

E1314-01 - IRs from February 2015

Notes:

related subtopics

to GNWT

to other parties

to MVEIRB/response to MVEIRB

Unique ID	Section/Topic	Subtopic	Party	ID	Reviewer	Topic	Comment	Recommendation
Air								
21211	Air		GNWT	5	GNWT - Lands: Paul Mercredi	Incineration Facilities - Waste Incineration - Section 3.4.1.8.7	It is GNWT's understanding that for this proposed project, the Proponent plans to use the Incineration Management Plan (IMP), embedded in the Ekati Waste Management Plan (WMP) dated April 24, 2014, to help manage the incineration of on-site waste and to reduce associated emissions. The IMP referenced above does not include a schedule for regular incinerator stack testing to ensure compliance with Canada-Wide Standards (CWS) for Dioxins, Furans and Mercury. Stack testing remains the most effective quantitative form of compliance testing available.	GNWT requests that the Proponent confirm if the IMP plan embedded in the WMP dated April 24, 2014, is the current version of the plan to be used for this project. Additionally, GNWT requests that the Proponent provide a schedule for routine incineration stack testing.
21212	Air			6	GNWT - Lands: Paul Mercredi	Ambient Air Quality Monitoring Plan - Sections 7.4.2 & 7.7	In Section 7.4.2 of the Air Quality Assessment, significant exceedances of ambient air quality standards are predicted for NO2, PM2.5 & TSP. Additionally, in section 7.7, the Proponent states that, "the existing Ekati Mine Air Quality Management and Monitoring Plan can be expanded to encompass the Project" and indicates that adaptive management can be implemented if required; however, preliminary plans for additional monitoring and an adaptive management framework have not been included.	GNWT requests that the Proponent confirm if the Ekati Air Quality Management and Monitoring Plan dated March, 2009, is the current version of the plan. Additionally, please provide information for how the existing Air Quality Management and Monitoring Plan will be updated, including information on additional real-time NOx and PM monitoring, passive NO2 monitoring and additional dustfall monitoring. GNWT also requests that the proponent provide further details on their air quality adaptive management framework.
21213	air		GNWT	7	GNWT - Lands: Paul Mercredi	Acid Deposition - Section 7.4.2.2.6	In section 7.4.2.2.6 of the Air Quality Assessment, the Proponent predicts approximately 346 hectares and 1440 hectares to experience acid deposition greater than 0.25 keq/ha/yr and 0.17 keq/ha/yr, respectively. Alberta classifies critical loads for sensitive ecological areas as 0.25 keq/ha/yr and a monitoring load of 0.17 keq/ha/yr which triggers monitoring and or additional research (Alberta Acid Deposition Management Framework, 2008). The Sensitivity of Western and Northern Canada Surface Waters to Acidic Inputs report (1987) concludes the Regional Study Area for the Project is located in an area sensitive to acidic deposition. However, the proponent does not provide any information on how impacts of acid deposition will be mitigated and monitored during the project.	GNWT requests that the Proponent provide any plans for mitigating and monitoring potential impacts of acid deposition resulting from project activities.
19182	air		EC	16	Gov of Canada: Sarah Robertson	EC-#1 Air Quality Modelling Input and Output Data Annex 1	The quality of model predictions is dependent on the quality of the input data used in the model. The selection of model options and the configuration of model domains and grids can also affect the quality of predictions. To provide confidence in the air quality model predictions provided in the DAR, all input and output data and selected model options and configurations must be reviewed.	EC requests that the Proponent provide all input and output model data files used to generate the air quality predictions presented in the DAR. All input and output files for CALMET, CALPUFF and CALPOST should be provided in a model-ready format.
19183	air		EC	17	Gov of Canada: Sarah Robertson	EC-#2 Air Quality Baseline Monitoring Section 7	<p>In Table 5.1-2 and Table 5.2-1 the Proponent reports 1 hour and 24 hour averages of NO2 and SO2 measured at the Polar Explosives continuous air monitoring station (CAMS). To compare to the all of the ambient air quality standards present in Table 2.4-1 additional metrics are needed.</p> <p>Table 5.4-2 reports PM2.5 monitoring data from CAMS for 2009, 2010, and 2011. Over the 3 year period there was 7 months of data from 2009, no data from 2010, and 2 months of data from 2011. The Proponent should explain why the capture rate was so poor and what has been done to improve the capture rate.</p> <p>CAMS data from Polar Explosive station has been provided for 2009, 2010, and 2011. More recent data from 2012, 2013 and 2014 would be useful in understanding the current air quality.</p>	EC requests that the Proponent provide the following information from the Polar Explosives continuous air monitoring station: <ul style="list-style-type: none">• annual NO2,• monthly and annual SO2,• explanation of the poor data capture rate for PM2.5 and what has been done to improve it, and• monitoring data from 2012, 2013, and 2014.
19184	air		EC	18	Gov of Canada: Sarah Robertson	EC-#3 Air Quality Monitoring Section 7	The Proponent has presented air quality modelling predictions indicating exceedances of GNWT ambient air quality standards for NO2, TSP, PM10, and PM2.5 resulting from emissions from the Jay project. The Proponent states that the Air Quality Management and Monitoring Plan (AQMMP) can be expanded to encompass the project. However no details have been provided on how the AQMMP will be revised to cover the air quality concerns.	EC requests that the Proponent provide detailed information on how the AQMMP will be expanded to address the air quality issues identified in its air assessment.

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19185	air		EC	19	Gov of Canada: Sarah Robertson	EC-#4 Air Quality - NO2 predicted concentrations Table 7.4-14	<p>In Table 7.4-14 the predicted NO2 concentrations will exceed GNWT ambient air quality standards for 1 hour NO2 325 times during the 1 year model period. It is unclear if the 325 exceedances include both spatial and temporal counts or if the ambient standard was exceeded for a total of 325 hours (about 2 weeks). In Annex I: Air Quality and Meteorological Baseline Report for the Jay Project, Table 2.4-1 the Alberta ambient standard for 1 hour NO2 is presented as 300 ug/m3, which is more stringent than the current GNWT ambient standard at 450ug/m3. The exceedance frequency of the Alberta ambient standard should also be provided.</p> <p>Haul trucks are a major source of NOx emissions at the mine site. The assumptions, such as emission factors and load factors, used to estimate NOx emissions can greatly affect the predicted concentrations. Information on these assumed factors would be helpful in interpreting the modelling results and the air assessment.</p>	<p>EC requests that the Proponent provide the following:</p> <ul style="list-style-type: none">• frequency maps of predicted NO2 exceedances of both the GNWT and Alberta ambient air quality standards for 1 hour NO2• the assumptions used to estimate haul truck emissions including the number of trucks and their tier rating, emission factors, and load factors.
19186	air		EC	20	Gov of Canada: Sarah Robertson	EC-#5 Camp Waste Management Section 3.4	<p>The EKA PLA.2120 Incineration Management Plan (2014/05/05) should be updated to include annual reporting of operational data and a schedule for stack testing the incinerators.</p> <p>EC understands that the Proponent is planning to start composting food waste on site. EC requests details on the composting program and how it will affect the incineration of waste.</p>	<p>EC requests that the Proponent provide the following information:</p> <ul style="list-style-type: none">• annual reporting of incineration operational data,• schedule for future incineration stack tests, and• details of the planned food waste composting program.
17069	Air		IEMA	39	Independent Environmental Monitoring Agency: Kevin O'Reilly	Meteorological Data; DAR Reference: s. 7 Air Quality, 7.2.2 Meteorology	The DAR states that Koala station was the only sampling site that recorded year-round data from 2009-2013. There is no mention that for a four month period in 2011 when there were no meteorological data collected due to power failures. No mention if the data and calculations were adjusted accordingly.	DDEC should ensure calculations using meteorological data are adjusted accordingly to account for missing data from 2011.
17070	Air		IEMA	40	Independent Environmental Monitoring Agency: Kevin O'Reilly	Base Case Emission Sources; DAR Reference: s. 7 Air Quality, Map 7.4-2 Base Case Emission Source Locations	It is not clear why the airstrip and Misery Haul Road are not included in the Base Case as an emission source. These facilities are both used frequently and contribute a significant amount of dust and other emissions to the air.	DDEC should adjust the map and text to reflect that both the Airstrip and Misery Haul Road are emission sources for the Base Case.
17071	Air		IEMA	41	Independent Environmental Monitoring Agency: Kevin O'Reilly	Air Quality Standard Exceedences; DAR Reference: s. 7 Air Quality 7.4.2.2.4 PM2.5	Dominion Diamond plans to develop an ambient air quality monitoring program that will be used to guide adaptive management strategies and the implementation of mitigation, if and as required, to maintain exposure to PM2.5 levels below those that would be of concern. It is not clear what mitigation strategies are currently being proposed to minimize or eliminate exceeding the air quality standards for the monitoring parameters, particularly PM2.5	DDEC should revise and provide an updated Air Quality Monitoring and Management Plan that includes current plans to mitigate or eliminate air quality standard exceedences from the Jay Project.
20406	Air		LKDFN	10	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Dust deposition References Section 7, sub-section 7.2.4 Directed to Project Proponent	<p>The DAR states that "Avoidance of the Project by local game due to dust was raised as a potential effect of the Project, as was accumulation or deposition of dust in water." However, the DAR does little to address dust deposition. Section 7 addresses emissions, but there is no discussion of the amount and range of predicted dust deposition.</p> <p>Review Comment</p> <p>While there are estimates for the amount of dust emitted, there are no predictions for where this dust will end up. LKDFN would like to know where this dust is likely to end up, if some areas are more at risk than others for high levels of deposition and how far the dust is predicted to travel.</p>	LKDFN requests an analysis containing the maximum predicted distance that dust could travel from the mine-site, as well as areas where dust is likely to be deposited in higher levels based on wind currents.

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20407	air		LKDFN	11	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Air quality threshold Section 7, sub-section 7.6, Directed to Project Proponent	<p>The DAR states that “Magnitude is the primary criterion used to determine significance” and that significant is defined as “Predicted concentrations are above the AAQS for the NWT and exceedances of the relevant criteria are widespread, continuous, and occur well-beyond the Project area.” It goes on to state that “if a prediction is reversible and short-term or medium-term in duration, but it is above the established threshold at times, it would receive a not significant rating.”</p> <p>LKDFN does not find this to be a stringent or effective definition of significance. The NWT AAQS are relatively lenient. For example, the World Health Organization (WHO) sets the limits for Nitrogen Dioxide at 40 µg/m3 for the annual mean and 200 µg/m3 for the 1-hour mean; and Sulphur Dioxide is limited at 20 µg/m3 for a 24-hour mean and 500 µg/m3 for a 10-minute mean (http://whqlibdoc.who.int/hq/2006/WHO_SDE_PHE_OEH_06.02_eng.pdf). Please note that the WHO sets these guidelines globally, so this includes all developing countries, where air quality management is much more challenging than in a developed country such as Canada. Given that NWT AAQS are far more lenient than the international standard and that the NWT AAQS were specifically designed with developments, such as this project, in mind, LKDFN fails to understand how the proponent can suggest that exceeding them can be considered not significant.</p> <p>□</p>	LKDFN requests that significance be defined as “Predicted concentrations are above the AAQS for the NWT” with no additional qualifiers to allow for exceedances. The AAQS were established for a reason and were designed to be the maximum allowable concentrations for these specified substances. There should be no excuse for exceeding them.
16323	Air		MVEIRB	7	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Air-dust - Kimberlite transport to Ekati mill TOR Section: 6.1 New infrastructure, facilities, and management plans6.1.8. The mining, crushing, and kimberlite transportation methods used;7.4.1 Impacts to air quality from project components equipment and traffic air emissions and fugitive dust	Section 3.5.1.6.8 states “About 15 190-tonne rock trucks will cycle between the proposed Jay Pit and proposed Jay WRSA. About seven CAT 777, 90-tonne rock trucks will cycle between the Jay Pit and the proposed ore transfer pads at the Jay and Misery roads.” There is the potential for dust loss during transport of ore to the mill from the Jay project that could be easily mitigated if ore transport trucks were covered, but this pathway is not addressed.	Dominion, please confirm if kimberlite transport trucks will provide covers for the ore or other means to minimize loss of dust or ore during transport to the mill.
16874	Air		MVEIRB	73	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Air-Green House Gas (GHG) emissions, Section 7 - 7.4.2.1.1, allocation of GHG emissions between the Jay project and the Ekati mine over time.	Section 7.4.2.1.1 of the DAR provides estimates of GHG for the Jay project by project phase. The developer presents GHG estimates for the base case, which includes the existing Ekati mine in 2015, and for the application case which, includes the existing Ekati mine and the Jay project in 2022. For the application case the GHG emissions for the Jay project are 132 kt while the total for the Ekati mine is approximately 400 kt. It is unclear how the developer allocated GHG emissions to the Jay project and the Ekati Mine. It is noted that at some point in time the only operations at the Ekati mine would be associated with the Jay project and therefore 100% of GHG emissions would be associated with the Jay project.	Please clearly describe how GHG emmissions were allocated between the Jay project and the Ekati mine from construction of the Jay project through to closure of the mine.
16875	Air		MVEIRB	74	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Air-Dust - Section 7, 7.3.2.2.1, effectiveness of proposed and existing mitigation and monitoring.	The Jay project will generate additional sources of dust that have the potential to cause adverse environmental effects. The DAR lists mitigations for dust from roads as water spray and/or chemical suppressant and managing vehicle speed (Section 7.3.2.2.1). The existing Ekati mine generates dust which is mitigated and the effectiveness of mitigation is monitored through the Air Quality Management and Monitoring Plan. This existing mitigation and monitoring approach will be applied to the Jay project. In order to provide the Review Board and parties a better understanding of the potential effects of dust and the effectiveness of mitigation and monitoring, results of the Air Quality Management and Monitoring Plan is requested.	Please provide an analysis of the effectiveness of existing dust mitigation measures at the Ekati mine site and the effects of dust on the environment to date. Further, please provide the results of the Air Quality Management and Monitoring Plan to date.
20219	Air		NSMA	6	North Slave Metis Alliance: Shin Shiga	7.4.2.1.1 Greenhouse Gas Emission Estimations	DDEC based its emission estimation on diesel generators and vehicle operations. Appendix 7B presents detailed calculations	Does "Mine Fleet" (Appendix 7B3.5-3) include vehicles and aircrafts traffic into and out of the Ekati Mine site?

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20220	Air		NSMA	7	North Slave Metis Alliance: Shin Shiga	7.4.2.1.1 Greenhouse Gas Emission Estimations	Ditto	If above is negative, please provide GHG and other emissions estimations and models that include the vehicle and aircraft traffic into and out of the Ekati Mine site. Please also provide the assumptions used to calculate the emissions (e.g. distance travelled by those vehicles and aircrafts).
20221	Air		NSMA	8	North Slave Metis Alliance: Shin Shiga	Appendix 7B3.5	DDEC considers GHG emissions as a contributing factor to climate change. It is known that land use change is also a driver of human-induce climate change.	In additions to GHG emissions data provided above, please provide in DDEC's revised climate change assessment the effects of land use change. Please include in this assessment: the reference case, base case, the Project, and the updated RFD case that includes Sable, A21, underground minig of Jay, and Kennady Diamond Project.
20222	Air		NSMA	9	North Slave Metis Alliance: Shin Shiga	7 Air Quality	The reviewer failed to find DDEC's approach to mitigate GHG emissions in the DAR or any subsequent documents	Please provide the reference for that information
20223	Air		NSMA	10	North Slave Metis Alliance: Shin Shiga	7 Air Quality	Ditto	If such mention is not made in the DAR or its subsequent documents, please explain why, and provide DDEC's mitigation measures for GHG emissions.
20224	Air		NSMA	11	North Slave Metis Alliance: Shin Shiga	7 Air Quality	Ditto	Please list of climate change mitigation measures that DDEC has taken, is going to take, or can potentially take. Please provide their effectiveness and cost-benefit analyses. Please also include in this table, at minimum, wind turbine, hydro-electric, biomass, and market-based carbon offset programs.
	Air		YKDFN	3		Jay DAR Section 7	The project has set a significance criteria in such a way that almost no project would exceed the threshold.	1) Please provide a chart that lists the measured/assessed air quality parameters for the guideline used, the baseline, current, and application case. As part of this chart, please indicate the percentage increase from baseline/pre-mine. 2) What was the use of considering the air quality guidelines as part of this assessment given the fact that they would have no influence in the final assessment? For example, the project is likely to exceed air quality guidelines several hundred days per year. This would represent an exceedance 9 out of every 10 days. 3) Please provide a clear explanation as to why the project will accept a 90% failure rate when it comes to meeting air quality guidelines. 4) Please indicate the number of days that the project has previously failed to meet the terms and conditions of its water license. 5) Please indicate the number of days that the project predicts that it will exceed the terms and conditions of its water license in the future. 6) What is the purpose of monitoring when the significance threshold is set in such a way that management actions will never be required? 7) Would the Chernobyl nuclear plant accident have exceeded the threshold for air quality?
	Air		YKDFN	4		Jay DAR Section 7	The section on dust does not make it clear how far and wide the dispersion is going to be expected to travel. Ekati and other minesites have demonstrated a dust signal above baseline far further than expected.	1) Please provide a thorough and detailed discussion on the observed range of dust dispersion and deposition observed at this site and others in the NWT. 2) The project has noted a reduced diversity of vegetation abundance and complexity in and around dust generation sources (roads etc). Please provide a recovery curve for the recolonization and return of abundance for impacted areas post closure. 3) As part of this recovery, please provide a discussion on the amount of dust and particulates to be generated by the roads after closure and reclamation. 4) If dust is known to be impacting the area surrounding the mine, please provide a discussion as to the effectiveness of dust control measures and why they failed to mitigate the predictable impacts in this case.
	Air		YKDFN	5		Jay DAR Section 7	Section 7.2.3.5 notes that Dioxins and Furans are assumed to be very low.	1) Please provide baseline values, current measured levels and predictions for the Jay application case, along with guidelines that the project intends to meet. 2) Similarly, please provide the baseline values found sediment and soils found in the surrounding environment, with current measured levels and predicted application levels. Please include the interim sediment quality guideline for comparison and a discussion on previling winds at site readers can understand the likely deposition.. 3) Please provide a discussion on how the project will demonstrate compliance with national standards and what actions they will take should their monitoring show that they are not in compliance, with concise timelines.

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	Air		YKDFN	6		To GNWT: DAR section 7	The project has submitted a proposal that will see it exceeding guidelines for 90% of the year.	1) The Land and Water Board's of the NWT has been clear that air quality enforcement and regulation is something that is within the GNWT's mandate (particularly since Devolution). Please indicate what GNWT will do to regulate and enforce the air quality aspects of the project. 2) In the Gahcho Kue file, the project and GNWT indicated that they would conclude a Memorandum of Understanding to govern their air emissions. It is YKDFN's understanding that this STILL not complete and is not enforceable to begin with. Please provide the Review Board an update on the commitment that was made during the Gahcho Kue Environmental Assessment and whether we should expect a similar response for this project? 3) On May 7th, 2013, the GNWT responded to YKDFN's concerns regarding the lack of air quality regulations. In this response they indicated that they working to develop and implement the new national Air Quality Management System. Bearing in mind that this project has a projected lifespan of 10 years, please indicate if GNWT expect this management system to be implemented prior to closure? a. If so, when does GNWT commit to having this system in place? b. If not, please indicate how the GNWT intends to enforce the commitments, guidelines or regulations?
	air		YKDFN	28		12.3.2.2.2	The project notes that PM2.5 will return to NWT guidelines in less than a kilometer surrounding the minesite. However, there is no discussion on the measured values of PM2.5 versus the background, nor is there any discussion on how this may be one of the causal mechanisms driving the zone of influence.	1) Please provide a discussion on the range and distribution of pm2.5 against the measured baseline. 2) PM2.5 has been theorized as one potential driver behind the zone of influence. Please provide a description on the work that the project has done to understand the causal mechanisms behind this avoidance and what the outcomes are. 3) To YKDFN, it feels that ZOI now has a general acceptance from western science. Please provide an explanation why it took the better part of two decades for something that the elders and landusers predicted to be considered 'a fact'. As part of this explanation, why does Ekati and DDEC prioritize Golder science over the knowledge of the people who lived and trapped on this land for generations.
	air		YKDFN	29		To GNWT, 12.3.2.2.2	The project notes that PM2.5 will return to NWT guidelines in less than a kilometer surrounding the minesite. However, there is no discussion on the measured values of PM2.5 versus the background, nor is there any discussion on how this may be one of the causal mechanisms driving the zone of influence.	1) PM2.5 has been theorized as one potential driver behind the zone of influence. Please provide a description on any work that the GNWT has done to understand the causal mechanisms behind this avoidance. 2) To YKDFN, it feels that ZOI now has a general acceptance from western science. Avoidance was predicted by Elders and landusers. Please provide why GNWT allowed almost two decade to pass before the idea was accepted – when traditional knowledge and western science are supposed to be complimentary rather than one subservient to the other.
Alternatives								
	Alternatives	WRSA	YKDFN	2		Jay DAR Section 2, Appen	The project plans to construct a waste rock pile astride the key caribou corridor that leads to the narrows between Lac de Gras and Lac de Savage. We have previously identified this as a major concern, which the project has not mitigated – the alternatives assessment provided does not seem to properly value caribou relative to other factors.	1) Please provide costing and explanation as to why the project is not using Lynx and Misery as locations to deposit the waste rock. This would reduce the magnitude of the waste rock pile and likely allow the project to improve the orientation and shape of the rock pile so it didn't obstruct caribou migrations 2) Please explain why the project has prioritized saving two minor water courses over caribou migration when considering the size and shape of the current proposal for the waste rock pile. For example, if it was longer and aligned along the lake, it would present less of an obstacle for caribou migrating through the area. 3) Please explain why the project has not prioritized caribou when considering whether two smaller waste rock piles should be utilized. Essentially, the project has unilaterally (over the concerns of communities) decided that the water diversion they would be required to make is more important to avoid than greater impacts to caribou. 4) The project has stated that two waste rock piles would have 'more complex' seepage water management. Please explain these complexities and assess those values against minimizing impacts to caribou, particularly considering section 2.5.2.2.1 notes that "collection of seepage water is not required". 5) Please explain what actions the project will undertake to rebuild the esker following the completion of the project.

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21209	Alternatives	energy	GNWT	3	GNWT - Lands: Paul Mercredi	Alternatives - Alternative energy - feasibility study of wind power to supplement energy requirements at the mine site - Section 2.5.3.1.	<p>The NWT Greenhouse Gas Strategy sets sector goals for emissions reductions and renewable energy supply. It sets a target of 'a minimum of 10 percent renewable energy content in new power systems required for increased demand.' (NWT Greenhouse Gas Strategy, p. 25). The NWT target of 10% renewable energy penetration appears to be consistent with Ekati's commitment to environmental and social responsibility.</p> <p>Section 2.5.3.1 of the DAR appears to discount wind power as an alternative energy because wind power could not provide 100% of the power required (therefore standby power is required which doubles the capital cost) and wind turbines do not operate in low temperatures which could potentially prevent the turbines from working for several months of the year.</p> <p>The Diavik Diamond Mine Wind Project has provided tangible benefits to their mining operation. In 2014, the wind farm provided 11 percent of the mine's power needs, offset 4.9 million litres of diesel (approximately 100 B-train loads), and offset 14,068 tonnes of greenhouse gas emissions. Peak power levels, achieved for brief periods, have surpassed 50 percent – enough wind energy to power Diavik's underground mine. With temperatures in the winter as low as -40°C, the blades are all fitted with de-icing technology and represent a new benchmark for wind power in low temperatures. The diesel fuel savings from operating wind turbines provides a simple payback for the capital investment of 8 years (http://www.riotinto.com/ourcommitment/features-2932_12151.aspx).</p> <p>GNWT released a Solar Energy Strategy in 2012 to help guide the deployment of this technology in the territory. Solar photovoltaic (PV) power has been demonstrated to be cost competitive with diesel generation in many remote applications. The Northwest Territories Power Corporation is currently developing a high penetration Solar PV/Diesel hybrid system in the community of Colville Lake to demonstrate the ability of solar energy to offset imported diesel and the associated emissions. The Strategy also sets a goal to deploy low penetration solar systems sized up to 20% of the average load in diesel communities. A low penetration of solar energy into a diesel microgrid does not require complex control systems and, once integrated, offsets imported diesel.</p>	<p>Can the Proponent provide additional information about the level of analysis performed to conclude that wind turbines cannot operate in low temperatures?</p> <p>Can the Proponent confirm whether they have analysed the simple payback of solar and wind renewable energy systems when used in conjunction with diesel generation?</p> <p>The Arctic Energy Alliance can perform a RETScreen analysis to determine the cost effectiveness of renewable energy options for industry. Can the developer confirm whether they have considered or carried out this type of analysis?</p>
16320	Alternatives	energy	MVEIRB	4	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Alternatives assessment of power supplyTerms of Reference Section: Section 7.3.4, bullet 8 Assessment of energy sources and conservation methodsDAR Sections:Section 2.5.3. Energy sources and conservation alternative assessment	<p>The multiple accounts analysis considered four alternatives and the sole environmental consideration was the location of the fuel storage.</p>	<p>Dominion, please describe if there would be any differences in greenhouse gas emissions between the options. Consideration should, at a minimum, be given to possible transmission losses and the possible reduction in greenhouse gas emissions given that a proportion of electricity is supplemented by wind energy at Diavik.</p>
16876	Alternatives	energy	MVEIRB	75	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Alternatives-Alternatives energy - Section 2.5.3.1, assessment of biomass, hydroelectric and natural gas	<p>Section 2.5.3.1 of the DAR provides the developer's position on alternative energy sources for the Jay project. The developer states that natural gas, hydroelectric, and biomass as alternative energy sources were not considered because they are not available at the project site. The only rationale provided to discount these sources is that they are not present at the project site. It is noted that diesel is also not available at the project site however, this is the preferred energy source for the project.</p>	<p>Please provide a cost benefit analysis of sourcing the project's power requirements from each of these sources individually or to supplement a part of the total energy needs.</p>

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16877	Alternatives	energy	MVEIRB	76	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Alternatives-Alternative energy, Section 2.5.3.1 - feasibility study of wind power to supplement energy requirements at the mine site.	Section 2.5.3.1 of the DAR provides the developer's position on alternative energy sources for the project. This section of the DAR discounted wind power as an alternative energy source for several reasons: wind power could not provide 100% of the power required and therefore standby power is required which doubles the capital cost and, wind turbines do not operate in low temperatures which could potentially prevent the turbines from working for several months of the year. It is noted that Diavik uses wind power to supplement its power needs and that this has proven both economically and technically feasible. Further, the developer states that wind power requires a backup energy source which doubles the capital cost. However, the developer has provided no evidence to support this claim of doubling capital costs.	Please provide a cost benefit analysis of wind power as a supplemental power source for a portion of the projects energy needs.
16846	Alternatives	incl. Cardinal	MVEIRB	45	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 2 Assessment of Alternatives, Table 2.4-1	The Cardinal Pipe is apparently economically viable but the Alternative of diversion/drawdown and mining of Jay and Cardinal pipes was removed. It is unclear why mining the Cardinal pipe by stand alone dike was not included in the alternatives assessment? Table 2.4-1 shows that stand alone dike was only considered for the Jay+Cardinal alternative.	Why was the Cardinal Pipe not assessed as an alternative for development by a stand alone dike?
20214	Alternatives	incl. Cardinal	NSMA	1	North Slave Metis Alliance: Shin Shiga	2.4.6.1. Level 1 Pre-screening Results	In Table 2.4-1, Project Economic Viability of Single Dike - Jay Only, DDEC states "[t]he Cardinal pipe cannot be mined with this approach"	Please elaborate this statement. Does this mean: a) Cardinal pipe cannot be mined by definition because of the scope of the assessment; b) DDEC conducted an economic feasibility study of the a phased approach where Cardinal pipe will be developed after Jay pipe, and concluded such approach was not feasible; or c) something else?
20215	Alternatives	incl. Cardinal	NSMA	2	North Slave Metis Alliance: Shin Shiga	2. Project Alternatives	Contribution of Jay Project infrastructure investment towards Cardinal	Please summarize the infrastructure and other investments that will have been made for the Jay Project that could make the development of Cardinal pipe more viable. Please include in this summary releavnt economic analyses.
20217	Alternatives	incl. Cardinal	NSMA	4	North Slave Metis Alliance: Shin Shiga	2.4. Level 1 - Project Mining Method Alternatives Analysis	Phased approach to Jay pipe (open pit followed by underground mining), or Jay-Cardinal (single dyke mining of Jay, followed by mining of Cardinal) are not presented as options.	Please provide DDEC's analyses of these approaches. If DDEC has not considered these options, please explain why. Please include in your explanation at least social and economic reasoning.
17032	Alternatives	incl. u/g	IEMA	2	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Alternatives; DAR Reference: Project Alternatives s. 2.4.6.1 Level 1Pre-Screen Results, Table 2.4-1	There appears to be a flaw in DDEC's Pre-screening Assessment of Mining Alternatives. For the Environmental Considerations category, all three mining options get the same rating even though the underground method contains significantly lighter impacts on the terrestrial and aquatic environments (i.e. smaller waste rock pile, less noise and dust generation and no need to enclose and dewater a bay in Lac du Sauvage). This rating system ranks the chosen dike method more favorably than one would objectively expect.	DDEC should re-assess the three mining options with a view to providing a finer differentiation of favourability ratings for each, not just 0 or 1.
20322	alternatives	incl. u/g	LKDFN	1	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Project alternatives – underground mining vs. open pit	Section 2, page 2-17, sub-section 2.4.61 The proponent has considered project alternatives, including underground mining and a single dike. However, the proponent has also indicated that underground mining could still be an option following the mining within the dike, yet this is not discussed in the project alternatives section. Each method is assigned a value of “1” for the criteria of Environmental Considerations.	Review Comment <input type="checkbox"/> LKDFN does not find this to be an accurate representation of Environmental Considerations, especially if underground mining is likely to be pursued after mining in the dike is finished. How can underground mining alone be considered the same as a dike combined with underground mining? <input type="checkbox"/> Information Request/Recommendation <input type="checkbox"/> LKDFN requests that the proponent take into account the possibility of underground mining following mining within the diked area and adjust the rankings of Environmental Considerations accordingly.
20216	Alternatives	incl. u/g	NSMA	3	North Slave Metis Alliance: Shin Shiga	2. Project Alternatives	Contribution of Jay Project infrastructure investment towards Jay underground mining	Please do the same for Jay underground mining option, as the previous item.
17072	Alternatives		IEMA	42	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Alternatives; DAR Reference: Project Alternatives s. 2.1 Introduction, pg. 2-1	It is not clear whether DDEC consulted or involved any of the parties, or whether Traditional Knowledge was used in any way, in the identification, evaluation and selection of project alternatives or alternatives means of carrying out the development.	DDEC should clearly indicate how and where any of the parties were consulted or engaged regarding the identification, evaluation and selection of project alternatives or alternative means of carrying out the development.

