LSA). In addition, there are approximately 376ha of legal OGMA and 244ha of non-legal OGMA in the Vegetation LSA*." Calculations done using the areas provide in the TDR suggest that only 613.1ha of old forest is present in the ROW, and a total of 2,403.7ha occurs in the LSA. Our understanding is that the ROW represents the area that will be directly impacted by the Project, which includes a 100m corridor plus associated facility sites. Please confirm what the 2,407ha number is referring to.
Mitigation, Monitoring and Management	Section 8	Page 8-49	Line 24 indicates that in addition to seeding, appropriate tree species will be replanted on temporary workspace in forested areas. This would partially address the aboriginal concerns summarized in the TDR (e.g., Lines 30-35, Page 36); however, the notion of doing more than seeding in the reclamation/restoration strategy is not carried forward in the EMP. Please update the EMP to reflect specific commitments on this topic.
Mitigation, Monitoring and Management	Section 8	Page 8-5	Discussion of OGMA indicates the Project will impact OGMAs, that there is a provincial OGMA replacement process, and that the BC MFLNRO has requested that Coastal GasLink participate

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			in this process. There is no further mention of this participation in the effects assessment and mitigation. Please clarify where in the assessment the impacts on OGMAs are outlined in proper detail, including the commitment to mitigating adverse effects in cooperation with the Province.
Administrative and Organizational	Section 8	Page 8-54	Line 6 begins by indicating a total of 49ha of alpine/subalpine area occurs within the proposed ROW. Further down in the paragraph (line 15) the text suggests that "*Coastal GasLink will aim to avoid alpine/subalpine areas. If avoidance of alpine/subalpine areas in general is not practical, Coastal GasLink will aim to reduce the potential adverse effects of the proposed Project...*". This later statement on line 15 seems irrelevant and misleading given the opening statement of the paragraph notes that avoidance can not be achieved.
Effects Characterization	Section 8	Page 8-55	A portion of the text beginning on Line 34 and carrying through to Line 5 on Page 8-56 appears to be in the wrong place (i.e., discusses alpine/subalpine areas under the "Grasslands" section). Furthermore, the alpine/subalpine text alludes to the fact that "*to accommodate safe and feasible construction, it is expected that the suggested measures are likely not practical in most locations. Because it is necessary to cut and fill to create a safe work area, it is expected that the potential effects on vegetation in alpine and subalpine areas will often be permanent.*" This statement suggests that the reversibility of the potential residual adverse effects on alpine/subalpine habitats should favour "permanent" status rather than "long-term to permanent". In addition, the text continues, "Coastal GasLink will work with provincial regulatory agencies to identify opportunities to alleviate the proposed Project's potential residual adverse effects (e.g., financial or habitat offset) on alpine/subalpine areas. Coastal Gaslink's commitment to alleviating the proposed Project's potential residual adverse effects on alpine and subalpine areas is expected to effectively reduce these effects to avoid and material potential adverse effect". This latter statement indicates that residual adverse

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			effects to alpine/subalpine habitat are not sufficiently mitigated through the key mitigation strategies and that further action is required (e.g., financial or habitat offset); however, this is not mentioned anywhere else within the assessment. Clarification is required, as well as details regarding the proposed opportunities to alleviate adverse effects.
Mitigation, Monitoring and Management	Section 8	Page 8-58	Line 1 indicates that the proposed mitigation for the Project "*has been used on other major pipeline construction projects with good success*". It would be useful to understand what qualifies as "good", and if project references/confirmation could be provided (similar to those provided on Page 8-95, Line 14).
Mitigation, Monitoring and Management	Section 8	Page 8-59	Reversibility rationale indicates that "*potential residual adverse effects related to re-establishing ecological communities at risk (including that of invasive plants) will likely last more than 10 years*". The Post Construction Monitoring (PCM) program is only proposed for five years. If risks of adverse effects extend beyond the PCM, how will they be identified and/or mitigated? This is one of a number of examples where post-construction monitoring and management is insufficient. These issues should be dealt with now and not deferred to some later stage.
Effects Characterization	Section 8	Page 8-96	The paragraph beginning on Line 8 includes a description of where whitebark pine commonly occur. Some of the whitebark pine in the LSA correspond with alpine environments. Based on the comments provided on Page 8-55, it is unlikely that any whitebark pine in the alpine/subalpine zones of the ROW can be avoided in order to maintain a safe work area. Therefore, it can assumed with some confidence that "avoidance is not practical" and that Coastal GasLink will need to discuss further mitigation with provincial and federal regulators.
Mitigation, Monitoring and Management	Section 8	Page 8-96	Line 34, "*If whitebark pine trees are removed, Coastal GasLink may consider planting whitebark pine seedlings…*". We request that "may" be changed to "will" for assurance that this strategy will be considered carefully and implemented wherever possible.
Mitigation, Monitoring and Management	Section 8	Table 8-14, Page 8-92	The key mitigation for traditionally important plant species alludes to mitigation outlined in the EMP; however, the headings

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			listed in the table do not clearly correspond with sections included in the EMP.
Administrative and Organizational	Section 8	Table 8-7	No reference to the Ecological Communities and Species of Concern Contingency Plan under key mitigation for potential adverse effects to aspen forests and deciduous forests. Confirm is this is applicable or not.
Administrative and Organizational	Section 8	Table 8-7	Throughout the table the Ecological Communities and Species of Concern Contingency Plan is referenced as "Section 9 of the EMP" when in actuality it is Section C.9 of Appendix C of the EMP. This typo occurs in various areas of the vegetation assessment as a whole. Please double check and update for clarity.
Mitigation, Monitoring and Management	Section 8	Table 8-7	Key mitigation for spread of invasive plants includes standard measures; however, it is not clear how the implementation of these best practices will be monitored and/or assurance that they will be followed diligently.
Mitigation, Monitoring and Management	Section 8	Table 8-7	No mention of invasive plant management under key mitigation for potential effects to old forests. This is relevant and necessary.
Mitigation, Monitoring and Management	Section 8	Table 8-7	Both the TDR and background/overview of the Section 8 assessment indicate the importance of retaining previously established "leave patches" and "leave trees". Table 8-7 suggests that these will be retained "whenever practical". What is the process to determine this? Measures such as this can be rendered completely useless - which undercuts the credibility of the Application - when effective implementation plans are not in place. The EMP does not appear to include any detail for how the subjective parts of this mitigation will be interpreted and implemented.
Mitigation, Monitoring and Management	Section 8	Table 8-7 (Page 8-36)	There is mention to "the Invasive Plant Management Plan"; however, this plan was not located, including cross-referencing to Section 25, or Appendix C and D to the EMP.
Mitigation, Monitoring and Management	Section 8	Table 8-7 (Page 8-39)	The practice of salvaging and re-using topsoil and stripping material has been dropped from the key mitigation strategies for potential adverse effects to Douglas-fir forests. There is also no

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			mitigation related to invasive plant management. No reason is provided for either and yet we consider these to be relevant for effective environmental planning.
Administrative and Organizational	Section 8	Table 8-7 (Page 8-42)	Forest pests is not listed as a potential adverse effect for alpine/subalpine areas; however, key mitigation includes white-pine blister rust and MPB strategies. Please clarify whether forest pests should be included as a relevant concern for those areas or if the key mitigation is unnecessary.
Mitigation, Monitoring and Management	Section 8	Table 8-8	The duration of the threat of invasive plants can't be considered short-term, especially in portions of the project within close proximity to active ATV communities (which is many). ROWs are commonly used for ATV and off-road recreation, and can facilitate invasion for as long as the ROW is accessible. Notwithstanding the Access Management Plan, we feel it is quite unrealistic and irresponsible to presume the ROW will not be used. As such, the threat of invasive plants impacts will persist and management and monitoring efforts are warranted beyond short-term.
Mitigation, Monitoring and Management	Section 8	Table 8-9	The duration of the PCM is listed as five years in the Application (Section 8), but the duration of the PCM in the Ecological Community and Species of Concern Contingency Plan (Appendix C.9 to the EMP) is suggested at three years. Please clarify (and note that neither duration is actually sufficient - see other comments).
Effects Characterization	Section 8	Table 8-9 and Page 8-63 and Page 8-85	The determination of significance and confidence for adverse effects on alpine/subalpine areas is indicated as "not significant, high confidence". Information provided in pages 8-55 and 8-56 suggest the impacts may be significant and additional measures to alleviate adverse effects (e.g., financial, habitat offset) is required. A similar concern extends to the conclusions made on Page 8-63 in the paragraph beginning on Line 15, and Page 8-85 (paragraph beginning on Line 11).
Methodology	Section 8	Various	In almost all of the rationale for the characterization of potential residual adverse effects outlined in the assessment, duration is characterized as short-term. Although we generally agree with