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16319	Alternatives		MVEIRB	3	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Alternatives assessment of waste rock storage areas Terms of Reference Section: Section 7.3.4, bullet 7 Assessment of waste rock storage area alternativesDAR Sections:Section 2.5.2 Waste rock storage alternatives	The multiple accounts analysis for the waste rock storage area was based on a number of assumptions, some of which are unclear.	Dominion, please provide additional detail on the following: 1. Why are the closure and reclamation costs for all three alternatives considered to be similar? 2. Why would the contingency seepage water management for alternative two be more complex than alternative one?
Caribou								
20651	caribou	baseline	KIA	8	Kitikmeot Inuit Association: Tannis Bolt	Paucity of Grizzly Bear data collection effort to the Northeast of the proposed Jay Pipe project. Annex VII, Sections 2.1.4.1.4, p. 2-8, Section 2.1.4.2, p. 2-9 to 2-12	In all years except for 2013, there exists a paucity of grizzly bear data collection efforts to the northeast of the proposed Jay Pipe project, as no grizzly bear habitat study plots were completed in that area from 2000 to 2008 (Maps 2.1-3 and 2.1-4) and hair snagging stations in 2012 (Map 2.1-5) were located to the north-northeast (NNE) of the proposed project.	Please comment on whether at least one additional year of baseline data collection be done using the grizzly bear hair snagging grid used in 2013 (Map 2.1-6).
20649	caribou	baseline	KIA	6	Kitikmeot Inuit Association: Tannis Bolt	Baseline study area appears too small to capture the potential ZOI on caribou to the east of the project. Annex VII: Wildlife Baseline Report, Map 1.4-1.	The wildlife baseline study area shown on this map does not appear to extend far enough to the east of the Jay Pipe project location to capture the 11- 14 km zone of influence of the project on caribou that occurred around the Ekati project (Boulanger et al. 2012). It appears that the study area boundary extends to approximately 10 km to the east of the Jay Pipe project, and it appears to be the same study area as used for the farther west Ekati project.	Please include rationale for the distance chosen for the baseline study area, particularly to the east of the proposed project.
20654	caribou	baseline	KIA	11	Kitikmeot Inuit Association: Tannis Bolt	Insufficient caribou baseline effort for the proposed project. Annex VII, Section 2.3.1	A one-day survey was done on August 12, 2013, to identify caribou travel surrounding the Jay project area (east-centred from the project) by helicopter.	Please comment on the rationale for conducting this survey on August 12, 2013 when caribou are expected in the area, as indicated in this same baseline report, from May 1-31 (during northern migration), June 16- Jul 1 (post-calving), from July 2- August 3, and between September 1 to October 31 (fall migration). Will additional surveys be conducted for this area during the aforementioned periods of expected caribou presence, prior to project development?
20658	caribou	baseline	KIA	15	Kitikmeot Inuit Association: Tannis Bolt	Different survey methods for caribou not presented. Annex VII, Section 12.2.1.1.1, p. 12-9	This report states that maps of previous study areas for surveying caribou are provided in Annex VII. However, these could not be found in Annex VII, which only provides aerial transect survey maps for Ekati and Diavik in 2009 and 2012, and for the Gahcho Kue project from 1999 to 2005. Inclusion of all maps will allow the reader to see the difference in survey widths, transect lengths, and areas surveyed over time, which will affect their ultimate confidence in the EA assessment for caribou.	Please provide additional survey maps for noted surveys in this section, namely: 1) 1995-1997 Diavik Surveys, 2) 1998-2001 Ekati Surveys, 3) 2002 surveys for Ekati and SE shore of Lac de Gras, 4) 2006 Ekati Survey, 5) 2006 Diavik Survey, and 6) 2007 Diavik Survey.
20659	caribou	baseline	KIA	16	Kitikmeot Inuit Association: Tannis Bolt	Survey lines missing. Caribou EA, Section 12, p. 12-15, Map 12.2-3 and Annex VII, Section 2.3.1, Map 2.3-1	No survey effort flight lines included on map.	Please include flight lines on Map 12.2-3 and Map 2.3-1to help determine reconnaissance survey effort and area covered.
20660	caribou	baseline	KIA	17	Kitikmeot Inuit Association: Tannis Bolt	Survey consistency implied. Caribou EA, Section 12, p. 12-18, Map 12.2-14	Map 12.2-4 makes it appear that post-calving surveys were done in the same way from 1998 to 2009.	Please clarify that transects remained unchanged during this period. If some transects were added in later years, it is important to identify those, and they would have fewer years of observations and likely report fewer caribou due to lower effort. Likewise, changes in transect widths could lead to changes in numbers reported due to transect being closer together.

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19032	Caribou	baseline	MVEIRB	92	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 12.2.2.1 Map 12.2-3 Integrating information on local movements	Mitigation requires detailed understanding of caribou movements as there are caribou distribution and behavior differences within the Ekati site (Rescan 2012). The North shore of Lac de Gras and neighbouring lakes funnel post-calving, summer and fall caribou movements. Dominion mapped trails (Map 12.2-3; Map 12.2-5) but the survey area was truncated at Jay Pit. Compilation of the historic trails and the collar trajectories such as the GPS collars within the Zone of Influence would be useful to increase the efficiency of mitigation and monitoring.	a) Please integrate recent trail mapping to build a composite map of historic trails, traditional knowledge trails and trails relative to the collar trajectories within the Zone of Influence. b) Please describe the methodology for trail mapping and commit to mapping the trails south-west of the proposed Jay Pit
19042	Caribou	baseline	MVEIRB	102	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 1.3 Sable Addendum Appendix I, 2014 Wildlife Baseline Study Caribou distribution Sable pit and road	The Sable pit and road are north and west of Jay and Misery pits and may initially be encountered by caribou moving south through the corridor between Yamba and Pellet lakes. Higher numbers of caribou may possibly be involved. It is uncertain from the Sable Addendum what the distribution of caribou is relative to the habitat along Sable Road and pit, based on incidental sightings, remote camera sightings or aerial surveys. The approach used in 2014 for describing and mapping caribou trails in the vicinity of the Jay pit is excellent and a useful step toward designing mitigation	Please integrate annual and seasonal incidental sightings, aerial survey sightings and camera sightings to provide tables and maps of caribou distribution in the vicinity of the Sable pit and road. For the next field season, will Dominion commit to undertake a similar finescale track survey as was undertaken in 2014 for Jay to further reduce uncertainty?
	Caribou	baseline	YKDFN	25		12.2.2.2	Caribou crossings are a particularly important matter for migration and are not thoroughly discussed as either a part of traditional use or for caribou's utilization of the land.	1) Please provide a discussion on the historic importance of the crossing areas in Lac de Gras. 2) Please provide an update on the utilization of these crossings since the opening of Ekati and Diavik. As part of this discussion, please indicate the number of animals which have been observed to pass through and cross at the narrows or from the island. 3) Please provide a post closure discussion which predicts and provides closure goals for caribou use of the Ekati area.
	Caribou	baseline	YKDFN	32		12.4.2.1.1	The project substantially manipulated the baseline information prior to undertaking the analysis.	1) Please explain what methods were used for the resampling and why this method was selected as the preferred option. 2) The text suggests that the data was resampled prior to reclassification. This can result in the loss of a significant amount of the landbase texture, with classes disappearing entirely. Please provide an explanation of the methods and why the project feel that they do no introduce (particularly type I) errors into the final product that the analysis was completed on. 3) The project has stated that computational efficiency was the base need to do this for the winter range. Given that the GNWT completed 25m RSF analyses for the entire Mackenzie Delta a decade ago, are we to understand that Dominion Diamond and Golder Associates lack the ability to do something similar for the other seasonal ranges? 4) Please provide tables 12.4-8 to 12.4-10 with change in hectares as well as adding a line which provides totals. 5) The all-weather road that was recently announced by GNWT is not included as part of the analysis. Please provide a discussion on when DDEC suggested this to government and what the habitat implications would be.
	Caribou	consultation	YKDFN	20		To GNWT	As this process (likely) represents the only consultations that YKDFN will receive regarding the impacts of Aboriginal and Treaty Rights, it is important to understand the GNWT's understanding of YKDFN's view of the impacts that have occurred since the initial Ekati mine.	1. Please provide a summary of what GNWT currently believes that the impact of development in the YKDFN's traditional territory to be. 2. Beyond this level, please describe what impacts that the GNWT have understood as asserted but that they have discounted as incorrect.
21274	caribou	cumulative effects	GNWT	68	GNWT - Lands: Paul Mercredi	Caribou DAR Section 12. S 12.2.2.1 Caribou Distribution and Abundance; 12.4.2.2 Habitat Quality Behaviour and Movement	DDEC has cited a number of references that provide estimates of the size of zones of influence from different types of development or disturbance that it has included in its analysis. Given that one of the more authoritative estimates of zone of influence for the Bathurst herd was developed based on Ekati-Diavik complex (Boulanger et al 2012), it seems reasonable to apply its findings as part of the modeling exercise; however it should be noted that zone of influence is considered a dynamic metric that can change depending on such things as size of operation, type of operation, season, herd status etc. DDEC has also included a number of assumptions and references to generate predictions about the magnitude of this effect (i.e. disturbance coefficients, energetic expenditures related to avoidance). Yet, DDEC has provided no discussion about the extent to which expansion of development activities at Ekati might cause changes in the zone of influence to caribou.	Does DDEC expect a change in either the size or magnitude of the zone of influence to caribou surrounding the Ekati/Diavik complex as a result of the Jay Project? Please describe why or why not. If a change is predicted, please describe how this might be monitored and mitigated.

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20666	caribou	cumulative effects	KIA	23	Kitikmeot Inuit Association: Tannis Bolt	Limiting habitat? Caribou, Section 12.4.2.2.2, p. 12-92 to 12-94	Results in this table suggest that there has been, an extremely small amount of functional (direct and indirect) loss of spring/calving habitat between the reference period and 2014 (Based on the results of lossese of habitat to date (reference range to 2014) along with the stark decline in Bathurst population numbers, please comment on whether post-calving, autumn, and winter habitats are thought to be potentially limiting (in part) to the size of the Bathurst herd.
17066	Caribou	cumulative effects	IEMA	36	Independent Environmental Monitoring Agency: Kevin O'Reilly	Cumulative Effects on Caribou; DAR Reference: s. 17.8 Barren-Ground Caribou	It is generally agreed that the collapse of the Bathurst Caribou (from over 400 000 animals to approximately 15 000 animals) is largely a natural event. However, concerns over whether human developments in the region have an adverse effect on this valued component led to caribou impacts being included as a Key Line of Inquiry. Moreover, the Jay project would also adversely affect the herd, even if not greatly. The question that needs to be asked is how great is the cumulative effect on the herd? If it is great enough that the herd has been pushed beyond its recovery threshold, then this is surely a significant adverse cumulative effect and, since Jay would add to it, the cumulative effect would be significant. The Agency agrees that the answer to this important question to the recovery threshold for the herd is not known. But the risk to the very important valued component is great. DDEC has committed to using the precautionary principle (the Environmental Agreement). For the record, the Agency is of the view that it is more correct to proceed in a precautionary manner and assume the Bathurst herd is suffering a significant adverse cumulative effect than to assume the cumulative effect is not significant without evidence.	In the absence of scientific certainty, DDEC should provide information on what measures it is proposing to mitigate the (presumed) significant adverse cumulative effect on the Bathurst Caribou Herd. It should be demonstrated that these measures will be adequate to offset the adverse effects of the Jay Project so that the Bathurst herd would be better off after the Jay Project than it would be without the project.
20490	caribou	cumulative effects	LKDFN	19	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Cumulative effects on the Bathurst caribou herd References Section 17, sub-section 17.8 Directed to Project Proponent	Background The cumulative effects analysis does not account for the recent decline in the population of the Bathurst caribou herd. It also does not appear to provide any suggestions for mitigation measures. Review Comment The section only mentions population cycles, but should take into account the recent collapse of the Bathurst caribou herd. It should also suggest some mitigation measures. Ideally, there should be a commitment to coordination with other developers, the government and aboriginal groups to improve protection of the Bathurst range and to prevent disturbance and mortality. The Bathurst caribou herd is of special significance to the community of Lutsel K'e with important spiritual importance as well as having significant implications for subsistence and traditional livelihoods. It is of paramount importance for LKDFN that the Bathurst caribou herd be protected to the maximum extent possible.	LKDFN requests that the proponent provide additional analysis of cumulative effects on caribou, taking into account the recent population declines in the Bathurst caribou population. LKDFN also requests some commitment to mitigation of these effects, ideally through coordination with other stakeholders (government, industry, aboriginal groups).
16879	Caribou	cumulative effects	MVEIRB	78	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s. 12.4.1.4.1 Caribou- Tier 1: Projects anticipated to be in construction by 2016; s.17.2.3 Cumulative Effects Summary-Assessment Cases	Section 12.4.1.2 states that Tier 1 developments include projects anticipated to be in construction by 2016. However, Tier 1 in DAR s. 12.4.1.4.1 does not appear to include potential cumulative effects that could occur in the future from the proposed Jay project in combination with the Diavik A21, which the Diavik Joint Venture (including Dominion) has approved as part of the 2015 programme of works.	Please describe how including the A21 pit at Diavik would affect the predicted cumulative effects of the Jay project and revise conclusions accordingly.
16880	Caribou	cumulative effects	MVEIRB	79	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s. 12.4.1.4.1 Caribou- Tier 3: Reasonably Foreseeable Developments that have not been proposed; s.17.2.3 Cumulative Effects Summary-Assessment Cases	The lower section of the Jay kimberlite and the Cardinal pipe were in the original project description but are no longer part of the project. These have been excluded from project-specific parts of this EA accordingly. With respect to cumulative effects, section 12.4.1.2 states that the reasonably foreseeable developments include projects that "may be induced" by the Jay Project. The Jay project would involve the construction of mining infrastructure near these known diamondiferous kimberlites. This is likely to improve the economics and probability of underground mining of the Jay pipe, and of the mining of the Cardinal pipe, as separate projects in the future. However, Tier 3 in DAR s. 12.4.1.4.1 does not include potential cumulative effects that could occur in the future from the proposed (open pit) Jay project in combination with these reasonably foreseeable future activities. These are also not considered in the cumulative effects summary (s.17).	Please describe how including possible future underground mining of the Jay pipe and mining of the Cardinal pipe would affect the predicted cumulative effects of the proposed (open pit) project and revise conclusions accordingly for each Key Line of Inquiry (except Alternatives).

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16881	Caribou	cumulative effects	MVEIRB	80	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s. 12.4.1.4.1 Caribou- Tier 3: Reasonably Foreseeable Developments that have not been proposed; s.17.2.3 Cumulative Effects Summary-Assessment Cases	Kennady Diamonds has recovered 2.59 carats per tonne in its mini-bulk sample near the Gahcho Kue Diamond Mine, with an estimated high-grade diamond potential between 9 and 12 million tonnes. This has not been considered as a reasonably foreseeable future development case, even though other such projects (such as the Seabridge project at Courageous Lake) were included in Tier 2.	Please describe how including the future development of the Kennady Diamonds resource would affect the predicted cumulative effects of the Jay project and revise conclusions accordingly.
16882	Caribou	cumulative effects	MVEIRB	81	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s. 12.4.1.4.1 Caribou- Tier 3: Reasonably Foreseeable Developments that have not been proposed; s.17.2.3 Cumulative Effects Summary-Assessment Cases	The DAR has not described how it would affect the cumulative effects assessment of the Jay project if the operating life of another existing diamond mine was extended with the addition of a new pipe, as has happened at Ekati twice.	Please describe how extending the operating life of an existing diamond mine would affect the predicted cumulative effects of the Jay project and revise conclusions accordingly
17064	caribou	cumulative effects	IEMA	34	Independent Environmental Monitoring Agency: Kevin O'Reilly	(To ENR–GNWT): Clarification of the effects of mining on Bathurst caribou numbers	Adamczewski et al. (2009: pg. 3, 69) indicated that effects from previous and existing mines are limited and unlikely a major contributing factor in the recent decline of the Bathurst caribou herd. This statement is repeated in the DAR (pg. 12-135). Adamczewski et al. (2009: pg. 68-69) provide a limited literature review to back up their assertion.	ENR-GNWT should provide more details backing up their assertion that effects from previous and existing mines are limited and unlikely a major contributing factor in the recent decline of the Bathurst caribou herd. ENR-GNWT should also clarify whether they believe the Jay Project could contribute to a further decline in herd abundance.
20315	Caribou	cumulative effects	Tlicho	26	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR27: Clarification of the effects of mining on Bathurst caribou numbers	The DAR draws the conclusion that effects on the Bathurst caribou herd will be limited from previous and existing mines, however this conclusion rests on a single citation (Adamczewski et al. 2009). This is insufficient basis for such a conclusion.	26.1 Please provide additional sources and/or evidence that previous and existing mines are not a major contributor to the decline to the Bathurst caribou herd. Please provide information on the Jay Project could exacerbate the Bathurst caribou herd's continuing decline. Consideration of this effect in this time of crisis is vital.
20316	Caribou	cumulative effects	Tlicho	27	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR28: Cumulative Effects on Caribou DAR Reference: s. 17.8 Barren-Ground Caribou	Although uncertainty exists as to the Bathurst caribou herd's recovery threshold, the Jay project will have some effect on the herd and will contribute to cumulative effects, even if minor in degree. It is unknown whether the Jay Project's contribution would push the herd beyond this threshold.	27.1Please detail any adverse effects on the Bathurst Caribou herd. As to the additional risk posed by the Jay Project please provide concrete and detailed mitigation measures that would offset the Jay Project's effects, so that the Bathurst herd would be better off after the Jay Project.
19047	Caribou	cumulative impacts	MVEIRB	107	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	To GNWT Caribou DAR Adequacy Response Table 14.2 & 14.3 Loss of preferred habitats after 2014 fire season and thresholds for range planning	The incremental and cumulative reduction of preferred habitats from 2014 fires is predicted to be 0.1% and 12.5% and 1.5% and 17.4%. on the fall and winter ranges, respectively (DAR Adequacy Response Table 14-2 & 3). In addition, postcalving and fall ranges have contracted and fall range is shifting further north of the treeline and the cows arriving later to the treeline (4 days later/year).	To GNWT: Please describe whether the 8% additional cumulative loss of winter range from the 2014 fire season to a total of a projected 17.4% cumulative loss is close to any interim or final proposed thresholds for range planning.
20688	caribou	dust	KIA	45	Kitikmeot Inuit Association: Tannis Bolt	Soil ingestion rates based on elk. Wildlife Health Risk Analysis, Appendix D, Table D-28, p. D-31.	Soil ingestion rates are based on data for elk, from Beyer et al (1994). Elk range in forest, forest-edge habitat, and grasslands and open parkland with grassy understory, feeding on grasses, plants, leaves and bark. Elk typically clip off vegetation above the level of the ground, and hence consume little soil. Caribou, on the other hand, rely greatly on lichen for more than 50% of their diet, which requires grazing extremely close to the ground, and peeling lichen off substrate, often pulling or scraping soils along with it. Caribou may continue to consume lichen through the winter by accessing snow swept areas, or cratering through the snow with their noses and hooves to access it, while elk often switch to more accessible plants leaves and bark during the winter, when deep snow covers the grass. This means that caribou likely consume more soils and sediments through an additional season compared to elk as well. Therefore, thee assumption that caribou ingest similar fractions of soils and sediments as elk (0.02) seems to underestimate soil ingested based on caribou feeding behaviours.	Please increase the soil/sediment ingestion value for caribou to produce conservative models that do not underestimate effects, recognizing that caribou are likely to ingest more soils and sediments than elk based on their diet and feeding behaviours. Consulting elk and caribou biologists may help in adjusting consumption based on species differences.

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20310	Caribou	dust	Tlicho	21	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR21: Pathways with No Linkage (Barren-Ground Carribou) IR to both the GNWT and to DDC DAR Section: 12.3.2.2.1	Local and traditional knowledge have identified dust as a concern for caribou food, particularly effects on lichens (Section 12.2.3). Construction and operation of the Project will generate air emissions such as carbon monoxide (CO), oxides of sulphur (SOx includes sulphur dioxide [SO2]), oxides of nitrogen (NOx), particulate matter (PM2.5), and total suspended particulates (TSP). Air emissions such as SOx and NOx can result from the use of fossil fuels in generators, vehicles, machinery, and explosives. There is lack of information on detailed mitigations around these concerns regarding the protection of caribou food and habitat.	21.1 Please provide detailed mitigation measures to decrease impacts on caribou food and surrounding habit. 22.2 IEMA has for years reviewed the caribou mitigation strategies, and in particular, Kim Poole has provided sound independent judgement and advice. How will independent review of this particularly sensitive VEC be ensured in this time of crisis?
18047	Caribou	dust	MVEIRB	89	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Primary and Secondary Pathways Table 12.3-1	In table 12.3-1, three pathways for caribou are rated as primary (and two of them were also rated as primary for Gahcho Kué mine). Dust on forage altering caribou distribution is listed as a secondary pathway for Jay but was a primary pathway for the Gahcho Kué mine assessment.	Please revise dust on forage from a secondary to a primary pathway or provide reasons why the dust on forage for Gahcho Kué levels (primary effect) is not applicable to Jay and Misery road for the Jay Project.
19037	Caribou	dust	MVEIRB	97	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 7, Map 7.4-14 Habitat, dustfall and lichen monitoring	<p>a) The DAR's CALPUFF model isopleths (Map 7.4-14 annual deposition PM2.5; application case) covers a smaller area than the kg/ha/yr isopleths in the Ekati 2006 CALPUFF model (Fig. 2.3-3). The 2006 model showed that dustfall predictions extend outside the claim block and include the south shore of Lac de Gras. The baseline case states it includes Diavik but not whether the Construction and Application case include Diavik's return to open pit mining (more dustfall) with the development of A21.</p> <p>b) The DAR includes relatively little use of existing reports of dustfall and lichen sampling for Ekati which suggest that levels of mining activity (open pit or underground) and ore-hauling distance determine levels of dustfall more than mitigation. Correlation between dustfall and mine activity could be used for adaptive management (to determine if and when mitigation needs to intensify or be reduced). Dustfall levels as indexed by concentration of metals in lichens were higher in 2005 than in 2008. This was a time when ore was mined from Beartooth and Fox and mining was underground mining at Koala and Panda. Although mining at the Misery Pit stopped in 2005, ore was trucked along the Misery Road until fall 2007. Rescan (2011) reports that "Misery haul road was a major contributor to ambient PM2.5 concentrations within the EKATI claim boundary. In 2009-2011, total dustfall was significantly higher near the Fox haul road compared to the Misery haul road although dust suppression mechanisms for 2009 to 2011 did not differ from previously .</p> <p>Rescan. 2012. EKATI Diamond Mine: 2011 Air Quality Monitoring Program. Prepared for BHP Billiton Canada Inc. by Rescan Environmental Services Ltd.: Yellowknife, Northwest Territories.</p> <p>Rescan Environmental Services Ltd. 2006.Assessment of Acid and Fugitive Dust Deposition Using CALPUFF Air Dispersion Model" and "EKATI Diamond Mine CALPUFF Air Dispersion Modelling Assessment," prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd.: Yellowknife, Northwest Territories.</p> <p>http://www.mvlwb.ca/Boards/WLWB/Registry/2009/W2009L2-0001/W2009L2-0001%20-%20BHP%20-%20Air%20Quality%20Monitoring%20Program%20-%202011%20Version%20-%20Aug%203_11.pdf</p> <p>Rescan. 2011. EKATI Diamond Mine: 2008 Air Quality Monitoring Program. Prepared for BHP Billiton Canada Inc. by Rescan Environmental Services Ltd.: Yellowknife, Northwest Territories.</p>	<p>a) Please compare the CALPUFF 2006 and 2012 model predictions; provide a map of annual or seasonal TSP and PM2.5 levels relative to the snow and lichen sampling stations (Rescan 2008 Fig 3 2-1). Confirm whether the Construction or Application case includes Diavik's A21open pit.</p> <p>b) Please describe how mitigation to reduce dustfall changed in 2005-2012 relative to changes in mining activity and table (or graph) an indicator of mine activity (such as amount of waste rock trucked; amount of diesel; truck mileage) to determine correlations with dustfall. Please describe whether a correlation could be used to help guide adaptive management, to decide if and when mitigation should be intensified or reduced.</p>

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17057	Caribou	mitigation	IEMA	27	Independent Environmental Monitoring Agency: Kevin O'Reilly	Adequacy of proposed mitigation measures; DAR Reference: s. 12 Caribou	Mitigation measures proposed (Table 12.3-1 and s. 12.3.2.1) provide inadequate detail and result in reduced confidence in predicted effects. The Yellowknives Dene First Nation have identified the Narrows, and the Lac du Sauvage esker as critical caribou migration routes. They expect caribou use of the Narrows to increase as the animals attempt to avoid active mining operations (12.2.3.1 pg. 12-31). The anticipated traffic rate of 1 ore truck every 12 minutes does not include “bulk explosives trucks, crew transport vehicles, road maintenance equipment, garbage trucks, low-bed trucks to transport larger equipment, water trucks, emergency vehicles, and light vehicles” (3..5.1.6). Thus actual traffic passages on the Jay to Misery roads will be much higher. The DAR states that the Ekati mine monitoring program will be expanded during migratory periods to “identify concentrations and movements of animals that may interact with the roads” (pg. 12-133), but offer no details on this proposed expansion. DDEC states that it will implement spatially and temporally staged monitoring of the Bathurst caribou herd to track migratory movements with the use of (i) satellite radiocollars, (ii) aerial reconnaissance surveys near the roads, and (iii) road surveys”. (Table 12.3-1; pg. 12-49). What is proposed for the aerial surveys and road surveys is unclear. Details on what monitoring triggers each mitigation and how mitigation will be implemented are lacking.	DDEC should provide a comprehensive table or a decision tree detailing mitigation measures, monitoring that will trigger those measures, and how mitigation will be hierarchical (intensified or reduced) as appropriate. The table or decision tree should include specifics considering how traffic and mining activity should react to differing group sizes and composition of caribou at different distances for development, and when staged shutdowns of activity should be implemented. The Proponent should also clarify what is meant by “aerial reconnaissance surveys near the roads” (also noted in response to adequacy review item 8.5, 19 Jan 2015), and clarify how the concerns of the YKDFN regarding use of the Narrows and the Lac du Sauvage esker will be mitigated.
18049	Caribou	mitigation	MVEIRB	90	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 12.3.2.1 Mitigation Effectiveness	The Jay Project DAR does not provide sufficient detail about the effectiveness of mitigation in reducing predicted incremental and cumulative effects on caribou. Further actions may be necessary to avoid, reduce and offset current and any potential further effects on caribou. Table 12.3- and Section 12.3.2.1 provide no detailed description and classification of all mitigation actions despite their importance. Effectiveness is not consistently described or quantified. There is no mention of on- or off-site offset mitigation. The DAR glossary defines mitigation as "elimination, reduction or control of the adverse environmental effects of a project, including restitution for any damage to the environment caused by such effects through replacement, restoration, compensation, or any other means". Mitigation needs to be classified as to the objectives, whether it is one time (how the structures are designed) or whether they are on-going and can be reduced or intensified adaptively. The listed mitigation lacks criteria for when and how each mitigation action will be implemented, and their effectiveness and their direct relationship to monitoring is unexplained.	Please construct a detailed mitigation table with a hierarchical classification of mitigation including offsets. Please discuss how mitigation can be intensified or reduced.
20663	caribou	mitigation	KIA	20	Kitikmeot Inuit Association: Tannis Bolt	Mitigation for impacts on caribou due to blasting doesn't restrict blasting when caribou are present. Caribou EA, Section 12.3.2.2.2, p. 12-56.	Physical hazards leading to increased risk of injury or mortality to individual caribou lists the following mitigation for blasting in the pit and quarry: "Blasting in the pit and quarry, if necessary, will be carefully planned and controlled to minimize fly rock that might injure caribou.". This commitment doesn't provide a minimum distance that caribou need to be away from the blasted area to initiate blasting.	Please provide details or a commitment on the minimum distance that caribou will need to be to initiate a blast at the quarry or pit. Please provide provisions for ceasing all blasting activity when a large group is moving through the area, and provide details on distance and group size that would require a stop order on blasting activities.

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16317	Caribou	mitigation	MVEIRB	1	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou - Adaptive Management and Mitigations: Terms of Reference Sections: 4 Assessment methodology 4.1 Impact assessment steps and significance determination factors 7.3.3 Impacts to caribou from project components 7.5 Biophysical environmental monitoring programs and management	The DAR requires that DDEC describe and assess the success to date of mitigation methods used in relation to past and present Ekati mine operations for caribou. The proposed mitigation measures are to be evaluated as to their technical and economic feasibility or discuss constraints, uncertainties and implementation. The DAR states that the proposed mitigation objectives to reduce encounters and exposure of the caribou to mine structures are the same as already in use at Ekati where mitigation is considered successful. The DAR lists environmental design features (Table 12.3-1) and gives a descriptive account of fences around pits but does not provide analyses or describe constraints, uncertainties and especially, how mitigation can be reduced or intensified relative to monitoring results. On p. 12-46, mitigation on the winter road is described as effective but no analyses of traffic frequency or caribou responses are presented. The TOR requires that the success of mitigation be assessed. The DAR does not include this. For example, the measurable zone of influence and partial avoidance of the Misery road suggests that mitigation is inadequate. The DAR does not describe the existing chemical changes in lichens and snow course data (see Rescan. 2011. Ekati Diamond Mine: 2008 Air Quality Monitoring Program. Prepared for BHP Billiton Canada Inc. by Rescan Environmental Services Ltd., Yellowknife, NWT) which coincide with the current size of the Zone of Influence where caribou distribution is reduced. Those reported chemical changes suggest that dust mitigation effectiveness is limited. It is unreported as to whether mitigation can be intensified to reduce the likelihood of dust from Jay pit and road use adding to the existing levels of dust. The Gahcho Kué Panel recommendations included enhanced mitigation to reduce the size of the Zone of Influence and activities through avoiding, minimizing, or compensating effects. The three categories of mitigation are linked through monitoring and adaptive management.	Dominion,please provide a comprehensive review with analyses to evaluate the technical and economic feasibility, constraints, and uncertainties for current and proposed mitigation. Explain how mitigation is related to monitoring and how mitigation can be scaled down or intensified in the context of adaptive management.
16886	Caribou	mitigation	MVEIRB	85	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR. 3.5.6 Waste rock storage area; s. 12.3.2.2.2 Caribou-Secondary Pathways	The Jay waste rock storage area will contain over 110 million tonnes of rock, and is located over a route currently used by caribou. It will remain after the project is completed, at a height of aproximately 80 meters above the surrounding landscape. Some natural landforms offer features such as insect relief and are beneficial to caribou. If the waste rock storage area can be landformed into a design that is good for caribou after the mine closes, it might present an opportunity to partially offset other potential adverse impacts with a beneficial impact (assuming is could be used without exposing caribou to contaminants).	Please consider and discuss any ways, in addition to the proposed caribou ramps, that the Jay waste rock storage area can be designed as a landform that is beneficial to caribou for the post-closure period.
19036	Caribou	mitigation	MVEIRB	96	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 12.3.2.1.4 Adaptive management, fencing, pit	<p>The DAR (Table 1.2-1) notes that observations of caribou crossing Misery Haul Road were used to shape the design of berms around Misery and Beartooth pits but does not include details. Fencing has been adapted as a mitigation action and the Beartooth pit 'snow' fence was considered effective (p. 12-47). However, the remote cameras have revealed shortcomings for the Beartooth pit fence which suggests modified mitigation is required to protect caribou at the pits.</p> <p>Section 7.3.1.2 of the Terms of Reference includes the requirement to describe how raising water levels and changes in flow rates may impact caribou movement relative to shoreline changes. Map 3.2-4 indicates a buffer zone will be left along the shoreline at the base of the Jay waste rock pile which could lead caribou to the Jay Road and the dykes that modify the shoreline.</p>	<p>a) Please list the specific monitoring, and subsequent changes in fencing design, to mitigate risks to caribou at pits including Misery and Jay Pits relative to Maps 1.4 and 1.5 (Sable Addendum)</p> <p>b) Describe mitigation when the Misery pit is being used to manage water from Jay Pit in order to prevent caribou getting into and out of the pit</p> <p>c) Describe mitigation to manage movements around the Jay waste rock and shoreline.</p>
19043	Caribou	mitigation	MVEIRB	103	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	To: IEMA Caribou Section 12.7; Table 1.2-1 Adaptive management	Table 1.2-1 lists six adaptive management actions but no details on the relationship between monitoring and decisions about mitigation. Five listed actions refer to mitigation for roads and caribou. The DAR states the Ekati Mine Wildlife Effects Monitoring Program is designed to provide evidence for adaptive management. IEMA's mandate includes overseeing wildlife monitoring at Ekati.	To IEMA: Please provide information on whether and how IEMA has documented how monitoring led to changes in mitigation (such as changes in method, reduction or intensification) for the effects of roads on caribou and habitat (including dustfall) at Ekati. Based on these findings please provide specific steps to improve adaptive management for improving crossing of roads by caribou.

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	Caribou	mitigation	YKDFN	21		Numerous, including DDEC Response to DAR-MVEIRB-13, 12.7	The project has repeatedly cited the linkage between wildlife monitoring and adaptive management. However, since the start of Ekati's operations, YKDFN has observed relatively little meaningful response during the collapse of the Bathurst Caribou Herd.	1. Please provide examples of operational changes that have occurred during the life of the mine to date as a response to the changes in abundance and distribution of wildlife in the region. 2. Please provide examples that are directly related to changes to the caribou herd abundance. 3. The project has introduced mitigations over the years, but there is little understanding if they have been effective. Please provide an update on the efficacy of the mitigations (i.e. what evidence is there to suggest caribou crossings are effective, etc.)
19044	Caribou	planning	MVEIRB	104	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	To GNWT Caribou Section 12.7 Caribou Protection Plan	Dominion proposes to amend the existing Ekati WEMP for Jay pit. Under the NWT 2014 Wildlife Act, a Wildlife and Wildlife Habitat Protection Plan is required. In the 2013 Report of Environmental Impact Review and Reasons for Decision for the Gahcho Kue Diamond Mine, a measure a measure to prepare a caribou protection plan was required to ensure that impacts to caribou and caribou habitat were not significant. This measure included an adaptive management framework linking the Wildlife Effects Monitoring Program and the Wildlife and Wildlife Habitat Protection Plan. Protection plans are used elsewhere for caribou. For example, in BC, an Environmental Assessment Certificate for the Roman coal mine required a Caribou Protection Plan which followed the hierarchy of avoid, minimize and offset. Ref: Report of Environmental Impact Review and Reasons for Decision, EIR0607-01, Gahcho Kue Diamond Mine, July 19, 2013 http://www.reviewboard.ca/upload/project_document/EIR0607-001_Gahcho_Kue_Diamond_Mine_Project_Report_of_EIR.PDF Ref: BC Environmental Assessment Certificate 12-02 for the Roman Coal Mine Project. Link	To GNWT: Please provide a template for a caribou protection plan which integrates the Wildlife and Wildlife Habitat Protection Plan and Wildlife Environmental Monitoring Plan relative to herd and range planning. This plan will describe how mitigation can be reduced or intensified and the monitoring required to modify mitigation.
19045	Caribou	planning	MVEIRB	105	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	To GNWT Caribou Section 1.2; DAR Adequacy Response 2015 Herd and range planning	The GNWT and its co-management partners are currently preparing a Bathurst Range Plan.	To GNWT: Please describe the planning initiatives for the Bathurst Range Plan with the timelines for completion and implementation of the Plan. Please discuss whether, in its opinion, interim steps are needed to protect the Bathurst herd and its habitat prior to Plan completion.
17059	caribou	population	IEMA	29	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Effects on Caribou; DAR Reference: s. Caribou - 12.5 Prediction Confidence and Uncertainty; Adequacy response DAR-MVEIRB-15	The prediction confidence and uncertainty section devotes much discussion to the uncertainty of climate change and fires. Several aspects of uncertainty are not fully discussed: a) The DAR acknowledges that "little specific research has been completed on how low voltage distribution lines affect caribou movement and distribution" (pg. 12-123), but does not discuss implications;	DDEC should re-examine these sources of uncertainty and reconsider how they would affect the conclusions of the DAR with regard to predicted effects on caribou.
17060	caribou	population	IEMA	30	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Effects on Caribou; DAR Reference: s. Caribou - 12.5 Prediction Confidence and Uncertainty; Adequacy response DAR-MVEIRB-15	b) The DAR does not appear to consider the implications of only Bathurst cows (not bulls) being collared on range use patterns and timing; c) The DAR does not appear to address the implications of the apparent extreme collapse in Bathurst herd numbers in 2014 (Boulanger et al. 2014b), and likely lower resilience to development impacts. This fact is mentioned in modelling provided in response to DAR-MVEIRB-15, but model parameter inputs (e.g., cow survival) do not reflect demography likely during the rapid decline since 2012 (but instead use parameters consistent with a stable herd from 2009 to 2012).	DDEC should re-examine these sources of uncertainty and reconsider how they would affect the conclusions of the DAR with regard to predicted effects on caribou.

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20413	caribou	population	LKDFN	17	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Bathurst caribou herd population References Section 12, sub-sections 12.2.2.3 and 12.6.2 Directed to Project Proponent	Background The DAR is not clear how it has taken into account the recent collapse in the Bathurst caribou herd. It is briefly mentioned under "Caribou Population Characteristics," and in the final Results section. However, it is not clear if the drastic reduction in herd population is included as part of analyses and if models were designed to account for this decline. Review Comment Clarity should be provided about whether or not the recent decline in population in the Bathurst caribou herd, and the presumed associated decrease in resilience, has been accounted for.	LKDFN requests that the proponent provide the population numbers that were used in completing the analyses in Chapter 12.
20227	Caribou	population	NSMA	14	North Slave Metis Alliance: Shin Shiga	12.5 Prediction Confidence and Uncertainty	Significant gap of knowledge remains in the area of understanding of the population resilience at different levels of population health. At present, the Bathurst herd is going under a rapid decline, which likely has reduced its resilience to disturbance. Without this data, it is unclear how DDEC concludes what magnitude (significance) of impact the Project may have on the Bathurst herd population health and resilience.	Please explain how DDEC evaluated the current resilience of the Bathurst caribou?
20228	Caribou	population	NSMA	15	North Slave Metis Alliance: Shin Shiga	12.5 Prediction Confidence and Uncertainty	Ditto	How does DDEC incorporate the ongoing rapid decline of Bathurst caribou population into the analyses in the DAR and its subsequent addendums?
20314	Caribou	population	Tlicho	25	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR26: Project Effects on Caribou DAR Reference: s. Caribou - 12.5 Prediction Confidence and Uncertainty; Adequacy response DAR-MVEIRB-15	b) Only Bathurst cows (not bulls) are being collared on range use patterns and timing, the implications of this are not considered; c) The DAR does not appear to address the implications of the apparent extreme collapse in Bathurst herd numbers in 2014 (Boulanger et al. 2014b), and likely lower resilience to development impacts.	25.1 DDEC should re-examine these sources of uncertainty and reconsider how they would affect the conclusions of the DAR with regard to predicted effects on caribou.
19031	Caribou	population	MVEIRB	91	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 12.2.2.1 Integrating information on local numbers	The annual Wildlife Effects Monitoring Program's (WEMPs) report incidental caribou sightings at Ekati since 2006, but this is not included in the DAR. Sightings have stayed relatively consistent which indicates an increasingly large proportion of the herd moves through the Ekati site. The 1996-98 baseline surveys for Diavik showed large numbers of caribou funneling into the Ekati area in the fall. Likewise the 2003-2013 WEMPs report groups of 1000s caribou in September and October on the Lac de Gras north shore peninsula and in the vicinity of the Misery Road. Rescan (2012) reports for example, "During the southern migration, 19,063 caribou were sighted (97% of all caribou counted) between September 1 and September 30, 2009. Overall, the number of caribou observed between 2009 and 2011 indicates that caribou are continuing to use the area around EKATI." As well as incidental sightings, since 2011, caribou are recorded by the remote cameras (6,399 individual caribou in 2012 with the highest rate of sightings in August and October). The cameras are an additional dataset to build a composite picture of caribou abundance and distribution at Ekati (allowing for repeated sightings). Rescan (ERM Rescan Environmental Services Ltd.). 2012. Ekati Diamond mine 2012 Environmental Impact Report, prepared for BHP Billiton Canada Inc., Yellowknife, Northwest Territories http://reviewboard.ca/upload/project_document/EA1314-01_Ekati_Diamond_Mine_2012_Environmental_Impact_Report.PDF	a) Please summarize as tables or maps the annual and monthly incidental caribou sightings (2006-2014) and camera sightings at Ekati main site and Misery/Jay vicinity. b) Please table or graph the annual incidental & camera sightings relative to trends in herd size as a percentage measure of the Bathurst herd's exposure to Ekati

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17054	Caribou	population	IEMA	24	Independent Environmental Monitoring Agency: Kevin O'Reilly	Caribou Aerial Survey Data; DAR Reference: Annex VII – Wildlife baseline report: Caribou aerial survey baseline, pg. 1-8 and 2-1; Caribou Section 12.2.2.1, pg. 12-17 to 12-18	Wildlife baseline report Table 1.5-1 (pg. 1-8) states Ekati conducted “aerial surveys to determine the abundance and distribution of caribou” from 1998 to 2009, but Section 2.1.1.1.1 (pg. 2-1) states “Caribou aerial surveys were completed at the Ekati Mine from 1998 to 2009 and 2012”. The 2012 Ekati WEMP (Rescan 2013) does not mention aerial surveys. The wildlife baseline report does not provide or refer to data from 2012 (pg. 3-1), and the assessment report shows data only from 1998 to 2009 (Map 12.2-4). The most recent data available should be used in this assessment.	DDEC should clarify whether aerial surveys to determine caribou abundance and distribution around the Ekati mine complex were carried out in 2012, and demonstrate how these data were considered in the caribou assessment.
20670	caribou	population	KIA	27	Kitikmeot Inuit Association: Tannis Bolt	Caribou Section 12, Figure 12.4-5, p. 12-113	The dashed line of 385 encounters estimated to result in no partuition during a severe insect year is poorly explained.	Please provide more information on how the encounter rate of 385 encounters per year was estimated as resulting in no partuition during a severe insect year. Please provide an explanation about how insect-related encounters are comparable to encounters with various forms of human stressors, such as airplanes, explosions, and vehicles, which may produce different levels of stress due to the lack of evolution for coping with such encounters. Other than the argument by Bergerud et al. (2008), that sensory disturbances from development have substantially fewer effects on caribou compared to the stress the animals sometimes face by oestrud flies, are there any other studies that substantiate that claim objectively? What data did Bergerud et al. (2008) base his comparative argument on? Are there any studies that argue the opposite?
19039	Caribou	population	MVEIRB	99	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 12.4.2.3 Energetics model assumptions and errors	<p>Dominion analyzed Jay Project's effects on energy and protein balance of caribou during different seasons in Section 12.4.2.3. The approach estimated energy expended on behavioral costs added to costs of insect harassment and reduced body condition followed by lowered pregnancy rates.</p> <p>a) The energetic cost of a single disturbance event within the Zone of Influence around Ekati was extrapolated from the energetic cost of simulated seismic exploration on boreal caribou during late winter in a forest (Bradshaw et al. 1997). Disturbance intensity was high, and sample size was low with high annual variation in snow depth. The simulated disturbance was a 1 sec blast/1-2 min of a propane cannon for a 1- hour. In estimating energetic costs for Ekati, the assumption was a single disturbance event/day.</p> <p>b) The energetic cost of insect harassment (to add to the cost of responses to mine activities) was derived from reindeer calves (Weladji et al. (2003) and applied to Bathurst cows. There are two shortcomings with this approach. Firstly, caribou cows are buffered from some energetic stress from insect harassment as they reduce milk production. This was not included in the modeling. Secondly, the model has the following mistake in calculating the cost to the cow. Dominion multiplied the cost per insect day (37 g) for a 20 kg calf to a 100 kg cow by multiplying by 5 (185 g). However, the extrapolated cost for the cow was based on carcass weight of calves. Assuming carcass weight is about 50% of live weight, the cost of insect harassment/day is 92 g for a 100 kg cow, not 185 g, which appears to be a high over-estimate. The estimated body weight is extrapolated to pregnancy rate but based on a relationship derived for cows from the Central Arctic herd which may over-estimate pregnancy rates.</p>	<p>a) Please list the assumptions and relevance to Ekati of basing the energy costs on a simulated disturbance response of boreal caribou. Re-examine the assumption of a single disturbance event/day within the Zone of Influence using the activity patterns measured at Ekati 2001-2009 and re-consider the conservatism of the assumptions.</p> <p>b) Please re-calculate the cost of insect harassment for cows and pregnancy rates based on body mass for Bathurst cows to reduce the over-estimated effect of insect harassment on pregnancy rate</p>

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19040	Caribou	population	MVEIRB	100	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou DAR Adequacy Response 8.8 Population model	<p>a) The developer's population model is a 10-year projection of the trend in the size of the Bathurst herd starting from GNWT's 2012 estimated number of breeding females. The reason for not using much lower 2014 starting population based on a reconnaissance calving ground survey is (p. 2) is that vital rates estimated after 2012 were not available. However, Fig. 28 in Boulanger et al. (2014a) shows extrapolated numbers of breeding females plotted against adult survival rates. The 2014 estimate suggests a lower adult survival rate as explanatory power and could have been used in the Proponent's population viability analysis.</p> <p>The energetic model is used to modify fecundity and calf survival rates for development and weather scenarios in the population model. The energetic modelling predicted up to 13% reduction in pregnancy (uncorrected estimate) but it is not clear how energetic projections for fecundity and calf survival (the following year) were used to calculate the population model input. DAR Reference: Boulanger J, Croft B, Adamczewski J. 2014a. An Estimate of Breeding Females and Analyses of Demographics For The Bathurst Herd of Barren-ground Caribou: 2012 Calving Ground Photographic Survey. Integrated Ecological Research Unpublished File Report No. 142 for Environment and Natural Resources, GNWT. 81 pp.</p>	<p>a) Please indicate if Dominion requested that GNWT provide updated vital rates since 2012 given the 2012-2014 decline.</p> <p>b) Please consider whether using an extrapolated adult survival rate (0.68) from the 2012 report would change conclusions from the population model.</p> <p>c) Please provide more detail to clarify how the fecundity and calf survival were calculated from the energetics model projections (revised) for body weight and pregnancy.</p>
19041	Caribou	population	MVEIRB	101	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou DAR Adequacy Response 8.8 Population model	The population model projects declines for all scenarios from 14% to 29% over 10 years (relative to an undisturbed landscape) using the current GNWT population data (Table 15.6). The projected declines include a small effect of the Jay Pit (p.11).	Given the projection of population declines based on current GNWT data, please list any further mitigation options to reduce effects.
19046	Caribou	population	MVEIRB	106	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	To GNWT Caribou DAR Adequacy Response 8.1 Adult and calf survival and vulnerability	The 2012-2014 decline of the Bathurst herd raises a question about if and how the accelerated decline is a time of particular sensitivity to potential impacts, and increased need for designing adaptive management. The Bathurst herd's vulnerability (as the sum of adaptive capacity and potential impact of landscape changes) has changed. Adult and calf survival, age structure, movements and environmental trends may have changed the context for assessing industrial development.	To GNWT: If the GNWT has conducted a vulnerability analysis for the Bathurst caribou herd, please provide it. If not, please discuss the applicability of a vulnerability analysis for the Bathurst caribou herd, and indicate if the GNWT would consider conducting one. If so, could it be done prior to the Technical Sessions in April?
20230	Caribou	population	NSMA	17	North Slave Metis Alliance: Shin Shiga	12.4.2 Effects on the Abundance and Distribution of Caribou	Ditto	Please develop a new evaluation matrix that takes into account the significance of calving and post-calving periods. Please use this matrix to re-evaluate DDEC's caribou assessment.
20231	Caribou	population	NSMA	18	North Slave Metis Alliance: Shin Shiga	12.4.2.3.1 Behaviour, Energy Balance, and Calf Production, Figure 12.4-2	The graph includes meteorological data from Diavik Diamond Mine and Snap Lake Mine, duration of 1993-2013	Please explain why data from 2014 is not included.
20232	Caribou	population	NSMA	19	North Slave Metis Alliance: Shin Shiga	12.4.2.3.1 Behaviour, Energy Balance, and Calf Production, Figure 12.4-3	Ditto	Please include data from 2014
20233	Caribou	population	NSMA	20	North Slave Metis Alliance: Shin Shiga	12.4.2.3.1 Behaviour, Energy Balance, and Calf Production, Figure 12.4-4	Ditto	Please increase spatial scale of this data so that it covers at least the calving/post-calving areas.
20234	Caribou	population	NSMA	21	North Slave Metis Alliance: Shin Shiga	12.4.2.3.1 Behaviour, Energy Balance, and Calf Production, Figure 12.4-5	Ditto	Please increase the temporal scope of this data if possible.
20235	Caribou	population	NSMA	22	North Slave Metis Alliance: Shin Shiga	12.4.2.3.1 Behaviour, Energy Balance, and Calf Production, Figure 12.4-6	Ditto	Please superimpose on this data the Bathurst caribou population data for ease of comparison.
	Caribou	population	YKDFN	18		To GNWT, 12.2.2.1	YKDFN was not provided the 2012 Caribou Census until 2014. Given the critical status of the Caribou herd, it is tremendously important that this information is provided to this process. There is another census scheduled for 2015.	<p>1. When can parties expect this information to be provided?</p> <p>2. Can GNWT commit to providing the preliminary and final reports to the registry as soon as possible, with sufficient time to be reviewed prior to the hearing (and ideally prior to that point)</p>

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	Caribou	population	YKDFN	19		To GNWT, 12.2.2.1	Previous environmental assessment efforts have required GNWT to develop a cumulative effects management framework. This was a mitigation designed to mitigate the onset of significant effects – but it remains outstanding while Gahcho Kue is being built.	1. Please provide a discussion when this framework will be completed. 2. Please provide a description of the authority that this framework will have to regulate development.
	Caribou	population	YKDFN	22		To GWNT, Caribou Management Actions, 12.3.2.2.3	GNWT has previously believed that there was an important caribou herd that calved away from the coast. The Beverly Herd has almost completely disappeared, with only a few animals calving in this area at present. Current thinking is that the remainder of the herd has moved elsewhere, but we can use this as a learning opportunity. Moreover, this is an opportunity to consider the management framework that underlays the setting for the impact assessment and the predictions that are made. It is likely that the parties to this agreement cannot expect any additional mitigation from governments (there are no additional harvesting limitations that GNWT can undertake).	1) Please provide examples of the type of management actions that GNWT undertook as they watched the decline and disappearance of the Beverly Herd. 2) Should the Nations that depend on the Bathurst Caribou expect GNWT to undertake any meaningful management actions other than prohibiting harvest? 3) YKDFN have repeatedly sought to see other parties sacrifice in addition to themselves, yet GNWT continues to force only the Dene to sacrifice their lifestyle. Given that harvesting limitations themselves are not enough to produce positive population growth (Boulanger and Gunn 2007) - At what point will GNWT take action in areas other than harvesting? 4) The Bathurst herd has declined in excess of 90% already and continues to show negative trends and disturbing demographics, including a 50% reduction in numbers over the last 3 years. Can the YKDFN expect this herd to be considered for Species at Risk protection prior to its disappearance, or is another Beverly herd approach – with almost complete lack of action (other than harvesting restrictions) - acceptable to GNWT? 5) Given that the information on predation was identified as a limiting factor in 2011, please identify what programs GNWT initiated to remedy this and provide a listing on their objectives and how they will help parties understand what is driving the decline of Caribou. 6) Please provide a thorough rationale as to why the YKDFN's constitutional rights have been suppressed for 5 years while industry continues unabated and GNWT has commenced direct support for exploration and industry. Why is GNWT content to use only a single significant management action? 7) The project has stated "...the Jay Project is expected to result in a minor change to the harvest of caribou...". If the project were to delay the recovery of the Bathurst herd by a single year, would GNWT consider this to be a minor effect? Would a 5 year delay in the restoration of harvesting be considered a minor effect? Please provide a discussion on how the GNWT evaluates the magnitude of caribou harvesting restrictions on the impacted communities. 8) Action to ease pressure on Caribou has been a matter of focus for a decade in the NWT, with two focus points at the 2007 Inuvik Caribou Summit and the 2010 Wek'ezhii Renewable Resource Board recommendation report. Both of these processes issues reports with recommendations – many of which remain outstanding. Given the ongoing caribou emergency, it seems that Government action on these recommendations should be evaluated in concert with additional development as any mitigations arising from these reports are important to understand the context that Ekati is moving forward within. So for each of these reports please provide a list of the recommendations and what GNWT has done in response.
	Caribou	population	YKDFN	24		12.2.2.2	Based on the behavioural monitoring, the project states that caribou are reasonably tolerant of human activity around the mines.	1) Please provide the sample size and a confidence discussion. 2) Please provide a listing of year on year sampling numbers. 3) Behavioural monitoring has been underway for a long time – please provide a thorough discussion on why the sample size is still 'small'.
	Caribou	population	YKDFN	26		To GNWT, Section 12	The project has provided information that the Bluenose Herd is stable or increasing. However, GNWT recently exercised emergency powers to further limit harvesting, bypassing the comanagement route – suggesting that this herd is in decline such that emergency actions to address a 'caribou crisis'.	Please provide an update on the Bluenose East Herd, contrasted to the project description, and explain the basis for emergency actions.
	Caribou	population	YKDFN	27		Section 12.2.2.4.x, table 12	The project has provided information that don't seem to match particularly well – the text passages are different than the chart. For example, s. 12.2.2.4.4 notes that 80 caribou have been 'found dead' at the Diavik site, but the chart only lists 23. Similarly, the Ekati section seems to note an awful lot of dead animals relative to the passages.	1) Please provide an explanation on the seeming discrepancy between the text and the chart 2) Has DDEC or Golder undertaken any analysis to consider if the number of dead caribou is within the range of expectations – given the low probability of discovering a carcass in areas distant from the mine, the actual observed area may be quite small versus the annual range (i.e. given the relatively small area & probability of discovering a carcass, what would the expected number of animals be expected to be discovered)? If so, please provide this analysis. If not, why not?

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Unique ID	Section/Topic	Subtopic	Party	ID	Reviewer	Topic	Comment	Recommendation
17058	Caribou	roads	IEMA	28	Independent Environmental Monitoring Agency: Kevin O'Reilly	Location of Jay Road; DAR Reference: Jay DAR Sable Addendum: Appendix I - 2014 Wildlife Baseline Study; s. 2 Project Alternatives; s. 3 Project Description	The 3 alternative routes for the Jay Road examined environmental considerations in the selection process (2.5.1.1; pg. 2-43). The selected (alternative 3) portion of the Jay road crossing the esker is designed as a cut through a naturally occurring narrow section (3.5.1.5; pg. 3-46). However, field work from 2013 and 2014 couple with GIS modelling suggests that the proposed road alignment is adjacent to a high concentration of caribou trails and cuts through several areas of medium to high trail classification, especially on the section of road close to Misery and adjacent to the esker crossing compared with other alternatives (DAR Sable Addendum: Appendix I; Map I-5). Road alternative 1 in fact crosses far fewer areas of medium to high trail classification. It is not clear that the selection among alternative road routes was informed by the caribou trail survey/modelling (released in Dec 2014).	DDEC should re-evaluate the Jay road options and demonstrate that from a caribou movement perspective that the route selected has the least potential to disturb caribou movement through the project.
16888	Caribou	roads	MVEIRB	87	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s.2.5.1.2.1 Roads Alternative Assessment- Evaluation Criteria- Technical Feasibility	In selecting the Jay road alternative, the number of caribou crossings for each route was assumed to be relative to the length of the road (p.2-43). This suggests that Dominion expects the number of road crossings to be uniform for any equal stretch of road.	Are there any parts of the road that caribou are more likely to cross the road than others, considering, for example, currently known caribou movement routes? If so, has this been considered in the selection of the Jay road alternative, and if not, why?
19035	Caribou	roads	MVEIRB	95	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou DAR Sable Addendum 13.3 and maps 1-4 & 1-5, caribou trails and Jay road route for Jay road	The maps showing the caribou trails relative to the locations of the proposed Jay Road and waste rock storage area are valuable in predicting impacts from these project components on caribou.	a) Please provide alternative Jay access road route options and changes to the shape of the rock pile that would reduce the likely encounter rate of caribou based on the mapped trails. b) Provide the design. including profile (such as road bed height), for the alternative road. c) Describe placement of mitigation options relative to the identified high and medium caribou track locations
16887	Caribou	roads	MVEIRB	86	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s.3.5.1.5 Roads and Pads DAR s.12.2.2.2.; 12.4.2.2.2	The Jay road crossing of the esker presents a potential barrier to caribou movements. In Banff National Park, a wildlife overpass is used by ungulates over the twinned Trans-Canada Highway. At Ekati, the Pigeon Creek culvert on the Sable road appears to be functioning as a caribou underpass.	Please describe the feasibility of constructing a wildlife overpass over the Jay road where it crosses the esker, and discuss the likelihood that such an overpass would be used by caribou.
20675	caribou	roads	KIA	32	Kitikmeot Inuit Association: Tannis Bolt	Disagree with criteria ratings for significance Section 12.6.2, Table 12.6-2, p. 12-136.	The ratings in Table 12.6-2 for impacts of increased traffic on Misery and Jay Roads are based on traffic underestimates (IR# 25), lack of consideration of a potential impact between the dewatering pipeline and the road (IR#3) and faulty interpretation of a former study (IR # 7 and #24).	Please revisit the impact classification for impacts of increased traffic on Misery and Jay Roads on caribou after updating information based on IR 3, 7 and 24.
20403	caribou	roads	LKDFN	7	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Mine closure – Esker repair References Appendix 3B Directed to Project Proponent	Background LKDFN is unable to locate information on the restoration of the esker after mine closure. Review Comment The DAR acknowledges the importance of the esker as a wildlife corridor and describes measures to be taken during construction and operation to minimize the disturbance of this corridor. It is unclear whether or not there is an intention to restore this esker after mine closure.	LKDFN requests clarification on the measures that will be taken to restore the esker as a wildlife corridor during the closure of the mine.

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20410	Caribou	roads	LKDFN	14	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Caribou and road avoidance References Section 12, sub-sections 12.2.1.1.3 and 12.2.2.2, pages 12-11 and 12-20 Directed to Project Proponent	Background The DAR states that only caribou within 200 metres of the road were recorded in road surveys, only caribou tracks within metres of the road were recorded, and caribou on wildlife cameras were observed for road deflection. The DAR also noted that 89% of observations were of groups smaller than five individuals. Review Comment LKDFN suggests that there are flaws in the methodology used to evaluate road permeability for caribou. The observation methods presented could only have recorded caribou that had already committed to crossing the road. It is quite possible that caribou decide whether or not to cross the road at a distance further than 200 metres from the road and these cases of avoidance would not be reflected in this analysis. This is especially concerning when traditional knowledge provided by KIA suggests that caribou do avoid crossing roads (page 12-40). LKDFN also finds it curious that observations were overwhelmingly of very small groups, given that caribou groups in Northern Canada have generally been recorded as larger (Heard, Douglas C., T. Mark Williams, and Kent Jingfors. 1986. "Precalving distribution and abundance of barren-ground caribou on the northeastern mainland of the Northwest Territories." Arctic: 24-28.; Duquette, Laurel S., and David R. Klein. 1987. "Activity budgets and group size of caribou during spring migration." Canadian journal of zoology 65.1: 164-168.; Government of Northwest Territories, 2004, Ecology of Boreal Woodland Caribou in the Lower Mackenzie Valley, NT: Work Completed in the Inuvik Region, April 2003 to November 2004. Department of Resources, Wildlife and Economic Development). This adds to doubts about the accuracy of this evaluation of avoidance.	LKDFN requests clarification from the proponent regarding the methods used to evaluate road avoidance among caribou, including some evidence to support that 200 metres is an adequate distance from which to evaluate road avoidance and that groups of smaller than 5 individuals can be considered representative of a caribou herd as a whole.
	Caribou	roads	YKDFN	23		12.2.1.4	The project notes that they had an 8 year study to consider the permeability of the Misery Road. However, the DAR notes this, but then proceeds to discard the study in favour of the Camera Monitoring Program (which has results much more favourable to the project). The longer winter road program (Rescan 2012) noted that caribou were deflected 57% of the time. For example, the discussion of the monitoring program on p12-96 does not note that there was an alternative study with much different results at all. It seems that the project is not presenting a fulsome picture of the caribou response to roads, but rather the studies that they prefer.	1) Throughout the DAR, the project states that the camera project along the road has a detection range of 500m, such as on p12-96 where the DAR states "the effective range of the cameras is likely limited to less than 500m". The project has previously provided YKDFN with information that the camera coverage was an arc extending approximately 30 m. While YKDFN agree that 30m is less than 500 metres, there seems to be some inconsistency in the information that has been presented. Please provide an explanation and examples of pictures where caribou were observed at ranges from 4-500m. 2) Please provide an analysis of the area covered by the camera monitoring program at any one point for each year. 3) Please provide an area if the Misery Road was buffered by 500 meters. 4) For each of the Objectives discussed in 12.2.1.1.6 please provide the results of this Camera Monitoring Study 5) Please provide an explanation as to why the camera study is believed to be more effective in explaining caribou response to the longer Rescan survey. 6) Section 12.2.2.2 states that the "it cannot be determined whether these deflections represented caribou that did not cross the road or caribou that chose a different location to cross the road". The presentation suggests that this is not a problem with the camera system. Given the coverage requested above, please provide examples and methodology as to how the project assessed the difference. 7) If the key factor affecting crossing height appears to be berm height, what is the best practice to ensure that roads (and winter roads) do not represent barriers to movement? 8) Is Ekati committing to ensure that no new roads will be built in excess of these guidelines (i.e. implementing mitigation to minimize effects) 9) Is Ekati willing to commit that the winter road will also maintain these berm limits (believed to be approximately 1.8m)? Though YKDFN acknowledge that the Joint Venture is not simply an Ekati enterprise, they are the largest user and after 2021 will be the only user on the northern half – thus are able to set contracting terms for the construction. During the period before that, it seems that all road users would desire to limit those effects which could be mitigated through best practices.