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			this assessment, the duration rationale consistently do not include decommissioning or abandonment. Decommissioning and abandonment activities will likely involve some potentially adverse disturbance.
Baseline Data	Section 8 and Section 20	Page 8-33	Paragraph starting on line 6 discusses areas subjected to MSMA pesticide application are present along the proposed Right of Way. MSMA is a health concern and MOF has released a policy aimed at preventing the harvest of MSMA treated trees. There is no further mention of this in the Section 8 portion of the assessment, but Section 20 mentions only that the 2013 timber assessment did not identify any MSMA-treated trees and the issue is consequently disregarded. Please confirm the adequacy of methodology: e.g., did the 2013 assessment include a structured scope including MSMA assessment, or did it rely upon incidental observations?
Effects Characterization	Section 9	Page 9-30	Lines 10-13 suggests that the proposed Project meets the objectives of the various LRMPs including the Morice LRMP. The Morice LRMP, however, sets targets for zero reduction in functional area within the sensitive Gosnell Creek wetland complex. The project alignment will impact this complex and therefore it is assumed the Morice LRMP objective will not be met. Furthermore, on Page 9-31 (Lines 11 - 15) states that adverse effects on wetlands in the Morice District are possible and "if" the Morice LRMP targets are "deemed necessary", then a compensation plan for the Gosnell wetland complex will be prepared. No further mention of this negotiation on the necessity of the LRMP targets was seen in the report. How will the requirement for compensation be determined and who is consulted on this item?
Mitigation, Monitoring and Management	Section 9	Page 9-31	Lines 22 - 25 identifies "*a notable potential adverse effect associated with abandonment in place is the possibility that abandoned pipe can act as a conduit for water flow that dewaters a wetland*". Lines 36 - 38 indicates mitigation for this effect involves plugging of the pipe in various location to prevent this. This appropriate key mitigation was not observed in Table



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			9-8 and presumably should be included as mitigation for decommissioning.
Mitigation, Monitoring and Management	Section 9	Page 9-33	Lines 26 - 29 indicates that "*standard pipeline construction […] are designed to avoid circumstances that result in diversion or natural flow impedance of water in wetlands*". In Appendix 1A of Section 1 does not include specific construction drawings for wetlands. Are construction standards applied to terrestrial/forested lands the same as those applied to wetlands, and are these enough to avoid/mitigate impacts to wetlands?
Baseline Data	Section 9	Table 9-6	Information provided in the text do not appear to correlate with the summary information provided in Table 9-6. For example, text on Page 9-25 (Lines 33-34) indicates that "most wetlands in the Wetlands LSA have a potential high to moderate peak flow", whereas Table 9-6 lists "peak flow attenuation" for all wetlands as low to moderate. Similar contradictions can be seen for groundwater recharge and erosion protection. Please review this section and update text or table to clarify the conclusions.
Mitigation, Monitoring and Management	Various	General	In general, the use of the term "whenever practical" is quite frequent throughout the assessment, which is common practice given on-the-ground uncertainties involved in projects of this scale. However, it is important to understand the process in making these decisions and who is involved. If this decision is left to construction contractors and engineers, the environmental values/concerns regarding important issues may not be fully considered and alternative options suitably explored. Similarly, it is unfair to place all expectations for implementation on a generalist Environmental Inspector or similar role. Resource specialists need to be effectively empowered to oversee implementation of the subjective mitigation.