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21275	caribou	roads	GNWT	69	GNWT - Lands: Paul Mercredi	Caribou DAR Section 12. S 12.2.2.1 Caribou Distribution and Abundance (p12-21); 12.4.2.2 Habitat Quality Behaviour and Movement; 2012 & 2013 WEMP Addendums - Wildlife Camera Monitoring Summary Report; 2010 WEMP	DDEC reports having employed at least two separate methods for looking at rates of deflection of caribou from crossing roads in the project. At least 10 years worth of snow track data alongside the Misery Road in April and May (2002-2011) appears to have produced an estimate of 56% of caribou deflected from crossing. DDEC reports deflection rates measured by motion sensor cameras in 2012 at around 8%, and in 2011- 2013 at 1% or 2%. There appears to be quite a margin of disparity between these estimates of road permeability (i.e. deflection rates), yet DDEC seems more inclined to treat the camera results (1% metric) as the more definitive results. DDEC does note shortcomings associated with each of these methods. For instance, they state that it cannot be determined from snow track data whether a caribou did not cross at all or whether it did not cross at that location (DAR p. 12-21), and therefore, this method may be over-reporting deflection rates. In regards to the camera study, the trigger range is only 25-30 m and DDEC states "the effective range of the cameras is likely limited to less than 500m, meaning that caribou reactions to the road beyond this distance would be difficult to discern from the data" (bottom of p 12-96). This suggest this method is under-reporting deflection rates. Given that these two datasets will likely provide the baseline against which further monitoring of impacts related to the road and associated distribution line, more explicit analysis of the benefits of these methods will have implications for future road monitoring.	Please describe: a) why the different methods for measuring crossing rates have provided such disparate results, b) DDEC's rationale for apparently supporting caribou deflection rates listed in the 2013 camera report over those of previous years and methods, and c) what the implications of this might be for the design of a road monitoring programs for testing the impacts associated with the primary pathway related to the road.
19034	Caribou	roads	MVEIRB	94	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou 12.2.1.3.; Annex VII Baseline report p. 3.4 Uncertainty in Misery Road as a partial barrier	<p>There is a total of 87 km of roads at Ekati, and while caribou behavior was monitored 2001-2010, gaps remain which reduce certainty in mitigation and predicting effects. Table 1.2-1 refers to construction of caribou crossings along the Misery Road in areas of high usage but without a map or describing how high usage was measured. It is uncertain whether the low rate of caribou crossings as documented by cameras (2011-2013) reflects effectiveness of the crossings; or cameras vs snow tracking (2002-2010), or traffic frequency or a change in caribou behavior. Remote cameras on the Misery Haul Road revealed caribou were deterred from crossing the road for 2-8% of the observations (ERM Rescan 2013 , 2014), and crossings did not vary with changes in traffic volumes but traffic frequency was not reported. In contrast, based on snow-tracks, caribou were deflected at Misery Road at a higher rate (57% of the observed events; 2002 - 2010 p.12-21). This suggests Misery Road was a partial barrier to caribou movement depending on height of snow banks at the edge of the road, group size, and year. The DAR notes that road deflections by caribou were more common in the Sable and Pigeon roads than the Misery Haul Road (no information on caribou numbers or traffic frequency).</p> <p>Rescan. 2013. Ekati Diamond Mine: 2012 WEMP Addendum Wildlife Camera Monitoring Summary Report. Prepared for Dominion Diamond Ekati Corporation by Rescan Environmental Services Ltd.: Yellowknife, Northwest Territories.http://www.reviewboard.ca/upload/project_document/EA1314-01_Ekati_2012_WEMP_Wildlife_Camera_Monitoring_Report.PDF</p>	<p>a) Please table or map how known crossing areas were identified on the Misery road (snow and snow free season) and if subsequent monitoring confirmed use of the crossings (mitigation effectiveness);</p> <p>b) Describe how mitigation could be adapted if crossing success is seasonal for the Misery Road, mitigation could be adapted;</p> <p>c) Relate the Misery Road mitigation (construction of crossings) to the proposed Jay Pit access road and compare the cross-section profile of the two roads, considering that the Jay access road includes a pipeline bench. Please describe the additional mitigation required based on the width of the of road and the space between road and pipeline bench, considering the existing experience of pipelines and roads.</p>

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17055	Caribou	roads	IEMA	25	Independent Environmental Monitoring Agency: Kevin O'Reilly	Conclusions from wildlife cameras on caribou deflection rates and implications to uncertainty and confidence in mitigation; DAR Reference: Annex VII – Wildlife baseline report: 2.1.1.1.6	Snow track surveys from 2002-11 indicate that caribou deflected from crossing the Misery Road ~57% of the time, suggesting the road was a partial barrier to caribou movement (Rescan 2012). The DAR refers to caribou deflection rates on roads within the Ekati mine complex in the 1-2% range based on data obtained from remote cameras (pg. 12-21, 12-96). The DAR justifies this large difference by stating the track counts couldn't differentiate caribou that chose a different location to cross the road (implying that the cameras could). Primary objectives of the caribou camera monitoring program do not list deflection rates (12.2.1.1.6, pg. 12-11), yet DDEC claims that the camera-recorded deflection rates are correct despite acknowledging that the effective range of the cameras is limited (pg. 12-96). The DAR claims that "the effective range of the cameras is likely limited to less than 500 m" (pg. 12-96), but given a far shorter trigger distance for the cameras, how the fate of an animal observed >30 m away would be discerned is not clarified. The trigger range of the cameras is ~25-30 m, and field of view (often down along the road) is not described or quantified. It appears that the cameras are recording presumed crossings of animals that are close enough to trigger a camera. The implication of accepting a 1-2% deflection rate on the road means that mitigation measures do not need to be as rigorous if higher deflection rates were assumed.	DDEC should a) justify that the cameras are recording actual deflection rates of caribou approaching the Misery Road at any distance, b) provide details on the mitigation measures in place (and proposed) to enable caribou to freely cross the Misery Road at the traffic volumes suggested.
20667	caribou	roads	KIA	24	Kitikmeot Inuit Association: Tannis Bolt	Caribou road deflections/traffic assumption. Caribou Section 12.4.2.2.2, p. 12-96	<p>The last paragraph on this page states that:</p> <p>"From 2011 to 2012, motion detection wildlife cameras were used to investigate caribou interactions with the Misery Road and other mine site roads (ERM Rescan 2014a). The overall rate of deflections was observed at approximately 2% of road interactions, meaning that 98% of the caribou-road interactions photographed did not show clear observations to suggest that the Misery Road impeded movement. Deflections did not appear to be affected by changing traffic levels on the Misery Road over the duration of the study (ERM Rescan 2014a). However, the effective range of the cameras is likely limited to less than 500 m, meaning that caribou reactions to the road beyond this distance would be difficult to discern from the data"</p> <p>Please see comments for IR #7.</p>	<p>As mentioned in IR #7, we feel that, without analysing cameras triggered at various distances from caribou behaviours captured at or near roads, no reasonable conclusions can be made from the study by ERM Rescan (2014) (Earlier cited as Rescan (2014b)) about the effect of changing traffic levels on deflections.</p> <p>We suggest that all statements pertaining to effects of traffic on caribou road crossing derived from this study be revisited and modified or removed as they overextend the results to answer questions that the data cannot answer.</p>
20668	caribou	roads	KIA	25	Kitikmeot Inuit Association: Tannis Bolt	Traffic along Misery Road and Jay Roads likely underestimated as impact on caribou. Caribou Section 12.4.2.2.2, p. 12-97.	<p>Section 12.4.2.2.2 states that traffic volumes were assumed to 56 trips per day by road trains (consisting of one truck pulling 3 trailers), with approximately 12.3 minutes separating each road train, for the effects assessment on caribou. However, Section 3.5.1.6 in the project description assumes that 56 trips per day will be made by long-haul trucks with a fleet of seven trucks, making 8 trips per day.</p> <p>Other traffic not included in this estimate, as indicated in the project description, section 3.5.1.6, included bulk explosives trucks, crew trasport vehicles, road maintenance equipment, garbage trucks, low-bed trucks to transport larger equipment, water trucks, emergency vehicles and light vehicles. Caribou likely respond to these vehicle types as well, a they may comprise a very large number of vehicles, likely far greater than comprised in the 56 trips mentioned.</p>	<p>Please clarify the apparent discrepancy between the description of the 56 round trips made in the Project Description, and that made in the Caribou Assessment.</p> <p>Please provide estimates of the total number of vehicles, of all types anticipated to use Misery and Jay Roads, including all traffic types, and consider these total numbers in assessing the impacts of road traffic on caribou movement.</p> <p>Please include an assessment of road traffic added to Tibbit to Contwoyto Lake for the proposed Jay Pipe project on caribou.</p>
21278	caribou	roads	GNWT	72	GNWT - Lands: Paul Mercredi	Caribou - DAR MAP 12.2-5 Project Description - DAR 3.5.1.5 (Roads and Pads) Caribou _ DAR s. 12.3.2.2..2 (Secondary Pathways) Caribou - DAR s.12.4.2.2.2. Pg.97 (Results)	<p>DDEC is planning to haul kimberlite from the proposed Jay Pit to the processing plant along both the Jay Road (~4km) and Misery Road (~25km). "Traffic volumes on the Misery and Jay roads are anticipated to be 56 round trips per day by road trains. A road train consists of one truck pulling three trailers. There are expected to be seven road trains making eight trips per day (Section 3.5.1.6). There will be approximately 12.3 minutes between each road train. Modified traffic patterns and road closures will be used as necessary to mitigate barrier effects to caribou."</p>	<p>a) What are the assumptions surrounding the estimated 12.3 minutes between road trains? For instance, are there peak hours or will traffic run at relatively similar levels throughout the 24-hour day?</p> <p>b) Please provide estimated volumes of traffic from all vehicles types (maintenance, staff transport, resupply etc.).</p> <p>c) To assess changes in traffic levels GNWT requests that DDEC provide a description of historical traffic monitoring activities and traffic levels on the Misery Road. This could be presented in the form of a table similar to Table 12.3-2: Operating Period and Number of Northbound and Southbound Truck Loads on the Tibbitt to Contwoyto Winter Road, 2000 to 2013.</p> <p>d) Please describe plans to monitor traffic levels on the Misery Road and Jay Road in future.</p> <p>e) Please provide more detail on how traffic patterns will be modified, and details of the procedures that guide decisions about road closures.</p>

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19033	Caribou	roads	MVEIRB	93	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 3.5.1.6 Inadequate baseline data traffic frequency for the Misery Road	Dust is partly related to traffic levels. The DAR projects that ore trucks will average 12 minutes between trips, and unspecified levels of other traffic once the Jay pit is constructed and operational. Dustfall was measured on other roads to other pits at Ekati. Understanding corresponding traffic levels would help in predicting dustfall on the Jay Road.	Please table or graph traffic frequency by season and year for the Misery Road, Fox and Sable Haul roads. If truck frequency is unavailable, please estimate from rock handled tonnage and truck capacity.
20650	caribou	roads	KIA	7	Kitikmeot Inuit Association: Tannis Bolt	Problematic interpretation of former study by Rescan of road crossing by caribou. Annex VII: Wildlife Baseline Report, Section 2.1.1.1.6, p. 2-3, Section 3.1.2, and Barren-Ground Caribou EA, Section 12.2.2.2, p. 12-21	<p>Section 2.1.1.1.6 outlines the goals of previous camera-based monitoring of caribou at Ekati by Rescan (2014b) and notes the 6 main goals aimed at determining how caribou respond to road structures. Section 3.1.2, referencing the same camera-based study, states that "in most cases, deterrence of caribou from roads could not be linked to a specific trigger such as a vehicle"</p> <p>Later, in Section 12.2.2.2, in the last sentence of paragraph 1, the same study is summarized as "the key factor affecting crossings appears to be berm height and not traffic volume or maximum road height (ERM Rescan 2014)". While berm height is likely a factor, we have concerns that the impacts of traffic cannot be determined by this study and that these data are being misinterpreted.</p> <p>We have several issues with the way in which the results of this study by Rescan (2014b) have been interpreted. First, the study design needs to be considered. Monitoring of roads associated with Ekati by Rescan was done by setting up motion-triggered cameras at set intervals along roads to see how caribou reacted to those roads (Rescan 2014b). The goal of correlating traffic frequency at various distances to caribou with their behaviours near or on the road was not a goal of the study. To adequately address the question of whether road traffic impacted caribou crossing and road use, photos from all cameras along the road, even at great distances from a reacting caribou, would need to be checked for the presence of a vehicle with a time stamp similar to, or just prior to, a caribou being captured on camera exhibiting a response like running along the road, off the road, or turning from the road. It is our understanding that this excercise of checking for and correlating vehicular presence at distances far up and down the road from caribou behavioural events captured was not done in the study, and only vehicles captured in the same frame as the caribou were noted. If caribou respond to traffic, they are likely responding to vehicles farther up the road, when noise and vibrations are first detected by the animal, which would require an analysis of vehicles captured on at greater distances on other cameras, by correlating time stamped vehicles with caribou responses. Further, if impacts of traffic on caribou occurred, it would not only cause deflections from the road, as in the the 2% of caribou deterred from crossing, but could also cause caribou to run from the road, along the road, or off the road in response to distant traffic approaching. Other caribou that were greatly deterred by road traffic would simply not approach the road, which would not be captured in the study cited.</p>	<p>Please review the study in full and revise references and verbage regarding interpretations of the effect of vehicles on caribou behaviour at roads.</p> <p>While we feel that traffic was not analysed in a way that can be connected with any of these behaviours in the Rescan study, please comment on the prevalence of behaviours in the Rescan study that imply a startle response (possibly to traffic), such as running along the road, or off the road, in addition to the 2% of caribou that deflected from the road if this reference is retained.</p> <p>Please discuss results from other studies that have explored the impacts of roads, and traffic, on caribou to contextualize these results.</p> <p>Please consider collecting additional information along Misery road on the impacts of vehicles on caribou behaviours at roads (e.g., running, deterrence), along with information about the distance at which caribou respond to vehicles of various sizes. We suspect that caribou have stronger behavioural responses to vehicles than to tundra road verges, and implementing an additional road monitoring program, or sorting the existing data in another way that can answer this question properly would be necessary prior to concluding that, as the proponent does in Section 12.2.2.2, "the key factor affecting crossings appears to be berm height and not traffic volume or maximum road height (ERM Rescan 2014)" .</p>
20656	caribou	roads	KIA	13	Kitikmeot Inuit Association: Tannis Bolt	Contributions to harvest-related declines in Bathurst caribou. Annex VII, Section 3.1.3, p 3-5	The wildlife baseline identifies that the decline of the Bathurst caribou her since 2006 was likely driven by decreasing adult female and calf survival rates and possibly due to decreased fecundity (Boulanger et al. 2011). The effect of a constant hunter harvest (estimated at a rate of 7,484 bulls abd 8, 380 cows per year between 1988 to 1993) during the decline was also identified as a potential cause for the decline by Boulanger et al. (2011).	Please provide estimates of harvest rates during this time period occuring in the NWT and in Nunavut separately, to identify contributions to this cumulative, transboundary effect. Please comment on the impacts of road creation during this time period on harvest rates, and whether road construction is thought to have facilitated an increase in harvest due to a greater ease of travel.

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	Caribou	Roads	YKDFN	17		To Developer and GNWT	The Tibbett to Contwoyto winter road (TCWR) is the source of significant impacts and a particular concern to YKDFN and is effectively absent from the DAR despite the clear direction in the ToR. The Scope of Development must include all "project components, activities of structures that are required to undertake the development of the Jay kimberlite pipe that have not been previously assessed as part of the NWT Diamond Project Report of Environmental Assessment dated June 1996 or the Report of Environmental Assessment on the Proposed Development of Sable, Pigeon, and Beartooth Kimberlite Pipes February 2001". YKDFN does not believe that either of these Reports assessed the impacts of the winter road. The discussion provided as part of the DAR relates only to direct impacts – running over animals. This is not, nor has it ever, been the primary concern. YKDFN are reasonably sure that the project will object to this request, stating that the TCWR is not part of the listed components that they were required to address. However, we call their attention back to section 3.1: "In the Developers Assessment Report, the developer is required to fully describe all required facilities and activities for the development, including any not listed in Appendix A". Furthermore, the TCWR is explicitly included in the Geographic Scope (Section 3.4). As the TCWR has never been previously assessed and is essential for this project to proceed, it must be included in as part of the project's submission.	To DDEC: 1. In order to properly understand the impacts of this proposed project, YKDFN request the project completes the project assessment for the indirect effects TCWR. All relevant items under the Scope of Assessment should be discussed, with focus on the KLOI and relevant SoN. To GNWT: 1. Please indicate what monitoring and management actions the GNWT requires of the TCWR joint Venture. 2. The GNWT, contrary to the majority view of Traditional Knowledge holders, has asserted that the impact of mining on caribou has been minor and have principally been associated with access provided by the winter road: a. Please indicate what GNWT has done to manage access on the TCWR b. Given that harvesting has been virtually eliminated over the last 5 years and the Bathurst Herd continues to dwindle, does GNWT still continue to argue that the primary driver behind the decline is aboriginal harvesting? c. If not, what are the primary drivers behind the decline and what actions has GNWT taken
21273	caribou	significance	GNWT	67	GNWT - Lands: Paul Mercredi	ToR s. 4.0 Assessment Methodology; DAR Section 12.1.3	The DAR states, "Measurement indicators represent properties of the environment and the VC that when changed could result in or contribute to an effect on the assessment endpoint" (DAR s. 12.1.3 p. 12-4). Thus, measurement indicators are used to evaluate development impacts on valued components and are often quantitative in nature. The measurement indicators used for assessing cumulative impacts to caribou were: <ul style="list-style-type: none">• habitat quantity• habitat arrangement and connectivity• habitat quality• survival and reproduction• abundance and distribution In all cases, a quantitative analysis was presented in the DAR which in turn led to a quantitative change in the indicator. However, when impact significance was determined, a qualitative interpretation was provided. The Terms of Reference request on p. 14 paragraph 3 that the Developer identify ..."what, in its opinion, the threshold for significance would be".	For each measurement indicator used to determine cumulative impacts to caribou, provide rationale for a quantitative threshold of significance and discussion on how the quantitative change in measurement indicator either falls within or exceeds the quantitative thresholds (including the results of the recently submitted Population Viability Analysis).
20671	caribou	significance	KIA	28	Kitikmeot Inuit Association: Tannis Bolt	Minor not defined for low magnitude. Caribou Section 12.6.1.1, Table 12.6-1, p. 12-125	For magnitude ratings, low magnitude is defined as the amount of change to measurement indicator results in no measurable effect on population abundance and distribution, or results in a minor measurable residual effect on the population.	Please define "minor". This is an important definition as magnitude is the main criterion on which significance is based.
20672	caribou	significance	KIA	29	Kitikmeot Inuit Association: Tannis Bolt	Resilience limits not defined for moderate and high magnitude. Caribou Section 12.6.1.1, Table 12.6-1, p. 12-125	For magnitude ratings, moderate is defined as "Amount of change to measurement indicator results in a clearly defined change to population abundance and distribution, but the residual effects are well within the predicted resilience limits and adaptive capacity of the VC " and high is defined as "Amount of change to the measurement indicator is sufficiently large that the resulting range of residual effects are near or exceeding the predicted resilience limits and adaptive capacity of the VC"	Please define "resilience limits" for Bathurst caribou.

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20673	caribou	significance	KIA	30	Kitikmeot Inuit Association: Tannis Bolt	Definition of duration related to project phases rather than how long they will impact caribou. Caribou Section 12.6.1.1, Table 12.6-1, p. 12-125	For duration, short-term is defined as: Residual effect from change to measurement indicator is reversible at end of construction of a project, medium-term is defined as: Residual effect from change to measurement indicator is reversible at end of operations of a project and long-term is defined as: Residual effect from change to measurement indicator is reversible within a defined length of time past closure of a project. Some impacts may create a lagged effect on wildlife, such as creating an energetic deficit that affects reproduction for a year or two following the effect, or causing a decline that requires a lag period for the population to recover. Duration can also be viewed as relative to the lifespan and reproductive frequency of a species, and application of set definitions across many different species can have different outcomes (e.g. a short term effect on a species that only lives for 4 years is relatively long for that species).	As it is not easily discerned from the explanation in Section 12.6.1.2, is it possible to select short-term as a duration value and to conclude that an effect is significant? Based on studies in the literature, would a caribou population that was impacted over a short or moderate term duration be expected to bounce back immediately after that stressor or impact is removed? How is this lag time accounted for in the assessment?
20674	caribou	significance	KIA	31	Kitikmeot Inuit Association: Tannis Bolt	Definition of significance allows for population-level effects. Caribou Section 12.6.1.1, Table 12.6-1, p. 12-125.	Not significant is defined as: "impacts are measurable at the individual level, and strong enough to be detectable at the population level, but are not likely to decrease resilience and increase the risk to a self-sustaining and ecologically effective caribou population."	If impacts can be detected at the population level, for populations like the Bathurst herd, which has been in strong decline, how is this considered not significant? We would suggest that the definition, particularly for Bathurst caribou, be one that considers any impact detectable at the population level due to this project as significant. Please see IR #41, for a request for a-prior power analyses for grizzly bear, wolverine and barren-ground caribou, to determine the minimum losses of each species that would be required to detect a population change due to the project, giving underlying levels of variation around baseline population estimates.
20409	Caribou	significance	LKDFN	13	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Definition of "self-sustaining and ecologically effective" References Section 12, page 12-4, sub-section 12.1.3 Directed to Project Proponent	Background The proponent states "A self-sustaining and ecologically effective population is the assessment endpoint for barren-ground caribou." Review Comment "Self-sustaining and ecologically effective" are not clearly defined. While table 12.1-1 does provide some indicators, there is no quantifiable metric for measuring these attributes of the caribou population and no threshold provided below which the population would be considered no longer "self-sustaining and ecologically effective." The proponent states that "An ecologically effective population of a highly interactive species is one that is large enough to maintain ecosystem function." However, there is no numerical value provided to indicate what the proponent deems a large enough population in this specific situation. LKDFN questions some of the proponent's assessments of significance, and it would be easier to discuss this topic with a clear definition of what is too low for the population to be ecologically effective. □	LKDFN requests that the terms "self-sustaining and ecologically effective" be defined in a quantifiable, evidenced-based manner, with clear numerical thresholds below which the caribou population would no longer be considered "self-sustaining and ecologically effective." This could be done in terms of population numbers or population growth rates.

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20411	caribou	significance	LKDFN	15	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Definition of significance for parturition rate decreases References Section 12, page 12-118,sub- section 12.4.3; also page 12-124, sub-section 12.6.1.2 Directed to Project Proponen	t Background The proponent states that without development, but high insect harassment, the caribou parturition rate could decrease by as much as 26.8%. The proponent goes on to state that with development, this parturition rate in similar high insect harassment could be as high as 32.2%. This is a difference of 5.4% and the proponent goes on to indicate that this is not a significant impact. Review Comment <input type="checkbox"/> Given the recent reductions in the Bathurst herd population, it is important to be very clear about significance. This section has not provided any numerical values for what would be considered significant. It would also be useful to know which starting population numbers were used in determining this significance. What may have not been considered significant for the population in 2012 may well be considered significant for the drastically reduced population observed in 2014. <input type="checkbox"/>	LKDFN requests that the proponent provide thresholds for significance. If a 5.4% decrease in parturition rates is not considered significant, what rate would be considered significant? LKDFN requests that the proponent use the most recent information regarding Bathurst population numbers to determine these thresholds.
16883	Caribou	significance	MVEIRB	82	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR 12.6.1.2 Caribou- Determination of Significance	The DAR (p12-129) states that "a significant effect may also result from habitat loss and fragmentation that reduces migratory or seasonal range movements to the point that it disrupts (breaks) population connectivity". However, fragmentation may greatly reduce population connectivity without reaching the extreme of "breaking" it. For example, only a small fraction of caribou may move through an area in response to a disturbance, even without completely eliminating connectivity.	Please clarify why the developer's definition of significance appears to exclude fragmentation that reduces population connectivity, even if that fragmentation does not fully eliminate connectivity.
20229	Caribou	TK	NSMA	16	North Slave Metis Alliance: Shin Shiga	12.4.2 Effects on the Abundance and Distribution of Caribou	It seems that DDEC applied the same ZOI and other habitat degradation matrix to the four seasonal ranges (spring, post-calving, autumn, and winter). It has been expressed by many Traditional Knowledge holders that calving and post-calving periods are especially important to the population health of caribou.	Please explain why DDEC did not employ a different set of criteria to incorporate this important piece of TK.
	Caribou	TK	YKDFN	31		12.4	The discussion provided under 'general approach' does not describe the inclusion of traditional knowledge or how it is valued. It seems that the discussion provided as a part of this chapter was for no purpose (as is often the case).	Section 12.4.1 states that Traditional Knowledge and Community Knowledge was incorporated where available. Please provide: 1) Examples of where this was done 2) Examples of where the project identified an opportunity and went to gather traditional knowledge (similar to the other research that it did) and incorporated into the DAR.
20318	Caribou	TK	Tlicho	29	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR30: Residual Effects Analysis (Section 12.4); 12.4.2.1.2 Results	Due to project effects an estimated 4 ha of esker will be disturbed (Section 11.4.2.2). Based on cumulative changes from 2014 baseline condition, Eskers have also decreased by 0.8%, 1.3%, and 0.9% in spring, post-calving, and autumn ranges, respectively. Given the importance of Eskers for Tli?cho traditional hunting sites and wildlife movement corridors, it is critical that DAR incorporate Tli?cho knowledge in the planning of waste rock piles. Mitigations integrating Tli?cho knowledge, specifically elders, to avoid creating unsafe esker conditions that may result in negative impacts to wildlife and Tli?cho members from practicing their traditional rights on the land.	29.1 To reduce Project impacts on the eskers Tli?cho Elders should be consulted on alternative mitigation measures on waste rock pile configuration based on key species present on eskers, the type of animals that use eskers in the Project area, and the reasons for their use. Tli?cho knowledge would then be used to inform key design principles for waste rock piles from the Project, as well as reclamation guidance. The Tli?cho have issued a report on TK related to Eskers, and the company is requested to comment on how this knowledge will be integrated into project planning and design.

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	Caribou	significance	YKDFN	30		DAR Section 17.8	The Yellowknives Dene and other First Nations have made tremendous sacrifices to help the Bathurst Caribou herd recover while industry has effectively done nothing, and indeed, has expanded the level and range of impacts with the addition of new mine and a series of proposed new development projects in both the NWT and Nunavut	1. Section 12.2.2.1 notes that the zone of influence at Diavik is 12 to 40km (from Golder), while Snap Lake may have a ZOI of 28km. Please provide a discussion why the project has chosen to discard the reports from their consultants and use a smaller ZOI. 2. Dominion Diamonds has established a 'Significance Threshold' that is only crossed when the ability of the herd to continue to exist is threatened (described as Self-sustaining or 'exceeding the predicted resilience limits and adaptive capacity of the VC'). Please explain why such the project does not see significant impacts occurring at any point prior to the complete collapse for the herd. It seems obvious that the proper threshold should be established prior to this – to ensure that conservation is inherent. 3. Is this significance threshold based on the principle that “overprotection is not overly useful”, a position that Golder (the company's consultant) advanced during the Snap Lake Environmental Assessment? 4. The significance threshold also includes an aspect described as “ecologically effective”. Please provide a thorough discussion on what this means and the metrics that are used to evaluate whether the residual population is effective, including an explanation that details what this population will be effective at achieving. 5. The project states that that “for cumulative effects of development to have a significant influence on self-sustaining there would have to be sufficient change that the populations would no longer be resilient or have the ability to adapt to natural selection pressures” but state elsewhere in the chapter that populations with low numbers have lowered resilience. Please provide a discussion and analysis that explains: a. Why the Bathurst Herd has additional resilience and adaptability to absorb new infrastructure and industrial development b. Why industrial operations should be prioritized over aboriginal rights in the present and how they will not limit the successful exercise of those rights in the future (i.e. that this doesn't become a scenario where people have the right to hunt caribou, but they are just extirpated from the area) 6. Given that the application case predicts a herd population approximately 15% lower than the reference (or approximately two thirds the population estimated as part of the 2014 Recon Survey), and that the population is not sufficient to support Dene harvesting at present, how is it that the project has assessed the effects as not significant?7. Why is it that the company feels that they do not need to alter their operations and can expand the level and range of activity when Yellowknives Dene are being forced to give up their constitutional rights to harvest the animal that is central to their culture and lifestyle?
21279	caribou	utilities	GNWT	73	GNWT - Lands: Paul Mercredi	Project Description - DAR s.3.5.1.5 (Roads and Pads) Caribou - DAR s.12.4.2.2.2 (Results) MVERIB IR #83	As part of the water management system, the proposed project will construct pumping systems between the Jay site and the Misery Pit, and from the Misery Pit to the Lynx Pit. Each pumping system will consist of a pump station and a pipeline. A pipe bench will be constructed to accommodate the pipelines, which will follow existing and proposed road alignments to the extent practical to minimize the Project footprint. IR #83 from the MVEIRB states that DDEC is planning to place these pipelines alongside these roads to a maximum of 3ft in height. GNWT sees these pipelines as a potential barrier for movement and a possible cause of injury to wildlife.	Please provide some discussion of the potential impact of these pipelines to wildlife movement, how design of these pipelines alongside the road will reduce negative impacts to wildlife and what other mitigations might be used to address impacts to wildlife movements.

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20412	caribou	utilities	LKDFN	16	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Effects of power lines on caribou References Section 12, page 12-123, sub-section 12.5 Directed to Project Proponent	Background The proponent states that “The magnitude of changes to caribou movement and behaviour from the power lines along Misery and Jay roads compared to the physical presence of the roads and associated traffic is unknown. Research suggests that effects from power lines are minor when compared to active roads (Berger et al. 2000; Reimers et al. 2000, 2007; Vistnes et al. 2008). However, little specific research has been completed on how low voltage distribution lines affect caribou movement and distribution.” Review Comment Recent research suggests that power lines could have more significant impacts on caribou than previously assumed (ref: Tyler, N., Stokkan, K.-A., Hogg, C., Nellemann, C., Vistnes, A.-I. and Jeffery, G. (2014), Ultraviolet Vision and Avoidance of Power Lines in Birds and Mammals. Conservation Biology, 28: 630–631. doi: 10.1111/cobi.12262). LKDFN does not consider this assessment complete without a more thorough evaluation of potential impacts from power lines.	LKDFN requests that the proponent conduct further research into the potential effects of power lines on caribou and provide the results to the Review Board.
16885	Caribou	utilities	MVEIRB	84	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s. 4.5 Engagement- Addressing Concerns	The DAR states, with respect to powerlines as a barrier to caribou movement, that community concerns remain and have been addressed in the DAR through environmental design and mitigation measures. Table 12.3.1 provides little information on how this has been addressed in project design.	Please provide detailed information on how design measures have been applied to reduce the effect of powerlines as barriers to caribou movement.
20313	Caribou	utilities	Tlicho	24	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR25: Project Effects on Caribou DAR Reference: s. Caribou - 12.5 Prediction Confidence and Uncertainty; Adequacy response DAR-MVEIRB-15	The prediction confidence and uncertainty section devotes much discussion to the uncertainty of climate change and fires. Several aspects of uncertainty are not fully discussed: a) The DAR acknowledges that “little specific research has been completed on how low voltage distribution lines affect caribou movement and distribution” (pg. 12-123), but does not discuss implications;	24.1 DDEC should re-examine these sources of uncertainty and reconsider how they would affect the conclusions of the DAR with regard to predicted effects on caribou.
20661	caribou	utilities	KIA	18	Kitikmeot Inuit Association: Tannis Bolt	Dewatering pipeline not considered. Caribou EA, Section 12, Table 12.3-1.	In the table scoping potential pathways for effects on caribou, the water diversion pipeline is not included. We noted in an earlier IR that these structures were not adequately described (IR #3). Based on dimensions provided in response to that IR, along with the proximity of the linear stuctures to the road, the impact of these structures may need to be considered in the pathway analysis for impacts on movement of barren-ground caribou. Lawhead et al. (2006) demonstrated that older pipelines, elevated 0.4 to 1.1 m above ground level at Prudhoe Bay Oilfield in Alaska constituted a barrier to caribou in the absence of crossing ramps. This group also suggested that elevated pipelines be separated from roads, as they can cause snow drifts under pipelines next to roads, affecting the ability of caribou to move onto and off of roads quickly to avoid vehicles and predators.	Please consider impacts of these structures on caribou once adequate information is provided on their dimensions, height and alignment.
16884	Caribou	utilities	MVEIRB	83	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou-DAR s.3.5.1.5 Roads and Pads DAR s.12.4.2.2.2	The DAR describes the Jay Road crossing the esker which is currently used as a main movement corridor for caribou, and considers effects of barriers to caribou movements. Communities have expressed concerns about the road and overhead powerlines as barriers to caribou movements (e.g. p4-28). Dominion proposes to build an overhead power line adjacent to the road. Dominion also proposes to run multiple pipelines adjacent to the road, to a maximum three feet in height.	Is Dominion able to bury the pipelines and powerline underground for the portion of the Jay Road that crosses the esker? If yes, is Dominion willing to do so?
20664	caribou		KIA	21	Kitikmeot Inuit Association: Tannis Bolt	Caribou EA, Section 12.3.2.2.2, p. 12-62	This section states that "Dewatering of diked area of Lac du Sauvage may result in newly established vegetation on exposed lakebed sediments that could change caribou habitat quality" by providing new habitat.We have concerns that this new habitat will draw caribou to it, but be of poor quality due to its proximity to roads and other dust-generating activities and given the previous statement in Section 12. 3.2.2.2, p. 12-57 that "Roads that are used to access the Project and the dewatered diked area in Lac du Sauvage are the main source of dust (PM and TSP) due to the re-suspension of soil and sediment particles (Section 11.3.2.2.2). Accumulation of dust (i.e., TSP deposition) may result in a local direct change on the quantity, distribution, and quality of vegetation near the Project."	Please comment on the predicted quality of new vegetation that could become established in the diked areas of Lac du Sauvage, given it's location, and the potential chemicals that will be contained in dust that may deposit on vegetation in this area.

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16318	Caribou		MVEIRB	2	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou and other wildlife crossing dewatered lakebed. Terms of Reference Section 7.4.3 Impacts to wildlife and wildlife habitat from project components, bullet 8 7.3.3 Impacts to caribou from project components, bullet 8DAR section: 13.3 Pathway Analysis	On page 13-78, DDEC assessed injury or mortality to wildlife being trapped in exposed lakebed sediments as a pathway with no linkage resulting in the pathway not being carried through in the assessment. Therefore no mitigation was proposed (Table 13.3-1 and 12.3-1). However, page 13-93 in the wildlife section and 12-62 in the caribou section observe that vegetation establishment in the lakebed may attract wildlife, in particular caribou to the drained lakebed. The current 5 km dike design results in a 4.2 km portion of lakebed exposed during mine operations. Due to nearby presence of the esker and water rock management area, wildlife including caribou may move along the dike and cross portions of the dewatered lake bed.	Dominion, please provide evidence for statement that “the dewatered portion of Lac du Sauvage will form a hard pan crust” as rationale for concluding that this pathway has no linkage. Please describe how DDEC will manage caribou and other wildlife that migrate through or enter the exposed lakebed in the diked area of Lac du Sauvage and mitigate any adverse impacts.
19038	Caribou		MVEIRB	98	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Caribou Section 13.4.2. Low frequency noise	The sound frequency levels used in the disturbance coefficient for caribou 40-55 decibels) did not include Low Frequency sound (<20 decibels). Section 3.1.2 (Low Frequency Noise Results) concluded that low frequency noise was not present. There is no reference to measurements during blasting. Caribou have highly enervated hooves and aboriginal knowledge is that their feet are 'sensitive'.	Please describe low frequency sound transmission potential during blasting and detection distances. Please describe how the modeled decibel ranges compare with the lower limit of caribou hearing with regard to sensory disturbance from the project.
Community Engagement								
20404	Community Engagement		LKDFN	8	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Community and Public Concerns References Section 4, All tables Directed to Project Proponent	The DAR presents three tables in section 4 which contain a column labelled “Relevant Comments/Issues.” However, the content of this column does not list any comments or issues at all and instead records incidents of engagement. Review Comment Community and Public concerns are an integral to the environmental assessment process and their documentation is essential. This section does an excellent job of listing the incidents of engagement, but does not provide the content of these engagements, which is arguably far more important. Knowledge of what is of concern for each implicated community is needed to make informed decisions regarding the impact of this project.	LKDFN requests that the proponent provide a new table, listing all implicated parties, a brief summary of the concerns and issues they have raised, and a brief summary of the measures that the proponent has proposed to address these concerns.
20218	Community Engagement		NSMA	5	North Slave Metis Alliance: Shin Shiga	4 Community Engagement	Previous to the DAR community and technical staff sessions in December 2014, it was communicated to DDEC that NSMA members oftenfind it difficult to attend these meetings because they are held during week days, between 9am and 5pm. This happened again in Februay 2015, when DDEC organized another session to consult NSMA members regarding the Project.	Please explain why DDEC consistently organizes community engagement sessions in these times when many working and full-time stutdent members of the affected communities are unable to attend? Please plan and consult ahead of time when these meetings should be held to maximize attendance.
Cumulative Effects								
17049	Cumulative Effects		IEMA	19	Independent Environmental Monitoring Agency: Kevin O'Reilly	Cumulative Effects; DAR Reference: s. 17 Cumulative Effects Summary, Table 17.2-2 Assessment Cases Used for Each Valued Component	For Caribou, Grizzly Bear and Wolverine, the Lupin and Jericho mines are listed under future projects (column 3). If these mines are currently under care and maintenance, it would seem that they should also be listed under Base Case since they have open pits, roads and exposed tailings ponds.	DDEC should assess cumulative effects incorporating the Lupin and Jericho mines within the Base Case.
17050	Cumulative Effects		IEMA	20	Independent Environmental Monitoring Agency: Kevin O'Reilly	Cumulative Effects; DAR Reference: s. 17 Cumulative Effects Summary, 17.9.1 Waterbirds and raptors	For the predicted cumulative impacts on water birds, habitat loss and sensory disturbance are the impacts considered. However, based on past experience, this should be supplemented with direct mortalities from accidental by-catch during fish-out of the diked Jay area. In 2007, a red-throated loon was killed when tangled in gill nets in Kodiak Lake. It is not clear to what lessons have been learned from water bird mortalities from fish-outs and what mitigation measures may have developed to avoid similar occurrences.	DDEC should document and discuss direct water bird mortalities from previous fish-outs, lessons learned and mitigation measures to prevent reoccurrences. Incidental mortalities during fish-outs should also be included in the cumulative effects assessment on water birds.

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20665	Cumulative Effects		KIA	22	Kitikmeot Inuit Association: Tannis Bolt	No clear delineation between effects assessment and cumulative effects assessment. Caribou Section 12.4.1.2, pages 12-65 to page 12-78	<p>This section is confusing to read, as it does not clearly delineate the three models being tested until the very end: of the methods section. Presentation of the three metrics being evaluated in the determination of impacts on caribou habitat (below) should be presented earlier, and writing should clearly delineate what each calculated, and how that pertains to changes in historic habitat availability prior to the project, the application case (Effects Assessment of the project alone) versus the cumulative effects assessment. Further, as some of the greatest changes in values are reported as occurring between the reference case and the reasonably foressable development case (not surprising) inclusion of the reference case and focus on it in the discussion appears to reduce the focus on the actual effects being evaluated: the Effects of the Jay Pipe Project (EA) and cumulative impacts of the Jay Pipe Project + ongoing and reasonably foreseeable developments (CEA), though it is interesting to know what historic conditions were like prior to 2014.</p> <p>Metrics Evaluated 100 × (2014 baseline condition value - reference conditions value) / reference conditions value. 100 × (Application Case value - 2014 baseline condition value) / 2014 baseline condition value. 100 × (RFD Case value - Application Case value) / Application Case value.</p>	Please re-organize the methodology and results of this section for ease of reader understanding such that methods are clearly articulated for each of the three metrics outlined at the end of the section on page 12-78. We suggest that organizing the methods and results under headers that pertain to each metric being evaluated (Historic Changes, Changes due to Project (EA), and Cumulative Effects (Project + current and future projects), or at least that clearly subdivide the EA (incremental) from the CEA (cumulative), and including a separate heading for sections that deals with reference conditions, will help to organize these sections more logically. Please also clarify and contextualize the purpose of looking at the reference model relative to 2014 conditions and comparing it to future conditions, as this comparison deal with losses prior to project development, which is not typically included in an EA or CEA documents. EA and CEA analyses normally start at the present (baseline) and look for predicted effects between present and future conditions.
20735	Cumulative Effects		KIA	92	Kitikmeot Inuit Association: Tannis Bolt	Cumulative effects: Cultural Aspects s.17.11 (p.32)	Although there is a general discussion regarding the imminent cumulative effects on traditional land use participation and cultural heritage, this section does not discuss specific study areas these comments pertain to.	Identify and discuss cumulative effects on cultural aspect indicators for Kitikmeot LSA/IBA communities
20244	Cumulative Effects		NSMA	31	North Slave Metis Alliance: Shin Shiga	17 Cumulative Effects Summary	See recommendation	Please include in the RFD case, everywhere applicable, Kennady Diamond Project, Diavik A21, and Jay underground mining.
20245	Cumulative Effects		NSMA	32	North Slave Metis Alliance: Shin Shiga	17 Cumulative Effects Summary	See recommendation	Please clearly separate reference, baseline, and RFD. Where clear, side by side comparisons of these are not provided, please do. Please apply this to all the Valued Components, including the Cumulative Impacts. Please provide a list of Valued Components that did not have this clarity.
20246	Cumulative Effects		NSMA	33	North Slave Metis Alliance: Shin Shiga	17 Cumulative Effects Summary	See recommendation	Please provide a table with a list of all VCs and the Project's effects on them, in quantity and percentatge, in the key stages during the life of the Project. Please also include in this table the reference, baseline, and RFD cases. Please use the updated RFD case as requested above. Inclusion of the development of Cardinal pipe in RFD is highly desirable. Where such consideration is applicable, please employ the most conservative assumptions for the purpose of creating this table. For ease of comparisons, please include in this table page references to the applicable sections of the DAR.
EA Approach								
17082	EA Approach		IEMA	52	Independent Environmental Monitoring Agency: Kevin O'Reilly	Significance Determinations; DAR Reference: s. 6 Determination of Significance, pg. 6-9	Several of the valued components (Key Line of Inquiry/Subject of Note) analysed indicate they would be significant if the assessment end point is exceeded. "Results from the residual impact classification are then used to determine the environmental significance from the Project (and other developments) on assessment endpoints." (pg. 6-30). For wildlife and vegetation valued components, the following is described as the assessment endpoint: "Self-sustaining and ecologically effective populations (and communities)". Ecological well-being is an important indicator of the significance of environmental effects for these valued components. However, societal values should play an important role in determining significance of environmental effects. For example, whether an environmental effect violates a law, whether it contradicts a management plan, program or policy for the valued component, or whether it conflicts with Aboriginal plans for use of the valued component for traditional purposes. These do not appear to have been considered in determining the significance of environmental effects for wildlife and vegetation valued components. For the record, the Agency believes that violations of laws or regulations caused by the project (alone or cumulatively) would be a strong indicator that the effect is significant. The Agency believes that contradicting an approved management plan, policy or program, or conflicting with Aboriginal plans for use of the valued component for traditional purposes would also be an indicator that the effect is significant.	For each of the valued components for which the endpoint is "self-sustaining and ecologically effective population", we request that DDEC please provide the following: 1. What laws or regulations provide some protection for this valued component? E.g., the Species at Risk Act for listed species, the Wildlife Act of the NWT. 2. What protection is provided in the laws or regulations for this valued component? E.g., Section 32 (1) of the Species at Risk Act: "No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as ... an endangered species or a threatened species." 3. What management plans or equivalent exist that apply to this valued component? These would be available from such sources as Environment Canada, Environment and Natural resources or the WRRB. 4. In view of the results of parts 1, 2 and 3 above, how might one revise the determination of significance for the effects on these valued components? The Agency requests that GNWT-ENR and Environment Canada responds to questions 1-4 above.

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20683	EA Approach		KIA	40	Kitikmeot Inuit Association: Tannis Bolt	Minor not defined for low magnitude. Wildlife and wildlife habitat, Section 13.6.1.1, Table 13.6-1.	For magnitude ratings, low magnitude is defined as the amount of change to measurement indicator results in no measurable effect on population abundance and distribution, or results in a minor measurable residual effect on the population.	Please define "minor". This is an important definition as magnitude is the main criterion on which significance is based.
20405	EA Approach		LKDFN	9	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Definition of significance References Section 6, sub-sections 6.22 and 6.7.2 Directed to Project Proponent	Background □ The DAR lists a number of assessment endpoints in section 6.2.2, and goes on to later state, " As much as possible, effects are classified and significance determined using established guidelines, thresholds or screening values, and scientific principles." Review Comment LKDFN apologizes for being repetitive, as other IRs will also discuss significance, but in more specific contexts. However, it appears that the assessment endpoints are fairly vaguely defined when considering the statement quoted above. Many of the endpoints are open to interpretation and it is doubtful that LKDFN's interpretation would coincide with the proponent's. It would be useful if the "established guidelines, thresholds or screening values" were listed among the assessment endpoints to allow for clarity. It would be especially important so that all parties are clear on which guidelines are used, as some parties may prefer alternative standards and it is difficult to debate the merits or one regime over the other when it is not particularly clear which ones the proponent is suggesting.	LKDFN requests that the assessment endpoints be presented with quantifiable indicators or at least a listing of the guidelines and thresholds to be adhered to.
16878	EA Approach		MVEIRB	77	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	EA Approach-ToR s. 4.1 Significance determination factors; DAR s.6.2.2, Table 6.2-1 Assessment endpoints and measurement indicators; 6.7 Residual Impact Classification and Determination of Significance; 8.7.1.2 Determination fo Significance (water quality); 9.1.3 Fish and Fish Habitat-VC	The developer has provided its framework for significance, in terms of assessment endpoints for the Key Lines of Inquiry (eg. p12-129 for caribou; p.8-4 and 8-448 for water quality; p.9-6 and table 9.1-2 for fish; 14-6 for community benefits and impacts). These are summarized in column 3 of Table 6.2-1 (. p6-8). This helps the Review Board to understand what is meant when the DAR describes the developer's views on the potential significance of project impacts.	To all parties: For each of the Key Lines of Inquiry (except Alternatives), please state your views on Dominion's choice of assessment endpoints for characterizing significant impacts.
Effects of Env								
17065	Effects of Env		IEMA	35	Independent Environmental Monitoring Agency: Kevin O'Reilly	Winter Road Operating Season; DAR Reference: s. 16.3-2 Freezing Index Correlated with Historical Operating Season	The dataset used to generate Figure 16.3-2 and resultant conclusions is based on the period 1994-2006. As the data is used to determine future effects and related mitigation, the latest data should be used to confirm or amend projections.	DDEC should provide the latest data and confirm or amend the conclusions drawn from the dataset.
Fish and Aquatics								
17036	Fish and aquatics	closure	IEMA	6	Independent Environmental Monitoring Agency: Kevin O'Reilly	Effects of Dike Breaching; DAR Reference: s. 9.3.2.2.1 Fish and Fish Habitat – Pathways with No Linkage, pg. 9-137	The DAR states there is no link to fish on pit back-flooding. It is not clear whether the dike breaching may create currents through the openings that could re-suspend pit lake sediments.	DDEC should explain whether cutting openings into the dike at closure could create currents through the openings that would cause sediment upwelling, and the potential for incoming fish exposure to suspended pit sediments.

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17080	Fish and aquatics	closure	IEMA	50	Independent Environmental Monitoring Agency: Kevin O'Reilly	Fish Habitat Enhancement; DAR Reference: Appendix 3B Jay Project Conceptual Closure Report, s. 5.4.1.1 Jay Project Open Pit, pg. 25; s. 5.4.1.3 Dike pg. 26; s. 5.4.2.1 Misery Pit, pg. 28; s. 5.4.2.1.2 Mined-Out Panda and Koala Pits, pg. 28 and s. 5.4.2.3 Lynx Pit	In the past, commitments have been made at Ekati to ensure that pits are safe for use by fish with some effort expended toward creating fish habitat through shallow zones and riparian vegetation enhancements. There is very little discussion of fish use or habitat enhancement of any of the water bodies or pits used as part of the Jay Project.	DDEC should provide a detailed explanation of whether the Jay open pit and diked area, Misery Pit, Panda Pit, Koala Pit and Lynx Pit will be safe for fish passage and what efforts will be made towards fish habitat enhancement as part of closure and reclamation.
20327	Fish and aquatics	closure	LKDFN	6	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Fish survival in Misery, Panda, Koala and Lynx Pits References Appendix 3B, Section 8, Section 9 Directed to Project Proponent	LKDFN is unable to locate information on the suitability of the Misery, Panda, Koala and Lynx Pits as fish habitat after mine closure. <input type="checkbox"/> Review Comment <input type="checkbox"/> While there is documentation on predicted water quality in these mined out pits, as well as a closure plan, it is unclear what measures are being taken to ensure that fish can survive in these water bodies after the mine closes.	LKDFN requests that the proponent clarify the suitability of these pits for fish habitat after mine closure and describe the measures that will be taken to ensure that fish can survive in these new water bodies.
17035	Fish and aquatics	riparian	IEMA	5	Independent Environmental Monitoring Agency: Kevin O'Reilly	Map of Water Level Changes; DAR Reference: Appendix 1A Terms of Reference – 7.3.2 Impacts to fish and fish habitat from project components, pg.32	The ToR requires DDEC to provide a map showing water level changes and changes in riparian areas of affected lakes. The Agency cannot find this map. Map 9.4.1 only shows drained area within the dike.	DDEC should provide a map of lake water level changes resulting from the Jay project including riparian zones, or indicate where such a map can be found in the DAR.
20736	fish and aquatics	riparian	KIA	93	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-165; Appendix 9A	Riparian habitat loss is provided as a percentage of the combined Lac du Sauvage and Lac de Gras (0.9%). It is unclear what percentage of riparian habitat will be lost within Lac du Sauvage alone. In addition, riparian habitat loss (10.6km) is not identified in the Fish Offsetting Plan.	Please provide an estimate of the percentage of riparian habitat loss in Lac du Sauvage, and indicate if this loss will be offset in the finalized fish offsetting plan. If riparian habitat will not be included, please specify the rationale for excluding it.
20743	fish and aquatics	WQ	KIA	100	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-187	The proponent states: "The predicted TDS concentrations in Lac du Sauvage and Lac de Gras are well below any potential thresholds for effects to aquatic health (Section 8.5.5) and also appear to be below concentrations that would be expected to result in shifts in community composition." While toxicity testing information is available in section 8.5.5, information relating to the threshold concentrations triggering community composition shifts were not found.	Please indicate what TDS concentrations would potentially cause a shift in phytoplankton community composition, using examples from cited scientific literature.
20744	fish and aquatics	WQ	KIA	101	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-193	While it is clearly stated that water quality predictions are not likely to be acutely toxic, it is not clear whether potential long-term chronic effects on fish health or aquatic biota were considered in an aquatic risk assessment.	Please determine and describe whether or not water quality predictions may induce chronic effects on fish or aquatic biota in the study area.
20745	fish and aquatics	WQ	KIA	102	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-193	Aluminum and vanadium were identified as being potential parameters of concern to fish: "Potential indirect effects to fish related to accumulation of substances within fish tissue via uptake from both water and diet were identified for aluminum (during operations and into closure) and vanadium (during operations and into closure); however, adverse effects to the health of fish VCs are unlikely. The assessment methods included very conservative assumptions, and therefore, predicted concentrations in tissue are likely overestimated (Section 8.5.5.3.2). For example, for aluminum, a relatively high bioaccumulation factor was considered even though the current scientific understanding of aluminum is that it does not bioconcentrate, and that tissue concentrations are poor predictors of toxicity (Wilson 2012). For vanadium, the bioaccumulation factor used to predict tissue concentration was the maximum upper-bound estimate of the range of site-specific bioaccumulation factors (BAFs) developed for the Project. If the minimum upper-bound estimate was used, then the predicted tissue concentrations would have been four times lower, and below the tissue benchmark."	Please indicate whether or not aluminum is below the tissue benchmark if the bioaccumulation factor is removed.

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20749	fish and aquatics	WQ	KIA	106	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-177, 9-192 and 9-193	An increase in nutrients and chlorophyll a may produce negative effects on spawning habitat quality in Lac du Sauvage. In particular, chlorophyll a values are expected to peak in the eutrophic range near the end of operations (14 µg/L). It is unclear to the reviewer what the spatial distribution of water quality effects will be within Lac du Sauvage.	Please indicate the area that will experience eutrophic conditions, including which spawning shoals are within this area, and how long chlorophyll a is expected to be elevated.
16861	Fish and aquatics	WQ	MVEIRB	60	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-p. 9-177	The DAR states that total phosphorus will exceed the CCME (2004) trigger range of 4-10 ug/L for oligotrophic lakes but will remain within the ranges characteristic of oligotrophic lakes (3-17.7 ug/L, Wetzel 2001). This statement is contradictory and a textbook reference should not supersede CCME as a reference point for oligotrophic status in Canada.	Please conduct the nutrient assessment using the CCME guidelines to assess the magnitude of change.
16862	Fish and aquatics	WQ	MVEIRB	61	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-p. 9-182	"Mean concentrations of phosphorus in Lac de Gras are expected to increase largely reflecting inputs from sources other than the Project."	What are the other sources referred to? How much of the increase comes from the Project?
16863	Fish and aquatics	WQ	MVEIRB	62	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-p. 9-189	On page 9-189, it states: "Higher concentrations of TDS (in particular calcium) may stimulate growth of Daphnia species and potentially cause a shift in community structure towards larger-sized zooplankton. Calcium limitation may explain the observation that high TDS lakes are associated with higher zooplanton productivity".	Please provide a reference for this (e.g. Snap Lake?) as was done for benthos on p. 9-190.
16871	Fish and aquatics	WQ	MVEIRB	70	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-9.3.2.2.1 Sec.p. 9-137	One of the mitigation features provided to eliminate the pathway "back-flooding of the dewatered diked area of Lac du Sauvage may generate or release mercury, nutrients or other substances from flooded sediments and vegetation and may cause a change in water quality, affecting fish and aquatic health" is that ? the diked area will not be reconnected until the back-flooded area meets acceptable water quality criteria.	Will Dominion commit to a monitoring of mercury in small fish (e.g. slimy sculpin) to confirm lack of mercury uptake prior to reconnecting the diked area ?
21257	Fish and aquatics		GNWT	51	GNWT - Lands: Paul Mercredi	Habitat Loss Section 9 Fish and Fish Habitat Section 9.4.3.1.1 - Dike - Dewatered Area Footprint	<p>The proposed Misery discharge location (Mine water Management Plan, Map 3-5; DDEC 2014, Map 9.4.2) appears to be approximately 1 km from the single shoal (S8) in Lac du Sauvage.</p> <p>Shoal S8 is identified as "good" spawning habitat for Lake Trout and Cisco (Golder 2014, Jay Project Fish and Baseline Report, Map 2.2-1 and Map 2.2-3; respectively). It is also one of two "fair" shoaling areas in Lac du Sauvage for Round Whitefish (Golder 2014, Jay Project Fish and Baseline Report, Map 2.2-2).</p> <p>Shoal S4 which appears to be proximal to the dike, but "upstream" is also one of four "poor" spawning areas for Round Whitefish (Golder 2014, Jay Project Fish and Baseline Report, Map 2.2-2). No "good" spawning habitat was identified for Round Whitefish.</p> <p>DDEC (DAR, s. 9.4.3.1.1) concludes that "The amount of cumulative change to spawning shoal habitat for the Application Case is expected to result in no measurable effect to population abundance and distribution for fish VCs." This conclusion is based on the total habitat available in the experimental study area which includes Lac de Gras. It is not clear if evidence is available that confirms Lake Trout move from Lac du Sauvage to Lac de Gras to spawn. Further, it is not clear that habitat loss for the Jay Pipe development should be contextualized at the scale of the experimental study area. Note, the scale of habitat loss should also apply to Round Whitefish and Cisco.</p>	<p>Given that the prevailing currents will carry any suspended sediments and associated contaminants of potential concern toward shoal S4 and that this shoal may also be affected by the dike, GNWT recommends DDEC discuss the implications on fish populations using only Lac du Sauvage in the denominator of any habit loss percentages.</p> <p>GNWT requests that DDEC also superimpose the proposed dike and effluent plume on Maps 2.2-1, 2.2-2 and 2.2-3 (Golder 2014, Jay Project Fish and Baseline Report) and the effluent plume on Map 9.4-2 (DDEC, 2014).</p>
19168	Fish and aquatics		DFO	2	Gov of Canada: Sarah Robertson	DFO-# 1 Sampling Methodology for Fish Fish species presence and abundance. Reference: annex XIV – Fish and fish habitat baseline report for the Jay project, section 3.1.4 (Fish Sampling). Starts at page 3-12.	Sampling methods were not consistent among all lakes. For example, in Duchess Lake, only Gill net was used, but in Lake E1, B1, B4 and B15 Gill nets, backpack electrofishing and minnow traps were used. It is important for Fisheries and Oceans Canada to understand why some sampling methods were not used. Some fish species might have been missed because of the methods used for sampling the various lakes. Also, the abundance estimation for each fish species might be underestimated, because of the choice of sampling methods.	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent provide a justification as to why different sampling methods were used for each lake sampled. Fisheries and Oceans Canada recommends the proponent identifies its confidence in the estimates of fish species and abundance for each waterbody sampled, considering that it used different sampling methods. Also, Fisheries and Oceans Canada requests information on how the proponent corrected for the use of different sampling methods when providing information of their sampling (e.g. Catch per unit effort, abundance of species, size of species caught, etc.).

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19170	Fish and aquatics		DFO	4	Gov of Canada: Sarah Robertson	DFO-#3 Impacts on watercourses B0 and Ac35 Reference: Section 1 - Introduction (p. 1-43).	It is mentioned in table 1. 4-2 that "a fisheries authorization will be required for the dike construction, fish-out and dewatering of a diked area of Lac du Sauvage, and construction and operation of the Jay Pit".	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent provide a justification as to how it was determined that the destruction of part of watercourses B0 and Ac35 will not require a Fisheries Act authorization.
19171	Fish and aquatics		DFO	5	Gov of Canada: Sarah Robertson	DFO-#4 Fish-out Reference: annex XVII - Traditional land use and traditional knowledge baseline report for the Jay project.	It is mentioned in annex XVII - Traditional land use and traditional knowledge baseline report for the Jay project that some Aboriginal groups are not supportive of the transfer of fish during fish-out because of the mortality rates and injuries of fish. The proponent proposes to transfer fish from the portion inside the dykes to the remainder of Lac du Sauvage.	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent confirm whether or not Aboriginal groups have concerns with the proposal to transfer fish outside of the dyked area within Lac du Sauvage, and the basis of those concerns. Fisheries and Oceans Canada also recommends the proponent provide fish-out statistic showing mortality rates and injuries to support the transfer of fish to the other portion of Lac du Sauvage.
19172	Fish and aquatics		DFO	6	Gov of Canada: Sarah Robertson	DFO-#5 Valued Components (Fish) Section 9 - Fish and Fish Habitat (9.1.3 - Valued Components, Assessment Endpoints, and Measurement indicators. P. 9-5, first paragraph	It is mentioned that: "As Arctic Grayling, Lake Trout, and Lake Whitefish are fish species that can be part of a commercial, recreational, or Aboriginal fishery, the inclusion of these species as VCs in the environmental assessment of the Jay Project is consistent with Fisheries and Oceans Canada's (DFO's) legislation and policy." Fish that "support" these fisheries are also subject to the fisheries protection provisions of the Fisheries Act, and therefore, forage fish important to those fish identified as VECs should also be included in the assessment.	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent consider fish species that "support" a commercial, recreational or Aboriginal fishery in their assessment and that one be included as a valued components.
19173	Fish and aquatics		DFO	7	Gov of Canada: Sarah Robertson	DFO-#6 Crossing Section 9 -Fish and Fish Habitat (9.3.2.2.2), p. 9-140, first paragraph	It is mentioned "to minimize the potential for sediment entrainment and deposition, where possible, road crossing construction in areas of potential spawning habitat will take place outside the spawning period for Arctic Grayling (approximately early May to mid-June).	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the timing windows when work should be avoided for Arctic Grayling include the incubation/hatch time. DFO also recommends the proponent confirm that no other species of fish use the watercourses where the crossing will occur as this could influence timing of in stream works. If other species are using these watercourses their spawning and incubation/hatch time will need to be considered.
19174	Fish and aquatics		DFO	8	Gov of Canada: Sarah Robertson	DFO-#7 Waste Rock Storage Area Section 9 -Fish and Fish Habitat (9.3.2.2.2), p. 9-146, second bullet and P. 12 (map 4 - Jay Project Site Layout) in the Plain Language Summary of the Developer's Assessment Report For the Jay Project.	It is mentioned that "The footprint of the WRSA will reduce the watershed area by 83 ha (7% of the total sub-basin area), potentially affecting water levels and flows at downstream locations. Downstream effects may extend to Stream C1, which drains east from Lake C1 for 2.1 km before entering Lac du Sauvage internal basin Ac, and provides habitat for Arctic Grayling and forage species, such as Slimy Sculpin." Also, on Map 4-Jay Project Site Layout, it appears that the southern part of the waste rock storage area will cover a small portion of a watercourse.	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent quantify the likely extent of impacts on water levels and flows in downstream systems due to the reduction in watershed size. In particular, the potential reductions in flows in Stream C1 and the impacts on fish and fish habitat. The proponent should also identify if they anticipate any infilling of fish habitat due to the waste rock storage area.
19175	Fish and aquatics		DFO	9	Gov of Canada: Sarah Robertson	DFO-#8 Fish - Sub-basin Ac4 Offsetting: Section 9- Fish and Fish habitat, 9.1.4.2. - Effects Study Area, p. 9-11, second paragraph	It is mentioned that Sub-basin Ac4 was initially considered as a potentially affected sub-basin, but was removed from the assessment because it is unlikely to support populations of VCs. Sub-basin Ac4 covers a relatively small area (less than 300 ha), there are no waterbodies over 10 ha in the sub-basin, and previously completed surveys report low, dispersed flows (i.e., barriers to fish passage), and no defined bed or banks in Stream Ac4".	Fisheries and Oceans Canada-Fisheries Protection Program requests confirmation that no other fish species use the waterbodies in Sub-basin Ac4, during any parts of their life cycle.
19176	Fish and aquatics		DFO	10	Gov of Canada: Sarah Robertson	DFO-#9 Offsetting Plan (Fish) Appendix 9A - Conceptual Offsetting Plan. Section 9A3.2 - Affected Watersheds. P. 9A-12	It is mentioned that "The scale of the assessment in the DAR (Section 9) was also extended to include tributaries that may support spawning, foraging, and rearing habitat for fish in Lac du Sauvage and Lac de Gras." According to the Fisheries Act "fish habitat" means spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes."	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent clarifies if other types of habitats, as defined in the Fisheries Act, were assessment and found in the tributaries.
19177	Fish and aquatics		DFO	11	Gov of Canada: Sarah Robertson	DFO-#10 Offsetting Plan (Fish) Appendix 9A - Conceptual Offsetting Plan (General)	The offsetting Plan is conceptual. The information provided in this plan was sufficient for Fisheries and Oceans Canada to determine that the impacts on fish and fish habitat could either be avoided, mitigated or offset.	Fisheries and Oceans Canada-Fisheries Protection Program will continue collaborating with the proponent on the finalization of their offsetting plan during the regulatory phase.

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19178	Fish and aquatics		DFO	12	Gov of Canada: Sarah Robertson	DFO-#11 Fish-out Plan Appendix 9B - Conceptual Fish-out Plan (General)	The Fish-out Plan is conceptual. The information provided in this plan was sufficient for Fisheries and Oceans Canada to determine that this plan could be finalized during the regulatory phase.	Fisheries and Oceans Canada-Fisheries Protection Program will continue collaborating with the proponent on the finalization of their fish-out plan during the regulatory phase.
19179	Fish and aquatics		DFO	13	Gov of Canada: Sarah Robertson	DFO-#12 Offsetting Plan (Fish) Appendix 9A - Conceptual Offsetting Plan, Table 9A3.3-1 (p. 9A-14).	It is mentioned in table 9A3.3-1 that streams B0 and Ac35 would be affected by the project and that they are fish-bearing.	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the proponent provide information on the species of fish found in streams B0 and Ac35 and the types of habitat present in each stream.
19180	Fish and aquatics		DFO	14	Gov of Canada: Sarah Robertson	DFO-#13 Information request #77 from the Mackenzie Valley Environmental Impact Review Board	The Mackenzie Valley Environmental Impact Review Board requested that all parties state their views, for each of the key lines of inquiry (except alternatives), on Dominion's choice of assessment endpoint for characterizing significant impacts.	Fisheries and Oceans Canada - Fisheries Protection Program's response in regards to its mandate only: The choice of assessment endpoint selected by the proponent for fish (i.e. ongoing fisheries productivity and self-sustaining and ecologically effective fish populations) respect Fisheries and Oceans Canada-Fisheries Protection Program goal in providing for the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries.
17037	Fish and aquatics		IEMA	7	Independent Environmental Monitoring Agency: Kevin O'Reilly	Trends in Fish Contaminants; DAR Reference: Annex XIV Fish and Fish Habitat Baseline Report, pg. 2-13	Discussion of historic trends in fish tissue contaminants for the Koala watershed is not complete as the 2012 AEMP results are not included.	DDEC should include the 2012 AEMP fish monitoring results in the DAR discussion of historic fish tissue contaminants.
17038	Fish and aquatics		IEMA	8	Independent Environmental Monitoring Agency: Kevin O'Reilly	Trends in Fish Contaminants; DAR Reference: Annex XIV Fish and Fish Habitat Baseline Report, pg. 2-13	Discussion of historic trends in fish tissue contaminants for the Koala watershed is not complete as the 2012 AEMP results are not included.	DDEC should include the 2012 AEMP fish monitoring results in the DAR discussion of historic fish tissue contaminants.
17039	Fish and aquatics		IEMA	9	Independent Environmental Monitoring Agency: Kevin O'Reilly	Zooplankton Changes; DAR Reference: s. 9.4.3.2.2 Effects from Changes to Water Quality During Operations and Closure – Zooplankton, pg.9-189; AEMP Re-Evaluation and Proposed Program for 2007-2009 Rescan 2006-Section 3.1-2, and pg. 3-46 to 3-48	The DAR states: "Higher concentrations of TDS (in particular calcium) may stimulate growth of Daphnia species and potentially cause a shift in community structure towards larger-sized zooplankton. Calcium limitation may explain the observation that high TDS lakes are associated with higher zooplankton productivity". It is not clear how DDEC reconciles this statement with the results of Rescan 2006 multivariate analysis (in the AEMP Re-Evaluation report) where a decline in the cladocera community in Moose Lake downstream of the LLCF was correlated with elevated TDS, hardness and some major ions.	DDEC should consider the 2006 Rescan report in re-evaluating the DAR assessment of increasing levels of TDS effects on cladocera growth in the Jay-impacted lake watershed.
17040	Fish and aquatics		IEMA	10	Independent Environmental Monitoring Agency: Kevin O'Reilly	Phytoplankton Trends; DAR Reference: Annex XII-Plankton Baseline Report, pg. 9-83; p.2-54	The DAR uses Diavik's Lac de Gras AEMP phytoplankton data only to 2011. Data from 2012 and 2013 were not yet available when the report was prepared. The Diavik AEMPs show (1) a declining trend in phytoplankton abundance and biomass in all areas of Lac de Gras from 2008 to 2011, and (2) the FF2 exposure site shows consistently higher phytoplankton abundance and biomass than all the far-field/reference sites, likely due to nutrient enrichment. DDEC should now include the 2012 and 2013 data to confirm whether that trend continues to persist in Lac de Gras. This is important information for the cumulative effects assessment given the suggestion that this phytoplankton trend indicates that "a regional factor beyond Mine-related effects was influencing the phytoplankton community".	DDEC should incorporate the Diavik 2012 and 2013 AEMP phytoplankton results into its assessment of phytoplankton trends in Lac de Gras.
17041	Fish and aquatics		IEMA	11	Independent Environmental Monitoring Agency: Kevin O'Reilly	Blasting Effects on Fish; DAR Reference: s. 9.3.2.1.1 Blasting, pg. 9-121	The DAR mentions a higher-than-normal blast at Diavik that created some fish egg mortality.	DDEC should explain (1) what the circumstances were that created this higher-than-normal blast, and (2) what measures will DDEC put in place to ensure this magnitude of blast does not occur at Jay.

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17042	Fish and aquatics		IEMA	12	Independent Environmental Monitoring Agency: Kevin O'Reilly	TK Use in Evaluation of Impacts; DAR Reference: Appendix 1A Terms of Reference - Section 2.2;	The ToR states: "DDEC will make all reasonable efforts to incorporate traditional knowledge from Aboriginal culture holders as a tool to ... evaluate the specific impacts." The DAR states "The Yellowknives Dene have noted concerns about the effects on fish populations of spilled oil and winter roads." It is not clear whether there are aspects of winter roads that Yellowknives Dene believe could have affected the Lac du Sauvage fish habitat baseline beneath the winter road that crosses that water body.	DDEC should clarify the concerns of the Yellowknives Dene regarding the impact of hydrocarbon spills on fish populations.
17043	Fish and aquatics		IEMA	13	Independent Environmental Monitoring Agency: Kevin O'Reilly	Fish and Fish Habitat – pg.9-116	The ToR states: "DDEC will make all reasonable efforts to incorporate traditional knowledge from Aboriginal culture holders as a tool to ... evaluate the specific impacts." The DAR states "The Yellowknives Dene have noted concerns about the effects on fish populations of spilled oil and winter roads." It is not clear whether there are aspects of winter roads that Yellowknives Dene believe could have affected the Lac du Sauvage fish habitat baseline beneath the winter road that crosses that water body.	DDEC should clarify the concerns of the Yellowknives Dene regarding the impact of hydrocarbon spills on fish populations.
17044	Fish and aquatics		IEMA	14	Independent Environmental Monitoring Agency: Kevin O'Reilly	Effects of Dust on Fish DAR; Reference: s. 8.5.4.2.1 Acidifying air emissions and the deposition of dust and metals from air emissions to water quality and lake bed sediments in waterbodies within the Lac du Sauvage and Lac de Gras watersheds, pg. 8-351; s. 9.3.2.2.2 Secondary Pathways, pg.9-142 an	In assessing possible impacts on the aquatic environment from dust deposition, the DAR focuses on water quality (e.g., TSS) and not sediments. It is not clear how dust deposition from Jay might affect fish spawning and rearing habitat. DDEC's dust models show dust particles of 30 µm diameter descending over half of Lac du Sauvage at a daily maximum of more than 120 µg/m3 (Map 7.4-19, Jay Project Air Quality Assessment Update). Within that deposition zone are a number of shoals considered as spawning habitat (S2 to S8, with S3 considered higher quality for trout, round whitefish and lake cisco).	DDEC should assess how dust generated during the Jay Project dust may impact fish and fish habitat in lakes receiving dust.
17045	Fish and aquatics		IEMA	15	Independent Environmental Monitoring Agency: Kevin O'Reilly	Effects of Phosphorus Loading; DAR Reference: s. 8 Water Quality and Quantity, pg. 8-356 to 8-359 and pg. 8-370 to 8-374	The assessment of impacts of elevated phosphorus in Lac du Sauvage and Lac de Gras focuses on concentrations only and not total loadings. Over a prolonged time period, the total loadings of nutrients into lakes can change their trophic status without necessarily being exposed to waters that are significantly above thresholds.	DDEC should assess what would be the expected total loadings (i.e. kg/month) of Total Phosphorus into Lac du Sauvage and Lac de Gras and the likely impacts to the trophic level status and to aquatic life.
17078	Fish and aquatics		IEMA	48	Independent Environmental Monitoring Agency: Kevin O'Reilly	Fish Habitat Enhancement; DAR Reference: Appendix 3B Jay Project Conceptual Closure Report, s. 4.4.2 Sub-Basin B Diversion Channel, pg. 16	There is no discussion of fish habitat enhancements in the Sub-Basin B Diversion Channel. Significant efforts and lessons learned from fish habitat enhancements at Ekati in the Panda Diversion Channel and Pigeon Stream Diversion should be used in the Jay Project.	DDEC should describe what fish habitat enhancements it intends to apply to the Sub-Basin B Diversion Channel based on the experience from the Ekati Panda Diversion Channel and Pigeon Stream Diversion.
20737	fish and aquatics		KIA	94	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-169; Appendix 9A Maps 9A4.1-1 and 9A4.1-2	Shoal habitats provide important spawning and rearing habitat for fish VC's in Lac du Sauvage. The shoal survey was completed in the late 1990s by Golder in order to identify shoal location and suitability for spawning. The details determining spawning suitability were not located by the reviewer within the provided reference materials. Maps 9A4.1-1 and 9A4.1-2 in the Fish Offsetting Plan (Appendix 9A) display the presence of shallow areas containing coarse substrates within the project footprint which may provide spawning habitat for fish VC's. Therefore, it is not clear why these areas were not considered as suitable habitat. In addition, while a thorough substrate survey was completed during the baseline program, a re-assessment of shoal suitability for spawning was not provided.	Please provide the report by Golder and/or the rationale provided for determining spawning suitability within Lac du Sauvage. In addition, please indicate how results from the recent substrate survey confirm the results of the shoal spawning suitability assessment provided in the late 1990's, and why shallow coarse substrate shoals within the project footprint were not considered as suitable spawning habitat.
20738	fish and aquatics		KIA	95	Kitikmeot Inuit Association: Tannis Bolt	Section 9, Table 9.4-5 (p. 9-174); Annex XIV Table 3.2-31	The fish population estimate determined using hydroacoustic data had very wide confidence intervals (Section 9, Table 9.4-5) and was not validated using any mark recapture or catch curve analyses. In addition, it is unclear to the reviewer if fish in the littoral zone can be accurately detected and measured using this technology. Many fish species utilize shallow littoral areas, including lake trout if temperatures are within their preferred thermal range.	Please provide additional justification for the usage of hydracoustic data for calculating fish population sizes in Lac du Sauvage. In addition, please indicate why other methods such as mark recapture or catch curve analyses were not employed to validate data. If possible, provide data from other studies which have validated hydroacoustic population estimates with other methods, or during the fish-out process.

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20739	fish and aquatics		KIA	96	Kitikmeot Inuit Association: Tannis Bolt	Annex XIV, p. 3-15	Hydroacoustic data used for estimating fish population size was collected over a single summer. Additional sampling would aid in determining interannual variability, and would possibly provide a more accurate population size estimate.	If possible, we recommend collecting an additional year of data for determining fish population estimates using hydroacoustic methods in Lac du Sauvage.
20740	fish and aquatics		KIA	97	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-175; Appendix 9A p. 9A-13	Stream AC4 is identified as being non-fish bearing throughout the majority of the stream. The stream will be effectively cut off from Lac du Sauvage following project construction, and will not be re-routed by a diversion channel. Relating information documenting the habitat assessment of Stream AC4 was not located by the reviewer in Section 9 or in Annex XIV. Also, it is noted that the bottom section of the creek may provide limited habitat at high flows in stream.	Please provide the field assessment details for this watershed (including all upstream lakes), including fish sampling methods and dates, habitat assessment notes, photo documentation, and the estimated length of potential fish bearing habitat near the stream mouth. In addition, please clarify if the habitat loss from sub-basin AC4 will be including in the offsetting calculations, or provide justification otherwise.
20741	fish and aquatics		KIA	98	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-175	The diversion channel will be designed to allow upstream passage of Arctic grayling, and to a lesser extent, lake trout. As other fish species are noted to reside in sub-basins ac35 and B (e.g., slimy sculpin, lake chub, round whitefish, lake trout), it would be helpful for Dominion Diamond to provide an analysis of the potential impacts of altered flows on other fish species.	Please indicate how the diversion channel design will differ from the natural stream channel, and potential effects on resident fish species. It would be helpful to include the sampling information and fish catch numbers available for these creeks in order to justify stream channel design.
20742	fish and aquatics		KIA	99	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-176	The proponent states: "There may be a delay (approximately one-year delay) in the response by fish in Lac du Sauvage and Lac de Gras as adults adapt, eventually selecting the new location where diverted flows enter the lake."	We recognise that this may be based on professional judgment, but please cite the relevant literature used to form this conclusion, and the level of confidence associated with this estimate of a one-year delay for fish to adapt to the new habitat.
20746	fish and aquatics		KIA	103	Kitikmeot Inuit Association: Tannis Bolt	Appendix 9A, p. 9A-14	The proponent states: "Some shoreline habitat of small waterbodies (less than 1 ha in size) in the headwaters of sub-basin B will be affected by proposed road developments; these include Lakes B6, B11 and B12. Reconnaissance surveys completed in August 2014 suggest that affected small waterbodies in the headwaters are shallow and less than 2 m in depth, and therefore, unlikely to support a resident fish population." Lakes B6, B11 and B12 are not indicated on any map, and details of the reconnaissance survey was not located.	Please add lake labels to MAP 9A3.1-1 and provide details of the reconnaissance survey, including any habitat assessment information, photos, or fish sampling information.
20747	fish and aquatics		KIA	104	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-19	A 2014 report was not available at the time of this review: "A sampling program in 2014 was also carried out in Lac du Sauvage, Lac de Gras, and several Lac du Sauvage area lakes and streams to collect additional baseline data on fish and fish habitat to support the analysis of mine-related effects, and to aid in developing a monitoring program in Lac du Sauvage for the proposed Jay Project. The results of these field programs will be reported in supplemental baseline reports to be issued in 2015."	Please provide the 2014 report for review by the KIA when available.
20750	fish and aquatics		KIA	107	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-6 Table 9.1 2; Appendix 9C	Proposed fisheries measurement indicators include fish survival, reproduction, abundance and distribution. Thus, it is very useful to have baseline measurements of these parameters in order to assess any potential effects from mining.	Future stages of the Aquatic Effects Monitoring Plan should be reviewed by the KIA in order to determine (1) the proposed metrics for assessing fish survival, reproduction, abundance and distribution and (2) the available baseline data associated with these parameters.
20752	fish and aquatics		KIA	109	Kitikmeot Inuit Association: Tannis Bolt	Appendix 9A Conceptual Offsetting Plan	The offsetting plan provided appeared to be overly simplified for this stage in the proposal process. The level of detail provided was not adequate for determining if the proposed activities would successfully achieve DFO's guiding principles under the Fisheries Act. For example, the method that will be used for quantifying fisheries productivity losses and gains was not described in any detail. This aspect is generally key to Fisheries Offsetting Plans, and without it we cannot evaluate how fisheries productivity will be maintained or enhanced.	Please provide a transparent and comprehensive description of how fisheries productivity losses and gains will be quantified and compared due to project activities and proposed offsetting.
20753	fish and aquatics		KIA	110	Kitikmeot Inuit Association: Tannis Bolt	Appendix 9A Conceptual Offsetting Plan, Section 9A5.3	The three candidate offsetting options were described very generally making it difficult to assess their potential for success. In addition, it was unclear if whether the options would be beneficial to local or regional fisheries.	Please provide specific details for proposed offsetting options such as: baseline conditions, proposed timeline of activities, alignment with local and regional fisheries objectives, potential benefits for local communities, technical and economic feasibility, design drawings (if appropriate), and potential impacts to existing resident fish in the case of stocking/introductions
20754	fish and aquatics		KIA	111	Kitikmeot Inuit Association: Tannis Bolt	Appendix 9A Conceptual Offsetting Plan, Section 9A5.5	Complementary measures are proposed as a potential offsetting tool. The low level of detail provided for this option makes it difficult to assess how proposed research or data collection programs will benefit communities and advance knowledge relating to fisheries management objectives.	Please provide research proposal information including study objectives, hypotheses, basic methods, opportunities for community involvement, alignment with fisheries management objectives, and technical and economic feasibility

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16324	Fish and aquatics		MVEIRB	8	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and aquatics - Fish habitat and dike interstitial watersTerms of Reference Section: 7.3.2 Impacts to fish and fish habitat from project componentsDAR Sections:Vol. 9 Sect. 9.3.2.2.2, p. 9-150	7.3.2 Impacts to fish and fish habitat from project components states “The developer will describe (incorporating seasonal variation and the sensitivities of specific life cycle stages) the impacts to fish, aquatic life, species-at-risk, and respective habitats from project-related changes to: ... the potential for fish use of the Lac du Sauvage diking as fish spawning habitat and the potential for impacts to eggs or fry from any contaminants coming off or within the interstitial spaces of the dike” Vol. 9 Sect. 9.3.2.2.2, p. 9-150 describes the inert nature of the granite used to build the dike. The conclusion above is based on a) an unqualified statement that the granite material is inert and does not address direct assessments of leaching that were carried out by Diavik Diamond Mines in 2010 (DDMI. 2011. Lakebed sediment, water quality and benthic invertebrate study A154 Dike - Year 4 Results, A 418 Dike - Year 2 Results. August 2011. Rpt. 1073-00) b) Partial conclusions of the Fitzsimons (2013) report on spawning activity, which found no evidence of spawning activity on the dikes but which also discussed the problems of detecting spawning lake trout anywhere in Lac de Gras.	Dominion, please re-evaluate the pathway “The dike isolating the Jay pipe may provide spawning habitat for fish where any potential contaminants within interstitial spaces may affect survival of eggs or fry in Lac du Sauvage” with a complete discussion of the supporting evidence.
16857	Fish and aquatics		MVEIRB	56	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Section 9.3.2.1.3 p, 9-122	The DAR states that "the following maintenance activities will be considered for the life of the mine to further support the success of the diversion channel in providing fish passage: regular inspection and maintenance of outlet channels and culverts to remove accumulated sediment and soil/rock fall material; inspection of culvert inlets and outlets for ice and snow build-up before freshet, and removal of any accumulated ice and/or snow; and, repair of damaged channel linings immediately to limit the potential for erosion and breach of channels".	Please provide a commitment to the actually carrying out the listed maintenance activities over the life of mine to ensure safe fish passage to the diversion channel, instead of just considering them in the future.
16858	Fish and aquatics		MVEIRB	57	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Sect. 9.3.2.2.1 p. 9-124	Spills are classified as a pathway with no linkage to surface water because of mitigation	Please provide a summary record of any spills that have occurred during operation of the Ekati mine and any resulting interactions with surface water to support the classification of spills as a pathway with no linkage to surface water because of mitigation.
16859	Fish and aquatics		MVEIRB	58	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-p. 9-149	Turbidity curtains are proposed as a means of mitigating TSS/turbidity transport to Lac du Sauvage during dike construction and the Meadowbank project is cited as an example.	Will turbidity curtains extend to the lake bed and be weighted to ensure contact with the lake bed, to prevent leakage of very high TSS concentrations into the bottom areas as occurred at Meadowbank?
16860	Fish and aquatics		MVEIRB	59	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-p. 9-154	This section states that: "The temporal scale includes natural and development-related changes from reference conditions (ie., before any regional development) through application of the Project, and reasonably foreseeable developments (where applicable). Base Case conditions represent a range of temporal values on the landscape from reference (little or no development) to 2014 (current or existing) baseline conditions. Environmental conditions on the landscape before industrial development (i.e., reference conditions) are considered part of the baseline conditions. This is because the baseline represents a range of conditions over time, and not just a single point in time. Comparison to a reference condition may allow for a further understanding of the cumulative effects of increases in development on the VCs."	Please clearly explain the difference between Reference Conditions, Base Case Conditions and Baseline conditions. Describe what time lines are encompassed by each definition and how this influences the assessment of cumulative effects.
16864	Fish and aquatics		MVEIRB	63	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Section. 9 Fish and Fish Habitat. p. 9-15	Lac du Sauvage is described as thermally stratified throughout the summer period. Is this periodically broken down by wind events as in Lac de Gras ? Was this accounted for in modelling?	Please confirm the stratification status of Lac du Sauvage and how that was addressed in the whole lake water quality model.
16865	Fish and aquatics		MVEIRB	64	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Section 9 Fish and Fish Habitat-p. 9-13, 9-83; and Section 2, p. 2-6	These sections variously describe the narrows between Lac de Sauvage and Lac de Gras as "it is expected that flow is maintained year round", "swift currents may keep waters open in the winter", "It is expected that year-round flows are maintained" and "open water remains in the narrows year round".	Please confirm if year round flow and open water has been confirmed and how this status is addressed in modelling. Were the lakes modelled assuming that there is year-round flow between the lakes?
16866	Fish and aquatics		MVEIRB	65	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Section 9.2.3 Map 9.2-3	The proposed horseshoe dike around the Jay Pipe is tied into a small island and 2 small islands are located within the dike perimeter, yet no fisheries or benthic surveys were made along these islands.	Given the importance of littoral areas and that the location of these islands adjacent to major physical disturbances changes the specific characteristics of habitat and usage, the predevelopment status should be documented to inform a) compensation and b) a baseline for any changes to habitat with dike construction. Please provide data on habitat characteristics and usage by fish for the islands in the footprint of the dike

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16867	Fish and aquatics		MVEIRB	66	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Vol. 9 Fish and Fish Habitat Table 9-1-1 and Section 9.1.3, p. 9-4 Sect. 9.2.5.4.	<p>The species specific approach was used to choose VCs for the assessment of fish and fish habitat and p. 9-4 makes specific reference to "...species that support the fishery and "...the sustainability of the population(s) depends on the quantity and quality of the habitats required for each life history stage, and on interactions with other species."</p> <p>Section 9.2.5.4 states "Forage fish species are an important component of the diets of predatory fish species ...the availability of forage fish species as a food source in lakes and rivers of the BSA is therefore essential in assessing aquatic health and viability of VC species populations."</p> <p>Why was a forage fish species not included in the choice of VCs? - lake whitefish are chosen to represent planktivores, arctic grayling for insects and plankton and lake trout for piscivores with explicit recognition that changes to forage fish will ultimately affect lake trout. Cisco or slimy sculpin would be good as they are already being used as sentinel/monitoring species in AEMP programs - for example p. 9-115 reports elevated Hg in Slimy sculpin related to mine activities in Lac de Gras. The Residual Effects Summary states "At closure, the Jay Pit represents a permanent loss of approximately 65 ha of lake bottom substrate habitat for benthic feeding or bottom dwelling species such as lake whitefish and forage species such as slimy sculpin ...Thus the amount of permanent change to habitat in the ESA is expected to result in no measurable effects toArctic Grayling, Lake Trout and Lake Whitefish " This approach essentially accepts permanent losses to habitat for forage species but accepts them because of no changes to habitat for the VC indicator species.</p>	Please include a forage fish species as a VC or provide a strong rationale for why this is not required.
16868	Fish and aquatics		MVEIRB	67	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Map 9-2.6	Map 9-2.6 appears to show a lake trout spawning shoal S2 in the footprint of the North end of horseshoe dike - is this identified later as map does not show dike outline ?	Please provide explicit consideration of loss of this spawning shoal as the effects assessment does not appear to include loss of lake trout spawning shoals
16869	Fish and aquatics		MVEIRB	68	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-p. 9-123	There is relatively more uncertainty associated with use of the channel by other species (e.g. Lake Trout) or juvenile life stages, which may depend on instream cover, and rates of colonization by fish and other aquatic organisms.	Please provide commentary on the feasibility of including instream cover in the design of the diversion channel and rates of channel colonization, based on experience with the Panda diversion channel.
16870	Fish and aquatics		MVEIRB	69	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Table 9-3.1 and p. 9-150	Table 9-3.1 classifies the pathway "The dike isolating the Jay pipe may provide spawning habitat for fish where any potential contaminants within interstitial spaces may affect survival of eggs or fry in Lac du Sauvage" as a secondary pathway because the dike will be constructed using granite rock and will not contain any potentially acid-generating rock or metal leaching material	Please provide a summary of the results of Special Effects Studies completed at Diavik to substantiate this conclusion.
20311	Fish and aquatics		Tlicho	22	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR22: Fish and Fish Habitat DAR Section: 18.7	The area of the cumulative changes from direct loss of lake habitat is expected to be approximately 7586 ha or less than 1% of the lake habitat in the ESA relative to the reference condition (i.e., pre- development). The incremental and cumulative direct loss of stream habitat from the Project is expected to be approximately 877 m or 1.6% of the selected tributary habitats in the ESA relative to the reference condition. There are no reasonably foreseeable developments in the ESA for fish and other aquatic life. Dominion Diamond will work with Fisheries and Oceans Canada and local Aboriginal communities on developing an offsetting plan to counterbalance for losses in fish habitat productivity.	22.1 Please provide details of engagement with local Aboriginal communities on developing mitigation measures to offset the loss of fish and other ecological habitat (i.e., offsetting plan). 22.2 Please provide clarification and impacts (direct and indirect) on the potential loss of traditional knowledge and livelihoods as a result of disturbances to Aboriginal fisheries.
20312	Fish and aquatics		Tlicho	23	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR23: Fish and Fish Habitat DAR Section: 18.7	The Ekati Mine Aquatic Effects Monitoring Program will be expanded to monitor Project effects to the aquatic environment related to changes in surface hydrology, water quality, sediment quality, aquatic life other than fish (plankton and benthic invertebrates), and fish (fish health, fish tissue chemistry). The accompanying Ekati Mine Aquatic Response Framework will also be expanded to provide pre-defined 'early-warning' levels that will prompt adaptive management responses if necessary.	23.1 Please clarify whether Aboriginal traditional knowledge will be integrated into the Aquatic Effects Monitoring program.
Max Benefits								
20298	Max Benefits	community education	Tlicho	9	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR9: Education DAR Sections: 14.5.3	It is stated in the Jay Project DAR that the Project is not expected to have an effect on teacher retention. However, no distinction is made between communities and the DAR assumes that all communities (and therefore retention rates) are alike despite other sections of the report (e.g. 14.6.1.3) explicitly noting differences between communities in their composition and the challenges they face.	9.1 Please provide information on how teacher retention rates might vary between communities and provide more detailed inter-community comparisons more generally for claims made.
20299	Max Benefits	community education	Tlicho	10	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR10: Education DAR Sections: 14.5.3	The Project DAR also states that through primary and secondary school programs aimed at informing students about the importance of education in the pursuit of mining employment, and through apprenticeship programs, the Project would promote staying in school. No evidence is provided to substantiate these claims.	10.1 Please clarify suggestions that Project education efforts in K-12 settings promote childhood education and retention.

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20301	Max Benefits	community education	Tlicho	12	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR12: Education DAR Sections: 14.5.3	The DAR states that, “The magnitude of the Project’s effect on educational attainment in the NWT is not measureable, and so is cautiously considered low to moderate.” However, as it is not measureable it is unclear on what basis this determination was made. The DAR also states that, “The Project will act to maximize education and training for communities in the NWT, building educational foundations, and capacity in the trained labour force. As a result, the Project’s effect on education in the NWT is considered significant (Table 14.5-1).” This determination contrasts with the significance ratings provided in Table 14.5-1 in which all effects are uncertain and generally low.	12.1 Please justify the determination of significance for education overall when the magnitude of effects are generally low. 12.2 Please provide a rationale for how a magnitude determination was made on the Project’s effect on educational attainment under great uncertainty.
20302	Max Benefits	community education	Tlicho	13	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR13: Education DAR Sections: 14.5.3	It is also puzzling why demand for mining-related education services should be an indicator of educational contributions by the Project. How is supporting education services that may no longer be relevant in the future (in light of declines in mining) beneficial?	13.1 Please explain how demand for mining-related educational services is an appropriate indicator for educational contributions.
20730	Max Benefits	community education	KIA	87	Kitikmeot Inuit Association: Tannis Bolt	Education s.14.5.1.4 (p 14-83-84)	Information requested about the awareness building and education initiatives that will take place in non-NWT LSA/IBA communities in the Kitikmeot Region	Describe education and skills building initiatives in non-NWT/IBA-LSA communities in Kitikmeot
16331	Max Benefits	employment skills	MVEIRB	9	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Max Benefits - Transfer of skills post mine closure ToR sections 8.1.1, bullet 10 and DAR section 14.6.2, 14.1.3 and 14.4.4	DDEC has indicated that plans for closure are in place but have not described the details of these programs.	Dominion, please describe in further detail how DDEC’s programs will address the possible shift in skills that will be needed and what jobs employees will already be qualified for including what sectors will be applicable.
20300	Max Benefits	employment skills	Tlicho	11	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR11: Education DAR Sections: 14.5.3	The PAR states that on the job Project training and apprenticeship programs will continue to build capacity in the NWT labour force, maximizing the ability of trained workers to transition to other employment opportunities as the mining industry wanes over the next two decades. However it is unclear what kind of capacity would be build and whether individuals trained in mining would have the capacity to be employed in other industries.	11.1 Please provide more detail on the types of capacity generated by the Project and the corresponding employment positions in which such capacity may be complementary, and how aboriginal employment will be maximized.
16332	Max Benefits	hiring and targets	MVEIRB	10	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Max benefits - Goods and services required by phase and sourcing requirements ToR Section 8.1.1, bullet 11 and DAR Section 14.1.3.2 and 14.4.3.4	In section 14.3.1.6, the local business capacity is described by listing the Aboriginal businesses in the local study area (LSA) and the contracts currently held by Ekati with the Northern and/or Aboriginal businesses. In section 14.1.3.2, DDEC identified its procurement targets as 28% of goods and services from local (Northern) businesses during construction and 70% during operations. In listing this information, DDEC has not described how it will meet these objectives and how these objectives were established.	Please address how DDEC will meet the goal of northern utilization of 28% during construction and 70% during operations. In addition, please describe what the specific areas/goods and services are that cannot be directly provided by the NWT. Finally, please explain how the targets of 28% during construction and 70% during operations were established.
	Max Benefits	hiring and targets	YKDFN	8		14.1.3.2	The project presents the hiring and contracting targets, but does not provide any indication of the company’s success in meeting those targets (Section 14.4.4.1.1 notes that northern participation at the mine was 47% - when the commitment to be met was 60%).	1) Please provide a chart that indicates the projects rate of northern and aboriginal hiring since it opened. 2) Please provide a chart that indicates the project’s success at meeting its contracting targets. 3) For each year that the project did not achieve the desired hiring target please provide a discussion of: a. The consequences and penalties incurred as a result of the company failure b. The additional actions that the company undertook to come into compliance with the promises that they made to the residents of the NWT. 4) For each year that the project did not achieve the desired contracting target please provide a discussion of: a. The consequences and penalties incurred as a result of the company failure b. The additional actions that the company undertook to come into compliance with the promises that they made to the residents of the NWT. 5) For this project, please provide a discussion of the company’s commitment to meeting their hiring and contracting targets. As part of this discussion, please provide the contingencies and triggers for those contingences, should the company fall short of their commitment. Lastly, please explain what mechanisms of enforcement there are to ensure that promises of community benefits will be delivered by this project.
20297	Max Benefits	hiring and targets	Tlicho	8	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR8: Residual Impact Classification and Significance: Employment DAR Sections: 14.4.4	No details are provided on procedures or particular policies that will be in place to ensure that northern workers are preferentially hired.	8.1 Please provide details on procedures that will be implemented to ensure that northern workers are preferentially hired.

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16872	Max Benefits	labour estimates	MVEIRB	71	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Max Benefits-Section 14.4 - Employment and Labour	The base case of employment and labour does not appear to include the Sable Pit or A21.	How will the development of the Sable Pit and A21 affect the northern employment and labour estimates? If the Jay project is expected to off-set the northern labour reduction at Diavik, will this still hold true?
20296	Max Benefits	labour estimates	Tlicho	7	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR7: Residual Impact Classification and Significance: Employment DAR Sections: 14.4.4	The Jay DAR often states that the Project will soften the decline in mining employment. A primary means by which this will be purportedly accomplished is by employing northern workers from the closing mines to fill positions associated with attrition. However, no numbers are provided regarding rates of attrition at Diavik, Snap Lake, or Ekati. It is not clear what assumptions are being made with regard to the hiring rate and attrition rate between the mines and the Project. Further, project changes (e.g., A-21) could influence these rates.	7.1 Please provide an expected timeline of attrition vis-à-vis hiring rates and whether the timelines coincide, keeping in view the changes announced by Diavik on A-21.
20292	Max Benefits	migration	Tlicho	3	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR3: Project Effects on Population Demographics DAR Section: 14.2.3	The Jay Project DAR states that the construction phase of the Project is not expected to have a noticeable impact on in-migration. No basis for this claim is apparent not any probability assigned for its likelihood and quantity.	3.1 Please quantify and justify the claim that the Project is unlikely to have an impact on interprovincial migration.
	Max Benefits	migration	YKDFN	10		Table 14.1-4	The project provides a pathway assessment, which includes the mitigations for each effects pathway. YKDFN are concerned with the level of effort and rigour that was applied – particular from an impacted community perspective.	1) The project has selected a number of mitigations aimed at reducing territorial in-migration. Please provide a discussion on the efficacy of these measures. 2) The project has selected a number of mitigations aimed at reducing intra-territorial migration. Please provide a discussion on the efficacy of these measures. 3) Please provide a discussion on the benefit of increasing GDP to the NWT. As part of this discussion, please address the following: a. What is the GDP impact of associated with the collapse of the Caribou Herd b. Please provide an economic assessment of the caribou collapse on the Yellowknives Dene communities of Ndilo and Dettah, given historic harvesting rates. c. Please provide a discussion on whether the collapse of the Bathurst Caribou herd is a net positive for GDP. d. Please provide a series of alternative assessment methods that look not just at the value of spending on goods and services, but on happiness and community strength/health. 4) Please provide a discussion on the level of government revenues that would accrue to the people of the Northwest Territories under alternative tax and royalty revenues, such as those in existence in alternative Canadian and International jurisdictions. 5) The project has selected a number of mitigations aimed at reducing inflation. It's unclear how this mitigations effect inflation. Please provide a discussion on the efficacy of these measures. 6) The project has selected a number of mitigations aimed at 'School Capacity' (under Education and Training)). It's unclear how this mitigations effect inflation. Please provide a discussion on the efficacy of these measures.
20293	Max Benefits	migration	Tlicho	4	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR4: Project Effects on Population Demographics DAR Section: 14.2.3	The Jay Project DAR also states that not all individuals who are employed at the Project will migrate from rural LSA communities to Yellowknife and thus the magnitude of this effect is determined to be low. This basis of this judgment and the determination that not all employees will migrate is not quantified and is unclear. For instance, what number (not provided) of people migrating would move the determination from low to medium or from medium to high?	4.1 Please justify and provide a rationale for the determination of a low magnitude of effect for migration from rural LSA communities to Yellowknife.
	Max Benefits	migration	YKDFN	12		14.2.1.2	The project notes a significant increase in the number of residents moving from small communities to Yellowknife, but provides almost no discussion on the impact to the smaller communities. Secondly, the project notes that aboriginal language is declining, but this information is not incorporated into any kind of assessment.	1) Please provide an assessment on the impact of small communities when sizable proportions of their educated and strong members leave to reside in Yellowknife. 2) The project has concluded that the impacts associated with project induced out migration from rural LSA communities is significant, yet fails to provide any mitigations or discussions on the efficacy of the existing efforts. If the impacts are significant, how can this project proceed? 3) Please provide a discussion on the impact of communities losing 20 to 53% of their aboriginal language speakers over a period similar to that of the operation of Ekati. 4) Please provide a discussion on the level of federal and GNWT funding for mining related geoscience versus funding provided to support language programs (for the 9 official languages that the project chooses not to recognize).

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20489	Max Benefits	SEA targets	LKDFN	18	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Lessons learned from Ekati – socio-economics References Section 14 Directed to Project Proponent	Section 14 discusses base cases and projections for the future, but does not appear to contain much discussion about the success rate of measures implemented at Ekati thus far and what lessons have been learned. For example, sub-section 14.1.3 lists existing agreements and mentions standing hiring targets, but does not discuss performance to date and measures to address areas where targets have not been met. Review Comment While many of the physical aspects of the Jay Project differ from previous Ekati activities, the socio-economic implications are very similar. LKDFN is surprised to see that there is little to no discussion of how Ekati has previously performed in terms of meeting targets set forth in the Socio-Economic Agreement. This would seem to be an ideal time and place to examine previous targets and, where they have not been met, apply measures to ensure that they achieved this time around.	LKDFN requests that the proponent list the performance of previous Ekati operations in meeting the targets set in the Socio-Economic Agreement and propose measures to ensure that the Jay Pit will meet the targets where they were not met previously.
21283	Max Benefits	SEA targets	GNWT	77	GNWT - Lands: Paul Mercredi	SEA- Section 3.4.1.7; Adequacy Response Volume 1	In DDEC's Adequacy Response to the DAR, it states that the Ekati SEA commitment for northern employment is 62 percent, and that Ekati has performed well against these SEA commitments. While DDEC has been close to meeting its SEA targets in the past few years, DDEC has actually not met its commitments for both procurement and employment. In addition, the GNWT notes that DDEC states in Section 3.4.1.7 of the Jay DAR that it will continue to provide northern employment of a similar volume as it currently does (52 percent), which is below its operational commitment of 62 percent. The GNWT recognizes that there can be challenges in finding skilled labourers needed within the Northwest Territories, but the GNWT believes that there are several opportunities to reach these commitments, and the GNWT remains willing to continue its work with DDEC to achieve these goals.	n/a
20726	Max Benefits		KIA	83	Kitikmeot Inuit Association: Tannis Bolt	Effects on Economy S. 14.3.3	Unclear what economic effects are anticipated for Nunavut LSA communities (i.e. through the Kitikmeot Corporation or other LSA businesses and contractors that can either service the mine's expansion and/or be affected by its activities)	Identify and discuss economic effects anticipated for Nunavut LSA and Inuit communities: Identify specific employment opportunities for Kitikmeot residents; specific economic opportunities for Kitikmeot LSA residents; businesses and contractors and/ or other LSA businesses and contractors that can either service the mine's expansion and/or be affected by its activities.). Need to be explicit about direct and indirect economic effects for Kitikmeot and Inuit residents and businesses, including capital expenditures.
20727	Max Benefits		KIA	84	Kitikmeot Inuit Association: Tannis Bolt	Local Business Capacity s.14.3.1.6 (p.14-55)	Business capacity for Kitikmeot LSA communities and Kitikmeot region in general is not discussed; this is required to demonstrate how the Proponent will engage with the Kitikmeot LSA communities to enhance potential business capacity and opportunities as per Section 8.1 of the TOR. The Kitikmeot Corporation is mentioned (p.60) yet no discussion about how the Proponent will enlist the organization in a business capacity.	Complete a local business use analysis and identify impacts on local businesses in the Kitikmeot. Evaluate the effects of business capacity for Kitikmeot LSA communities and Kitikmeot region; demonstrate how the Proponent will engage with the Kitikmeot LSA communities to enhance potential business capacity and opportunities.
20728	Max Benefits		KIA	85	Kitikmeot Inuit Association: Tannis Bolt	Employment Effects s.14.4.3.1. (p.74-75)	No discussion of trans-boundary employment effects (outside the RSA of NWT); required to reflect employment effects (e.g. estimate of percentage of hires out of direct, indirect employment and contractor positions the mine's expansion will create during construction and operations) for Nunavut LSA communities and Kitikmeot region (and IBA community) as per the TOR	Include discussion of trans-boundary employment effects to reflect employment effects (e.g. estimate of percentage of hires out of direct, indirect employment and contractor positions the mine's expansion will create during construction and operations) for Kitikmeot LSA /IBA communities and Kitikmeot region.
20729	Max Benefits		KIA	86	Kitikmeot Inuit Association: Tannis Bolt	Labour Force Training s.14.5.1.3 (p 14-82-83)	Clarification/confirmation of how the Proponent's efforts to partner with the Mine Training Society and other training institutions (e.g. Community Learning Centres and HRDC) will extend to trans-boundary LSA / IBA communities in Kitikmeot region re: skills and capacity building as it relates to fostering an increase in socio-economic benefits within the LSA communities beyond NWT	Describe how the Proponent's efforts to partner with the Mine Training Society and other training institutions (e.g. Community Learning Centres and HRDC) will extend to trans-boundary LSA / IBA communities in Kitikmeot region re: skills and cacapity building as it relates to fostering an increase in socio-economic benefits within the LSA communities beyond NWT
20731	Max Benefits		KIA	88	Kitikmeot Inuit Association: Tannis Bolt	Education Residual Effects / Northern Labour Force Development s. 14.5.4 (p.14-86)	Recognition and discussion requested of Northern trans-boundary education /northern workforce development and how educational enhancement plans will be extended to the non-NWT LSA communities	Describe Northern trans-boundary education /northern workforce development and specifically how educational enhancement plans will be extended to the non-NWT LSA / IBA communities and residents of Kitikmeot

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20732	Max Benefits		KIA	89	Kitikmeot Inuit Association: Tannis Bolt	Community Well-being and Culture s. 14.6.1.3 (p.14-89)	Information regarding how the development surrounding Lac du Sauvage will impact trans-boundary LSA/ IBA communities' ability to participate in traditional activities in proximity to the Project area (as per this section's acknowledgment that this activity and ability is an indicator for community and cultural well-being)	Describe how the development surrounding Lac du Sauvage will impact trans-boundary Kitikmeot Inuit LSA/ IBA communities' ability to participate in traditional activities in proximity to the Project area as it relates to community and cultural well being. Confirm that Project will not affect Kitikmeot/Inuit community well-being and culture.
20733	Max Benefits		KIA	90	Kitikmeot Inuit Association: Tannis Bolt	Effects on Non-Traditional Land Uses s.14.8.3 (p.14-112-113)	Discussion needed within this section concerning potential effects on non-Traditional Land Uses in the Lac du Sauvage area. This section mentions effects on fish and fish habitat and refers readers to the Fish and Fish Habitat KLOI (DAR Section 9). However more information is required in this section and context to capture these linkages; specifically as they relate to trans-boundary / Kitikmeot LSA/IBA communities.	Identify specific non-traditional land uses in the Kitikmeot and add detailed discussion regarding potential effects on non-Traditional Land Uses in the Lac du Sauvage area specifically as they relate to trans-boundary / Kitikmeot LSA/IBA communities.
20734	Max Benefits		KIA	91	Kitikmeot Inuit Association: Tannis Bolt	Cumulative effects: Socio-economics s.17.10 (p.17-27-31)	Although there is a general discussion regarding the imminent cumulative effects on socio-economics in NWT, this section does not discuss specific study areas these comments pertain to nor how the various socio-economic indicators will be affected cumulatively	Identify and discuss cumulative effects on socio-economic indicators for Kitikmeot LSA/IBA communities
16873	Max Benefits		MVEIRB	72	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Max Benefits-Section 14.6 - Health and well-being	The income gap within the Local Study Area (LSA) communities has decreased in the past two decades and mine employment helps to increase the incomes of people living in the LSAs.	Have IBAs and other programs intended to mitigate social impacts helped in assisting with the reduction in income inequality and if yes, how?
20303	Max Benefits		Tlicho	14	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR14: Health and Well-being DAR Sections: 14.6	The Jay Project DAR guards against what appears to be evidence of the negative effects of mining on communities' health and well-being by stating that "Elements such as pre-existing and coexisting trends, changes in data collection methodologies and government policies and programs all confound interpretation of the data," and that "the two groups identified in the report, affected (i.e., LSA) and unaffected communities, are not completely comparable as experimental and control groups." Unfortunately this high standard of evidence is generally not possible and furthermore has not appeared to be a requirement for any of the other claims made with regard to the Project in the DAR.	14.1 Please reconcile the standards of evidence required to determine effects on health and well-being as compared to other sections of the DAR.
20304	Max Benefits		Tlicho	15	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR15: Health and Well-being DAR Sections: 14.6	Some information is provided regarding rising incomes however the disparity between the lowest and highest earning individuals, families, and communities is not provided.	15.1 Please provide more comprehensive statistics on economic inequalities.
20305	Max Benefits		Tlicho	16	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR16: Health and Well-being DAR Sections: 14.6	Trends such as increasing crime and suicide rates in diamond mining communities (14.6.1.1) and the "prevalence of single-parent families in the NWT...[where the] sharpest increase has been in rural LSA communities" (14.6.1.4) are not examined further, and numbers are not provided on mortality and disease rates between the communities in the LSA and those outside the LSA. nstead, the Project PAR states, "inequities between people and communities...are not easily mitigated, and so may persist", and conclude that health and well-being is not "expected to be different from that of the existing Ekati Mine." No discussion is provided on how these existing conditions in rural LSA communities may be worsened or cause greater damage by persisting, rather it is assumed that the continuation of the status quo will not equate to further damage as a ceiling has already been reached.	16.1 Please provide more information on how the Project may continue the trends noted in the PAR related to crime, suicide, family composition, and all other aspects of health and well-being and how they may be worsened by their persistence.
20236	Max Benefits		NSMA	23	North Slave Metis Alliance: Shin Shiga	DDEC's response to Jay Project Adequacy Review Items 11.1, 11.2, 11.3, 11.4, 11.5	See recommendation	Please provide the Project's, as well as DDEC's, economic contribution as a percentage GDP share of the NWT GDP. Please make a graph showing the trend over time that includes reference, base, closure, and post closure periods.
20237	Max Benefits		NSMA	24	North Slave Metis Alliance: Shin Shiga	DDEC's response to Jay Project Adequacy Review Items 11.1, 11.2, 11.3, 11.4, 11.5; Table 3.1-1	The table clearly shows a remarkably low female employment rate, without any signs of improvement overtime.	Please provide a list of programs and efforts targeted at improving the employment of women by DDEC.
20238	Max Benefits		NSMA	25	North Slave Metis Alliance: Shin Shiga	DDEC's response to Jay Project Adequacy Review Items 11.1, 11.2, 11.3, 11.4, 11.5	MVERIB requested in its Adequacy Review for the evaluation of socio-economic programs.	The NSMA repeats this request: please provide quantitative and qualitative evaluation of the above listed and other socio-economic programs and efforts.
20239	Max Benefits		NSMA	26	North Slave Metis Alliance: Shin Shiga	DDEC's response to Jay Project Adequacy Review Items 11.1, 11.2, 11.3, 11.4, 11.5; Table 4.1-1	In the table DDEC provides one explanation why a subset of women in rural areas do not apply to work at mine sites.	Please provide the analysis of the significance of the given explanation relative to the overall potential female workforce for DDEC.

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20240	Max Benefits		NSMA	27	North Slave Metis Alliance: Shin Shiga	DDEC's response to Jay Project Adequacy Review Items 11.1, 11.2, 11.3, 11.4, 11.5; Table 4.1-1	Ditto	If there is not adequate data to conduct such analysis, please design community consultations specifically designed to improve female employment rate at DDEC.
20241	Max Benefits		NSMA	28	North Slave Metis Alliance: Shin Shiga	2014 DDEC Socio-Economic Report, P12	See recommendation	Please define "traditional" and "non-traditional" roles for women at DDEC.
20242	Max Benefits		NSMA	29	North Slave Metis Alliance: Shin Shiga	2014 DDEC Socio-Economic Report, P40	See recommendation	Please provide explanation for why the number of northern aboriginal women working for DDEC is particularly low. Please describe what DDEC has done to improve this situation, along with the evaluation for such efforts.
20243	Max Benefits		NSMA	30	North Slave Metis Alliance: Shin Shiga	DDEC's response to Jay Project Adequacy Review Items 11.1, 11.2, 11.3, 11.4, 11.5; Table 3.1-1	See recommendation	Please provide data for northern aboriginal employment statistics; in particular, provide employment statistics of the IBA parties.
20290	Max Benefits		Tlicho	1	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR1: Non-Traditional Land Use Local and Regional Study Areas DAR Section: 14.1.2.4.2	The Jay Project DAR claims that the Non-traditional Land Use (NTLU) RSA is the area most likely to be used by community residents, but that changes in the NTLU RSA are not expected and thus the assessment of will focus more heavily on the NTLU LSA. However there is inadequate justification for this limited scoping; the claim that NTLUs in the RSA is unlikely to change due to the Project is a question that can be investigated and not one that can be assumed.	1.1 Please justify and identify how the conclusion that changes in the NTLU RSA are not likely to be expected.
20291	Max Benefits		Tlicho	2	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR2: Temporal Boundaries DAR Section: 14.1.2.5	The Jay Project DAR uses the temporal boundaries of 2014-2032 and the period from 1998-2014 as the baseline upon which the socio-economic assessment effects are to be measured. It is also stated that the socio-economic assessment may be “dated given the limitations of public [sic] available data” (p. 14-12). There is no indication of what limitations were encountered, for what kinds of data, and how the socio-economic assessment was compromised as a result.	2.1 Please provide a rationale, if it is indeed the era in which large scale diamond mining began or otherwise, for the temporal boundaries chosen for the socio-economic assessment. 2.2 Please identify the limitations in data that were encountered and how the socio-economic assessment was compromised as a result.
20294	Max Benefits		Tlicho	5	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR5: Project Effects on Population Demographics DAR Section: 14.2.3	The Jay Project DAR claims that the Project will soften the blow of out-migration from the closing of other mines in the NWT, but uses a no-growth baseline, which may exaggerate the contribution of the Project. Furthermore, the use of a no-growth baseline is contradicted later in the DAR when, in section 14.6.2., the authors state that “investment in mining and other economic activity will continue, even if diamond mining falls into decline”.	5.1 Please justify the use of a no-growth baseline in light of the observation of the DAR authors that there is likely to be continued economic investment apart from diamond mining.
	Max Benefits		YKDFN	11		14.6.1.3	The project provides a number of paragraphs outlining the most recent statistics available for community well-being and culture. However, they do not provide any sense of the change that has been experienced in smaller communities or any assessment associated with the downward indicators that seem to exist.	1) Please provide an assessment of the 'perceived sense of community' over the period since Ekati first opened 2) Please provide an assessment on yearly rate of volunteerism in the smaller communities. 3) Given the decline of desired game, please provide a discussion on the amount of harvesting that has taken place in communities. For instance, GNWT recently banned all caribou harvesting in the Chief Drygeese Territory. 4) Please provide the source for the harvesting rates that are provided (GNWT 2013b references Ground Highway and Rescue Services) 5) The harvesting rate values provided on page 14-89 are much lower than YKDFN has seen in other references. For these communities please provide rates of harvesting for this over the years since Ekati opening. 6) The project discusses income disparity, vulnerability and crime, but these are not included in any assessment of effects since the opening of Ekati. Please include a discussion on suicide rates and include his information as part of the assessment. 7) Please explain why increasing amounts of Crime, decreasing use of aboriginal language, likely declining Harvesting Rates, undiscussed Life Challenges/Mental Health/addictions, community vulnerability and community structure were not part of the projects consideration and assessment of the impacts to communities.

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	Max Benefits		YKDFN	13		14.3.1.2, 14.3.1.6	Many members of the YKDFN are concerned that the benefits associated with the diamond mines have not been witnessed by those most impacted by the mine.	1) For the period found in table 14.3-2 please provide a metric that compares the amount of paved roads in Ndilo (km) versus the value of production (\$B). 2) For Yellowknife, Ndilo and Dettah Please provide a chart that provides absolute value per capita income (not rate of increase), government spending, and mineral valuation for the period since Ekati opened. 3) Please provide a discussion on why the number of businesses has declined so steeply during the operation of the mines – particularly when the discussion provided notes the many new businesses that were started to service the project.
	Max Benefits		YKDFN	14		14.4.2.1, 14.4.2.2, 14.4.3.1	Figure 14.4-4 contains projections of employment. It's unclear what assumptions went into this graph.	1) Please provide a description of the presumed northern participation rate that was used in this graph (including that for Gahcho Kue) 2) Please provide a graph that contains projections based on current northern rates including Gahcho Kue (now that it's in construction). Additionally, please include graphs that outline what the projections would be if the projects met their commitments as well as if they had 100% northern hiring rates. 3) Anecdotal experience has suggested that the degree of aboriginal participation in the mining force has begun to plateau. Please provide a discussion which: a. Explains the level of certainty that the promises of future developments (GK and Jay) will be able to achieve the economic commitments, given the evidence of history. b. What are the primary obstacles keeping the underutilized part of the potential workforce from becoming employed as part of the mineral industry's workforce? c. What actions has the company undertaken to expand the accessible workforce and how effective have they been. 4) On page 14-75, the project suggests that the Northern Participation rate in 2021 will be 55%. However, they have a commitment of 60% today. Please provide an explanation? Secondly, please explain why the project is already accepting and acknowledging that it cannot meet their hiring targets until some point after Diavik has closed.
	Max Benefits		YKDFN	15		To GNWT: Section 14.1.3.2	The GNWT has an agreement with the project in which the project commits to providing certain benefits to the North in terms of hiring and contracting.	1) Please provide an evaluation of the developers identification of addressing social and community wellness issues related to the Project 2) Please discuss proposed initiatives to address potential social impacts; 3) Please provide a discussion on any government initiatives and plans designed to mitigate the social and community wellness impacts observed since the start of diamond mining and complicated by the collapse of the Bathurst Caribou herd.
20295	Max Benefits		Tlicho	6	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR6: Inflation DAR Sections: 14.3.4	<p>The Jay DAR states that diamond mining and the construction phase operation phases of the Jay Project specifically will not, by itself, have an effect on inflation or cause inflation as it will not cause new people to migrate into the NWT (increase net in-migration) or create new jobs. However, no evidence is brought forth to support this latter assertion. Additionally, in section 14.6.1.4 of the DAR, the authors write, "Mining activity has generated employment and incomes, which has in turn affected inflation and consumer prices in the territory". This contradiction is not recognized or reconciled.</p> <p>The conclusion that the Project will not have an effect on inflation despite its projected importance for the GDP of the NWT is also contradictory to the statement of authors that the Project could in fact help combat deflation (and therefore affecting inflation). This effect which is framed positively however is an isolated market and does not consider other markets and geographic idiosyncrasies that may manifest as inter- and intra- community differences of experiences of inflation.</p>	6.1 Justify the assumption that people will not move to Yellowknife and how a low rating was determined in terms of magnitude. 6.2 Please reconcile the contradictory statements that the Project is to have no effect on inflation. 6.3 Please describe and provide evidence on inflationary pressures linked to mining and the Project regarding markets other than housing and in a more geographically nuanced fashion. 6.4 With respect to all of these questions, indicate how these trends will impact on Tli?cho? communities in particular.
	Max Benefits		YKDFN	7		14.1.2.1	The National Household Survey is data of variable and uncertain reliability, with many jurisdictions, businesses and agencies choosing not to use the dataset. Though this is acknowledged within the text, there is no discussion or evidence why the data from Yellowknife should be considered reliable when so many other authoritative sources (ex. City of Toronto) have rejected it. Given the barriers associated with collecting data in the NWT it seems unlikely that the data is appropriate for impact predictions here when it's being rejected in less onerous urban settings.	1) Please provide a discussion why the parties should accept and rely on the data that is used for the analysis. As part of this discussion, please provide relevant facts surrounding NWT and small community response rates. 2) Provide an analysis on the historic response rates for the Household Survey and the long form census in Yellowknife and across the North. 3) Please provide any other data (including that collected by NWT Statistics) or analysis which suggests that the National Household Survey is considered representative.

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	Max Benefits		YKDFN	9		14.1.3.3	The project discusses the cross-cultural awareness program that is will establish.	Please provide an update on the establishment of this program, as it is some months since the submission of the DAR. As part of this update, please provide the curriculum and objectives of the program.
	Max Benefits		YKDFN	16		To GNWT, Section 14.1.3.2	The GNWT has an agreement with the project whereby they commit to providing certain benefits to the North in terms of hiring and contracting.	4) Please review the agreement and provide a year by year assessment which evaluates if the project has succeeded in meeting the commitments and promises that they agreed to. 5) For each of those years that the project has not succeeded in meeting their promises, please indicate what enforcement, remedial actions, and punitive measures that the Government have used to try to bring the project into conformity with their commitments 6) Please provide an analysis of the project's predictions and a description of the confidence that the GNWT has with regard to the project meeting its future promises and commitments given their past behaviour.
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21258	Project Description	closure	GNWT	52	GNWT - Lands: Paul Mercredi	Lynx Pit – Post-Closure Section 3 - Project Description, Appendix 3A - Mine Water Management Plan, Section 4.4 - Design of Water Management Facilities - Lynx Pit Section 8.3 - Mine Water Monitoring and Adaptive Management Plan - Adaptive Management	<p>It is stated throughout the DAR that the Lynx Pit will be used for a component of water management of the Jay project. Specifically, it is noted that high total suspended solids water during dewatering for solid settling and long-term storage.</p> <p>This activity will serve a dual function as during dewatering of the area of Lac du Sauvage to expose the Jay pipe, the water will be also used to backfill the Lynx Pit which is the identified closure option for Lynx. However, it is unclear if the addition of turbid water from Lac du Sauvage to Lynx Pit, as opposed to clean lake water as originally planned, will result in a different post-closure situation at Lynx. While GNWT understands that TSS is expected to settle out in Lynx over time, the specifics around this process and the long-term water quality that will result in Lynx is unclear. This is compounded if the Lynx Pit is to be used as contingency storage for mine water during operations.</p>	GNWT requests additional information and assessment of impacts regarding the post-closure scenario at Lynx Pit and any variance in this regard that may result from the incorporation of Lynx Pit into the water management of Jay Pit as opposed to the original closure scenario for Lynx.
17051	Project Description	Closure	IEMA	21	Independent Environmental Monitoring Agency: Kevin O'Reilly	Reclamation Cost Estimate; DAR Reference: Appendix 3B Conceptual Closure and Reclamation Plan and Appendix 1A Terms of Reference	The Terms of Reference state that 'the likely effectiveness of proposed mitigation and management plans that are demonstrably viable both economically and technically while providing sufficient information and analysis for the Review Board and parties to analyze and evaluate the environmental acceptability of the proposed development' (pg. 44). Since the Closure Plan is the key mitigation strategy for the post-closure period, information that demonstrates the Plan does not threaten the economic viability of the Project should be provided.	DDEC should provide an initial estimate of the costs of reclamation and closure, including post-closure monitoring and upkeep, to a sufficient level of detail that can demonstrate the measures proposed will not threaten the economic feasibility of the project.
17079	Project Description	Closure	IEMA	49	Independent Environmental Monitoring Agency: Kevin O'Reilly	Esker Reclamation; DAR Reference: Appendix 3B Jay Project Conceptual Closure Report, s. 4.5.1 Roads, Pipeline Benches and Pads, pg. 18	There is no discussion in the Jay Project Conceptual Closure Report of how the combined road, pipeline and power line crossing of the esker will be reclaimed. Given the importance of eskers as wildlife movement corridors and habitat, it is not clear whether DDEC is committed to replacing the esker material and rejoining the two ends of the cut, revegetation or other special measures.	DDEC should provide details on its commitments to reclaim the combined road, pipeline and power line crossing of the esker will be reclaimed.
17081	Project Description	Closure	IEMA	51	Independent Environmental Monitoring Agency: Kevin O'Reilly	Reclamation Schedule; DAR Reference: Appendix 3B Jay Project Conceptual Closure Report, Table 5, pg. 33	A more detailed schedule that includes actual year of work would be helpful in understanding how progressive reclamation will be carried out across the Ekati Mine. DDEC provides a reclamation schedule for the Jay Project that contains very few details, unlike the schedule that appears in the approved ICRP as Figure 8.5-1.	DDEC should provide a reclamation schedule for the Jay Project that shows the same level of detail and integration with the ICRP Reclamation Schedule (Figure 8.5-1).
20748	project description	closure	KIA	105	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-171 to 9-172, MAP 9.4-3	The dike will be partially breached at closure to allow fish re-entry into the de-watered area. It is not clear to the reviewer the rationale for maintaining the majority of the dike, which appears to have little value to aquatic life and may cause habitat fragmentation. In addition, the proponent indicates that fish densities will be re-established within one generation time of fish VCs following back-flooding and breaching of the Jay Pit. Examples of biological re-colonization in settings similar to what is being proposed would be helpful, if available.	Please describe the rationale for leaving the majority of the dike upon closure, and evaluate the potential effects on fish and aquatic biota due to the altered and potentially fragmented habitat. If similar examples of biological re-colonization exist from other systems, please provide this information.

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21259	Project Description	Closure	GNWT	53	GNWT - Lands: Paul Mercredi	Post-Closure Re-Connected Portion of Lac du Sauvage Section 3 - Project Description 3.5 - Jay Project Components, 3.5.4.1 - Pit Geometry Map 3.5-1 (p.3-41), Map 3.5-2 (p.3-42)	3.5.8.7 of the DAR states that at closure the dike will be breached at several locations 2-3m below the water level. The approximate height of the dikes underwater, and the processes by which water will be circulated in this area, is unclear. Are there any differences in water quality anticipated inside and outside the dike as a result of this circulation? Will there be any behavioural constraints regarding aquatic species moving in and out of the diked area? Has consideration been given to keeping this area isolated post-closure?	GNWT requests that DDEC provide additional information regarding the post-closure status of the re-connected portion of Lac du Sauvage including: a. Height of the dikes underwater and potential constraints on re-establishment of aquatic species; b. Water quality gradient between the diked area and the main basin of Lac du Sauvage; c. Anticipated circulation patterns of water within the diked area; d. Discussion on alternatives to re-connection.
20751	project description	closure	KIA	108	Kitikmeot Inuit Association: Tannis Bolt	Section 9, p. 9-152	During back-flooding, pumping rates will be reduced to mitigate low flow periods. However, it is not clear what the minimum lake levels will be for triggering reduced pumping rates.	Please provide an estimation of when pumping rates will be reduced to mitigate low water levels, and the minimum acceptable depths and widths at sensitive areas such as the Narrows connecting Lac du Sauvage and Lac de Gras.
16820	Project Description	Closure	MVEIRB	19	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Closure of the Jay Pit	The current closure plan is to breach the dike and re-integrate the Jay pit lake into Lac du Sauvage.	Please describe the pros and cons of not reconnecting the diked area of the Jay pit to Lac du Sauvage
	Project Description	closure	YKDFN	1		Jay DAR Appendix 3B, MV	The project states that its goal is “to return Ekati Mine site to a viable, and wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment, human activities and the surrounding environment”. YKDFN note that the project does not provide any clarity on what it will do to promote a viable ecosystem. The waste rock pile will be covered with rock and the pit will be flooded and the project may 'enable' natural regrowth in the riparian and shallow areas of the dyke. However, without clarity on just what is going to be done, this will allow the project to do nothing and those who have depended on this area will simply have more gravel, rocky covered hills and a part of the lake that doesn't provide any benefit. In the past companies have simply deferred discussions about closure until later dates, but without solid commitments and clarity on what end uses are expected (and can be achieved – it doesn't do much good to have the ability to fish in a dead lake or expect caribou to survive on gravel). YKDFN require this information during the EA to assess the balance between impacts and benefits.	1) Please provide clarity on what actions will be done within the diked area to promote ecosystem recovery. For precision in understanding, we ask the company to avoid language that does not have certainty (e.g. 'may' or 'when necessary') or if absolutely required as the response, please include clear triggers as to when the action would be undertaken. 2) Please explain what commitments the company is making for the type of self-sustaining ecosystems that will be established. For example, Gahcho Kue's commitment to a successful closure in Kennady Lake was the successful establishment and reproduction of Lake Trout. For each component listed (ex. Jay Pit, Dyke, WRSA, Misery Pit, Lynx Pit), please provide the commitment for the ecosystem that will be re-established for that component and what the potential end uses are. 3) Caribou have used this crossing for thousands of years. Similarly, this has been a key harvesting location for the Dene. Please explain what recourses exist should the Bathurst Herd not return and use this area as they have in the past.

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21221	Project Description	Dike	GNWT	15	GNWT - Lands: Paul Mercredi	Dike Construction Approach Section 3 - Project description Section 3.5.3.1 - Jay Dike (p.3-49 - 3-50) Figure 3.5-1 (p.3-51)	<p>Section 3.5.2.1 discussed the proposed approach for the development of the Jay open pit which requires the construction of a water-retaining dike (Jay Dike) that will isolate the local portion of Lac du Sauvage overlying the Jay pipe. Reference was made to the construction approach for the Diavik Mine dike and the Meadowbank Mine dike as follows: "The Project design concept for an isolation dike is similar to the approach used at the Diavik Mine, including a semi-circular ring dike extending from shoreline, with a cross-section and construction technique similar to that used at the Meadowbank Mine".</p> <p>The construction approaches for the Diavik and Meadowbank mine dikes are described as: "The Diavik Mine dike design requires the use of specialized equipment. Construction would include dredging the dike footprint, placement of a granular filter layer on the dredged area from a barge, advance of a zoned rockfill shell, densification of the fill by vibrodensification, installation of a plastic concrete diaphragm wall down the centerline of the dike in panels using slurry wall excavation techniques with a hydrofraise, boulder removal, and finally jet grouting the contact between the plastic concrete wall and the bedrock.</p> <p>The Meadowbank Mine dike design requires common construction equipment. Construction includes placing a broad rockfill shell along the dike alignment (no dredging), excavation of the central portion of the rockfill, advance of a zoned core into the excavation from the crest of the dike, densification of the core, slurry wall construction along a centreline to create a soil cement bentonite cut-off wall, and grouting of the contact between the bedrock and the cut-off wall. The Meadowbank Mine dikes extend from shore to islands and back again to allow dewatering of a larger area. The dike construction, grouting, and instrumentation are described in Esford et al. (2013), Bonin et al. (2013), and Esford and Julien (2013)."</p> <p>The Jay Project conceptual dike design is described to include the following general components "a broad rockfill shell; a central zone of crushed granular fine and coarse filters; a composite low-permeability element along the centreline of the dike; cement soil bentonite cut-off wall; jet grouted columns extending from the base of the cement soil bentonite cut-off wall to the bedrock contact in locations where bedrock is deeper; and, grouting of the shallow bedrock and the contact between the bedrock and cut-off wall."</p> <p>It is not clear if the approaches and construction techniques proposed for the Jay Project are more similar to the Diavik Mine dike or the Meadowbank Mine dike. For example and</p>	GNWT requests that DDEC describe in additional detail the conceptual design and construction techniques that apply specifically to the Jay-Pipe dike, including but not limited to: equipment, geometry and sequence of placement and densification of the various fill materials and layers shown on Figure 3.5-1, and cut-off walls/grouting methods for the impermeable core. Where applicable, inform how the Jay-Pipe dike design and/or construction techniques are similar to the Diavik and/or Meadowbank Mine dikes. This information will provide a better means for understanding the requirements and constructability of the Jay Pipe dike.
21223	Project Description	Dike	GNWT	17	GNWT - Lands: Paul Mercredi	Dike Construction Activities: Mitigation and Monitoring Section 10.4 - Mitigation and Monitoring	<p>The proposed mitigation and monitoring items for dike construction activities included: erosion control measures (Section 10.4.1), prevention of permafrost degradation or growth encouragement (Section 10.4.2), monitoring of geotechnical stability waste rock storage areas (Section 10.4.3), dams and dikes, and adaptive management (Section 10.4.4). Specific to geotechnical monitoring, Section 10.4.3 stated the following:</p> <p>"Monitoring activities will be an extension of existing programs in place at the Ekati Mine as required under the Water Licence. The Jay WRSA will be constructed as designed, which provides for long-term physical stability. Ground temperature cables will be installed in Jay WRSA and will be used to monitor permafrost. Seepage water quality will be monitored twice per year (spring and fall) as part of the annual seepage surveys.</p> <p>Geotechnical instrumentation will be installed within the Jay dike structure and foundation to monitor the performance of the dike during dewatering and operation. The instrumentation will monitor the physical performance of the dike to confirm that the structure is operating according to the design intent. Monitoring with the instrumentation will be continued into back-flooding and closure until the dike is breached at closure."</p> <p>Limited details appear to have been included regarding the typical geotechnical instrumentation that is proposed to monitor various site infrastructure. It is important to include the type of geotechnical information needed to make decisions on the performance and stability of the structures.</p>	GNWT requests that DDEC provide additional information on the types of geotechnical instrumentation and data collection proposed for the Project and how it would be used to determine the performance and stability of structures.

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21228	Project Description	Dike	GNWT	22	GNWT - Lands: Paul Mercredi	Jay Project Geotechnical and Hydrogeological Field Investigation Factual Report. Volume 1: Proposed Dikes	<p>The 2014 field geotechnical investigation program for the proposed dikes, completed between February and April 2014 by Golder Associates, included a total of 26 sonic and 22 diamond drilled boreholes along the proposed dike alignments. Eight of the boreholes were drilled on land and 40 from the frozen surface of Lac du Sauvage.</p> <p>Lake sediments/lakebed till was sampled during drilling with the Sonic equipment, while diamond drilling was used to drill and sample bedrock. Geotechnical laboratory tests were performed by Golder on selected reconstituted soil samples obtained from the soil cores retrieved from the sonic drilling. In addition, typical soil classification laboratory testing was completed, but limited to hydraulic conductivity, grain size analysis, Atterberg limits, consolidation, and triaxial tests. No unit weights were reported. Water contents were only done on the samples tested for Atterberg limits; no other water contents are reported in the text or borehole logs. Some grain size distributions were done on samples “combined” from different depths.</p> <p>It appears that no in-situ standard shear resistance testing was performed for the lakebed sediments/till during the Jay Dike 2014 site geotechnical investigation (e.g. split spoons, cone penetration, in-situ vane testing). Further to in-situ soil properties that may be obtained, these in-situ tests will provide information on the presence and extent of permafrost near the shorelines of the islands (where the lake depth is of the order of one to two meters) that are on the proposed trajectory of the Jay Dike. Such information will be critical to contractors who will excavate the lake bottom sediments and/or install the cut-off wall for reducing permeability of the dikes using grouting techniques.</p>	<p>GNWT requests that DDEC provide the following:</p> <p>a. Provide Figure 4 titled “Bedrock Geology” which was not found in the document.</p> <p>b. On the borehole log JP5-SD-09, the soil layer represented by samples 04 and 05 is interpreted as sandy gravel with trace of silt. However, Figure 19 shows the grain size distribution for a combined sample 04 and 05 of borehole JP5-SD-09. The analysis indicates that the sample consists of 90% fines (silt and clay). Provide confirmation of these results.</p> <p>c. In Sections 4.1.2 (for the lake sediments) 4.1.3 (for the competent soil), triaxial testing carried out on composite samples from different boreholes and depths is discussed. Consolidation tests were carried on both soil types (lake sediments and competent soil) and on samples reconstituted to some initial density. Provide the reason why triaxial testing was completed on composite samples, and describe the reliability of the triaxial and consolidation test results for design.</p>
21229	Project Description	Dike	GNWT	23	GNWT - Lands: Paul Mercredi	Jay Project Geotechnical and Hydrogeological Field Investigation Factual Report. Volume 1: Proposed Jay Pit Area	<p>The 2014 field geotechnical and hydrogeological investigation program at the proposed Jay Pit area was carried out between February 11 and April 29, 2014, by Golder Associates and included seven HQ3 diamond drilling holes and two Sonic drilling boreholes.</p> <p>On-site tasks included collection of geotechnical data from oriented rock core (with field estimates of rock strength and discontinuity data), downhole hydrogeological testing, and collection of rock core samples for laboratory testing. Hydrogeological testing consisted of twenty-eight successful single-packer tests carried out at selected overlapping intervals to provide a continuous hydraulic conductivity profile along the saturated section of each borehole. Less than 1% of the total core logged was logged as either faults, kimberlite or lost core.</p> <p>Laboratory testing included point load tests, uniaxial compressive strength, triaxial compressive strength, Brazilian tensile strength, and direct shear on selected rock samples. Results from the uniaxial compressive strength, triaxial compressive strength, Brazilian tensile strength, and direct shear tests were not presented in the 2014 factual report.</p>	<p>GNWT recommends that DDEC provide the following:</p> <p>a. Additional information on the borehole relative to the bedrock texture and fractures (e.g. principal jointing, faulting and bedding, etc.).</p> <p>b. The results from the uniaxial compressive strength, triaxial compressive strength, Brazilian tensile strength, and direct shear tests which were done on rock cores collected during this geotechnical investigation campaign which were not presented in the 2014 factual report.</p> <p>c. The orientation of the boreholes drilled in the Jay Pit area on Figure 2 to further understand the locations sub-surface characterization.</p> <p>d. Packer tests were run in the boreholes for determination of bedrock permeability. Approximately 90% of the packer test intervals vary between about 50 m and 100 m. Provide further discussion on the selection of the intervals for testing and the large range in the testing interval.</p>

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21230	Project Description	Dike	GNWT	24	GNWT - Lands: Paul Mercredi	Geotechnical and Hydrogeological Field Investigation	<p>At the request of GNWT during an introductory meeting on the Project (held on February 3, 2015 - minutes will be posted to the public registry) to potentially address items pertaining to baseline geotechnical and hydrogeological data, DDEC stated that additional characterization of the Jay Pipe area is proposed for 2015. This information was presented in the Ekati Exploration – 2015 Annual Work Plan, which was submitted to the Wek’èezhii Land and Water Board as part of requirements to fulfill DDEC’s Land Use Permit.</p> <p>The document summarizes the exploration activities (drilling operations, geochemical and geophysical surveys, winter road construction, use of vehicles and machines including earth-moving equipment within the permitted boundary, etc.), locations (Sable Pit, Lynx Pit and Jay Pit work areas) and type of drilling programs. The tasks to be performed from lake ice during the winter 2015 field investigation program are:</p> <ul style="list-style-type: none">- Large-Diameter Reverse Circulation drilling;- Air-track, rotary-percussive destructive drilling; (99 for the Jay Dike)- Sonic drilling; (64 for the Jay Dike)- Cone Penetration Testing (CPT); (12 in Lac du Sauvage)- Diamond drilling;- Thermistor installation. (6 in Lac du Sauvage) <p>The Lac Sauvage overburden soils (sediments and lakebed till) will be investigated for their geotechnical properties by using Sonic drilling (sample collection and analysis) and Cone Penetration Testing (measure resistance to cone penetration).</p>	<p>GNWT requests that DDEC provide the following:</p> <p>a. For the proposed Jay Pipe area and dike, standard in-situ shear resistance testing and sampling for the lakebed sediments/till is not mentioned (such as split spoons, in-situ vane testing). Provide rationale for why these in-situ geotechnical investigation testing methods are not incorporated in the 2015 program. If not, will they be completed prior to construction?</p> <p>b. Locations for Sonic and Diamond drilling are shown for the 2014 winter drilling program. Locations of Cone Penetrating Tests (CPT) are not shown. Provide further information regarding the locations where Cone Penetration Testing will be completed.</p>
17075	Project Description	Dike	IEMA	45	Independent Environmental Monitoring Agency: Kevin O'Reilly	Dike Design and Performance; DAR Reference: Project Description, s. 3.5.3.1 Jay Dike, pg. 3-48	Given the recent examples of dike and dam failures in other mining projects, it is not clear whether DDEC is using best practices by establishing an independent dike review board that would review the design and performance of the Jay Dike and make its reports public along with the DDEC response.	DDEC should commit to the establishment of an independent dike review board that would review the design and performance of the Jay Dike and make its reports public along with the DDEC response.
21224	Project Description	Dike	GNWT	18	GNWT - Lands: Paul Mercredi	Dike Monitoring Section 3 - Project Description	The nearby Diavik site is frequently cited within the DAR to support various design approaches/decisions. The Rio Tinto Diavik diamond mine conducts dike monitoring programs for existing dikes and is also required to monitor dike related effects for the newest dike (A21).	GNWT requests that DDEC provide an outline of the intended dike monitoring program for the proposed Jay Pipe dike during and following construction. Note the two programs will be designed for different purposes.
21226	Project Description	Permafrost	GNWT	20	GNWT - Lands: Paul Mercredi	Geotechnical Stability and Climate Change Section 10 - Terrain Section 10.3.1 - Climate Change - Related Effects Annex IV - Permafrost Baseline Annex X - Hydrology Baseline Report for the Jay Project Appendix B - Derived Climate Data	<p>Section 10.3.1 presented a comprehensive analysis of climate data, namely temperature and precipitation based on database records. Reference is given to Annex X – Appendix B (Derived Climate Data) and Annex IV (Permafrost Baseline Report).</p> <p>Projected climate changes with respect to the rate of predicted temperature increase for the future are discussed. A 100-year climate warming scenario was integrated into the modelling to help predict long-term thermal effects. Soil thermal properties were determined indirectly from correlations based on published soil index properties.</p> <p>Permafrost regime changes, on-land thermistors data, and estimates of permafrost thickness below the bottom of the lake as well as islands in the lake (Lac du Sauvage) are presented. The proposed dike alignment crosses these islands. The effects of permafrost degradation beneath the proposed dike and predictions for the active layer at the proposed waste rock pile using thermal analysis modeling are also discussed.</p> <p>No data for freezing/ thawing indices are presented or discussed within the DAR. The freezing/thawing indices provide useful information to predict permafrost distribution, thaw depth in frozen ground and aid in the engineering design.</p>	GNWT requests that DDEC provide the freezing/thawing indices data for the following periods: historical, current, and future “predicted” in response to climate change.

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17073	Project Description	roads and utilities	IEMA	43	Independent Environmental Monitoring Agency: Kevin O'Reilly	Esker Crossing Design and Mitigation; DAR Reference: Project Description, s. 3.5.1.5 Roads and Pads, pg. 3-45	It would be helpful to have a conceptual diagram showing the full width and configuration of a combined road, pipeline bench and power line corridor. Given the importance of eskers as wildlife habitat, there do not seem to have been any alternative mitigation measures discussed that could include a reduced corridor configuration through the esker, burying the pipeline and/or power line, one-way traffic with stop lights, reduced speed limits or other options.	DDEC should provide a conceptual diagram showing the full width and configuration of a combined road, pipeline bench and power line corridor. To reduce the impact of the corridor on the esker crossing, DDEC should discuss alternative mitigation measures discussed that could include a reduced corridor configuration through the esker, burying the pipeline and/or power line, one-way traffic with stop lights, reduced speed limits or other options. A rationale for discarding any options should be provided.
17074	Project Description	roads and utilities	IEMA	44	Independent Environmental Monitoring Agency: Kevin O'Reilly	Traffic Type and Volumes; DAR Reference: Project Description, s. 3.5.1.6 Traffic, pg. 3-47 and s. 12 Barren-Ground Caribou, pg. 12-97	Vehicular traffic related to the Jay Project is estimated only for the long-haul trucks at 56 round trips per day. No estimates are provided for other vehicle types, as identified by DDEC, including bulk explosive trucks, crew transport vehicles, road maintenance equipment, garbage trucks, low-bed trucks, water trucks, emergency vehicles and light vehicles. There does not appear to be any details provided on lessons learned from current traffic management at Ekati (it is not clear if there is a comprehensive traffic management plan) and how that will be applied or modified for the Jay Project. The analysis of vehicle traffic effects on caribou only included the long-haul truck traffic (DAR s. 12, pg. 12-97). The Agency is not aware of a recent and comprehensive Traffic Management Plan that explains current mitigation efforts and procedures.	DDEC should provide traffic volumes (numbers of trips per day and timing as it may relate to haul trucks) for all vehicles expected to use the Misery and Jay roads related to the Jay Project. Traffic volumes for bulk explosive trucks, crew transport vehicles, road maintenance equipment, garbage trucks, low-bed trucks, water trucks, emergency vehicles and light vehicles should be included. DDEC revise its impact assessment on caribou to include all of these vehicle types. DDEC should also provide its current Traffic Management Plan and any proposed changes for the Jay Project, to show how it intends to mitigate the effects of such traffic.
20644	project description	roads and utilities	KIA	1	Kitikmeot Inuit Association: Tannis Bolt	Increased Vehicle Use for Jay Pipe not Adequately Identified: Project Description, Section 3.4.1.7 to Section 3.5.1.6	<p>Proponent indicates that, on average, 1,252 people will be needed per year (and 282 per year during reclamation) for this project. In Section 3.5.1.6, the proponent indicates that 56 additional round trips by long-haul trucks will make 8 trips per day in fleets of seven, with additional trips needed for haul trucks of different sizes.</p> <p>However, the project description does not estimate other traffic due to workers going from camp to and from site. With 1, 252 additional workers staying at the main Ekati or Misery camps, the addition of worker traffic in smaller trucks has the potential to have a substantial effect on wildlife movement, energetics, and mortality risk when caribou encounter the road during migration and other movements.</p>	Please provide complete vehicular estimates, including all staff and contractor traffic and other vehicle types, for each year and season that the project will be in operation, closure, or decommissioning. This information is necessary to adequately anticipate the effects of traffic on caribou and other wildlife within the effects assessment.
20645	project description	roads and utilities	KIA	2	Kitikmeot Inuit Association: Tannis Bolt	Increased vehicular frequency due to the Jay Pipe project along the Tibbit to Contwoyto Road not estimated. Project Description, Section 3.4.2, p. 3-35. Caribou EA, Section 12.3.2.2.2, Table 12.3-2.	The project description notes that no modifications to the Tibbit to Contwoyto road are anticipated to accomodate this project, but it does not comment on the projected-related increases in all forms of vehicular traffic. This is an important migratory corridor for caribou, and the traffic that will be added from this project should be estimated for proper consideration of effects of the project on wildlife movement, energetics, and mortality.	Please provide estimates of all vehicular traffic that will be added to the Tibbit to Contwoyto Road, to accomodate the Jay Pipe Project (Similarly, please add this information after Table 12.3-2 in the Caribou EA Section 12.3.2.2.2, showing the predicted total traffic per season that will be added to existing traffic due to the Jay Pipe project alone). Please include estimates as numbers of vehicles (haul trucks and others) that will be added per year and per season for each phase of the project along with the approximate percentage that they will represent on the road.
20646	project description	roads and utilities	KIA	3	Kitikmeot Inuit Association: Tannis Bolt	Dimensions of water management pipelines and power line corridor not provided. Section 3.5.5.2, p. 3-58.	The project description states that water management pipelines will be constructed to the open pit and diked area to the water management facilities at Lynx and Misery pits. Please include dimensions of the pipline (height above ground, width), as nearly 25.8 km of pipeline will be needed during the later dewatering stage, and 23.6 km will be needed during the operation phase. Pipelines can, depending on their width and height, affect caribou movement. Lawhead et al. (2006) demonstrated that older oil pipelines, elevated 0.4 to 1.1 m above ground level at Prudhoe Bay Oilfield in Alaska constituted a barrier to caribou in the absence of crossing ramps. This group also suggested that eleated pipelines be separated from roads, as they can cause snow drifts under pipelines next to roads, affecting the ability of caribou to move onto and off of roads quickly to avoid vehicles and predators.	Please provide information on the width and height of the anticipated pipeline for evaluation of potential impacts on wildlife moving between these locations. Please provide similar information for the power line.

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20682	project description	roads and utilities	KIA	39	Kitikmeot Inuit Association: Tannis Bolt	Traffic volumes and grizzly bear crossing of roads. Wildlife and wildlife habitat, Section 13.4.6.2.2, p. 13-132	<p>Page 13-132 states that "Sensory disturbance from this increased traffic may increase avoidance of these roads by grizzly bears. However, traffic volumes are not anticipated to be high enough to affect grizzly bear crossing rates of these roads."</p> <p>However, many types of vehicles were excluded from the vehicle estimate, including bulk explosives trucks, crew trasport vehicles, road maintenance equipment, garbage trucks, low-bed trucks to transport larger equipment, water trucks, emergency vehicles and light vehicles.</p>	<p>After consideration of additional vehicles that were excluded from the initial traffic estimate, please provide estimates of cars that will be using the road as vehicles per 12 hour day, and vehicles per hour. Will the number of vehicles ever exceed 10 vehicles per hour?</p> <p>How many vehicles will this project add the the Tibbet to Contwoyto Road, and what will be the estimated vehicles per hour experienced along this road?</p>
20323	Project Description	roads and utilities	LKDFN	2	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Management of vehicle traffic Reference Section 3, sub-section 3.5.1.6, and section 12 Directed Project Proponent	<p>Background</p> <p>The DAR states that "Other traffic will include the bulk explosives trucks, crew transport vehicles, road maintenance equipment, garbage trucks, low-bed trucks to transport larger equipment, water trucks, emergency vehicles, and light vehicles." There are no estimates regarding the numbers and frequency of these vehicles.</p> <p>Review Comment</p> <p>Given the uncertainty of the methods used to evaluate road avoidance by caribou, it would be prudent to have a more detailed estimate of the amount of total traffic that will be encountered on the road (including potential external users).</p>	LKDFN suggests that the proponent provide a comprehensive plan for the management of traffic, including detailed estimates for the numbers of ALL vehicles. This plan should explicitly describe measures to protect caribou and minimize their disturbance.
20285	Project Description	Spills	TC	49	Gov of Canada: Sarah Robertson	TC-#3 Diesel Spill on Misery Road Reference: Section 1, Introduction subsection 1.2.4.2 page 1-24	Risk Assessment for Accidents and Malfunctions of the Jay Project outlines the Risk Mitigations in Section 3. Emergency Response and Spill Contingency Plans and the Hazardous Waste Management Plans are listed as operational controls for risk mitigations.	Transportation of Dangerous Goods would like to request a copy of the Emergency Response and Spill Contingency Plans and Hazardous Waste Management Plans for this project for review.
20309	Project Description	Spills	Tlicho	20	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR20: Secondary Pathways (Barren-Ground Caribou) DAR Section: 12.3.2.2.2	Accidental spills from equipment, storage areas, and pipelines could affect caribou health. Effects on caribou health from chemicals have been identified as a concern by local and traditional knowledge (Section 12.2.3). Water will be transferred between mine water management areas via pumping and pipeline systems. Mitigations and management identified in the existing WPKMP and environmental design features will be in place to limit the potential for pipeline failure. The integrity and performance of the pumping and pipeline systems will be monitored throughout the Project construction and operations phases to prevent the unintentional release of minewater to the environment. If any leaks and spills occur from the pipeline, clean-up will follow existing procedures in place at the Ekati Mine. However, no details are provided on management around accidental spills, as well as mitigation measures to ensure minimal impacts on fish, water, vegetation and wildlife.	20.1 Please provide detailed management plan around accidental spills in Project area and areas where Project equipment will be operating and transporting materials.
20284	Project Description	Spills	TC	48	Gov of Canada: Sarah Robertson	TC-#2 Diesel Spill on Misery Road Reference: Section 1, Introduction subsection 1.2.4.2 page 1-24	Section 8.3 of the Transportation of Dangerous Goods Regulations(TDGR) requires that a person who has possession of the dangerous goods at the time of an accidental release, a "dangerous goods accident" or a "dangerous goods incident" must submit a follow-up report within 30 days after the occurrence.	Transportation of Dangerous Goods would like to request a copy of the Spill Report for the incident which occurred on March 8th, 2014.
21231	Project Description	WRSA	GNWT	25	GNWT - Lands: Paul Mercredi	Waste Rock Storage Area Section 3 - Project Description Appendix 3B - Jay Project Conceptual Closure and Reclamation Plan	The Project Description or Conceptual Closure and Reclamation Plan (CCRP) does not indicate that topsoil, till or lake sediments excavated during stripping of development areas will be stockpiled for future reclamation.	GNWT recommends that the mine development plan include storing these materials in areas segregated within the WRSA or another suitable area. These materials may be required for future reclamation to provide a vegetation substrate on disturbed areas.

Notes:
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21232	Project Description	WRSA	GNWT	26	GNWT - Lands: Paul Mercredi	Waste Rock Storage Area Section 3 - Project Description Appendix 3B - Jay Project Conceptual Closure and Reclamation Plan	It is unclear how run-off water from the WRSA will be handled.	GNWT requests additional information on the handling of run-off water from the WRSA.
19190	Project Description	WRSA	EC	24	Gov of Canada: Sarah Robertson	EC-#9 Runoff and Seepage from Waste Rock Storage Area Appendix 3A Section 8.4.2.3.4	The Proponent proposes that seepage from the Waste Rock Storage Area (WRSA) will be monitored by samplers walking the toe in spring and fall, sampling any seepage streams. The use of a sump, ditch, or collection structure is only in place as a contingency measure. This sampling methodology and monitoring plan has the potential to miss or underestimate the amount of seepage or runoff that is occurring from the WRSA. Seepage from the south of the WRSA will flow to the diked area, while seepage and runoff from the north will naturally flow to Lac du Sauvage, so the north side is of primary concern for seepage and runoff. Additionally, during post-closure the WRSA will drain directly into Lac du Sauvage from both the north and south sides.	EC requests that with regards to the waste rock storage area <ul style="list-style-type: none">• what levels of seepage and runoff would trigger installation of the collection or control structures?• how will the Proponent ensure that all waste rock seepage and runoff is suitable at that time when the dikes are breached and the diked area is reconnected to Lac du Sauvage?
21233	Project Description	WRSA	GNWT	27	GNWT - Lands: Paul Mercredi	Waste Rock Storage Area Section 3 - Project Description Appendix 3B - Jay Project Conceptual Closure and Reclamation Plan	It is unclear if sufficient quantities of non-PAG waste rock can be segregated within the WRSA for final cover of PAG waste rock. This would be important in the event of premature closure or should the final closure cover require increased quantities of non-PAG rock than projected, as it would be far more costly to source non-PAG cover materials from elsewhere.	GNWT requests that sufficient quantities of non-PAG waste rock be segregated within the WRSA for final cover of PAG waste rock. Any additional details that DDEC can provide at this time with respect to the quantities of non-PAG rock would be appreciated.
21234	Project Description	WRSA	GNWT	28	GNWT - Lands: Paul Mercredi	Waste Rock Storage Area Section 3 - Project Description Appendix 3B - Jay Project Conceptual Closure and Reclamation Plan	<p>The present method for disposal of waste rock is to co-dispose granite and meta-sediments in layers within the WRSA with a 5m final cap of granite, similar to the Misery WRSA. This method is intended to encapsulate PAG rock within permafrost. However, results of thermal monitoring of Fox WRSA and Misery WRSA (2013 Waste Rock and Waste Rock Storage Area Seepage Survey Report, DDEC, 2014) indicate that: "Large portions of the Fox WRSA continued to remain unfrozen with temperatures at depth up to 5.3°C. An active layer displayed seasonal thawing with temperatures up to 4.4°C. The surface active layer thickness ranged from 4.8 to 6.0 m...This is likely a function of placing warm (above-freezing) waste rock and/or placing waste rock in above-freezing temperatures."</p> <p>"The Misery WRSA below the active layer was in a permafrost state, with temperatures predominantly at 0 to -10°C. The thickness of the active layer is however, quite variable, ranging from 2.5 m to 14 m with temperatures up to 14°C... The large active layer thicknesses in the Misery WRSA are likely a function of the proximity of some cables to the side slopes and the accumulation of snow, which acts as a thermal blanket reducing heat transfer from the waste rock at some locations."</p> <p>As suggested, the concern for unfrozen conditions or a large active layer may apply to only parts of a rock pile (such as southern exposure, or insulation caused by snow accumulation on lee faces) or aspects of the rock pile (such as darker rock or zones of coarse rock which can re-warm each year). However, the implications for closure are that the granite cap may need to be greater than 5m to prevent the active layer from extending into PAG waste rock, or that the proposed encapsulation by permafrost may not provide reliable long-term management of ARD and ML. It is understood that a "Special Study" to further investigate temperatures within the WRSA's will be completed by DDEC as per the Board's directives</p>	GNWT requests that DDEC provide the following: <ul style="list-style-type: none">a. Any thermal analysis to support the 5 m cover thickness proposed for the Jay Pit waste rock storage area that will incorporate the anticipated active layer within the rock pile.b. Descriptions of further work and research needed to re-evaluate the closure design (i.e. thickness of the non-PAG cover) for all WRSA's at the Ekati mine.c. A preliminary discussion of closure options for WRSAs in the event that research determines that long term encapsulation by permafrost will not be achieved (e.g. underwater disposal of PAG, etc.).

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16837	Project Description	WRSa	MVEIRB	36	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.4.1 - Pathways with No Linkage, Seepage from WRSa pg 8-165	The proposed management plan for the WRSa depends on permafrost establishing a barrier between the WRSa water and the deeper groundwater regime. What happens if the permafrost cannot be established?	If permafrost is not establiished, would the runoff from the WRSa be connected to the shallow groundwater regime?. Are there studies confirming this methodology has worked with similar materials at Ekati such as the Misery waste rock? If so, please provide the documentation. What are the critical conditions (e.g. critical temperature and duration) needed to ensure permafrost is established in the waste rock pile? What would upset permafrost development and the longterm management of the WRSa?
17052	Project Description	WRSa	IEMA	22	Independent Environmental Monitoring Agency: Kevin O'Reilly	Jay Waste Rock Storage Area (WRSa) Seepage and Contingency DAR Reference: Project Description, s. 3.5.6 WRSa Area, pg. 3-60 and Effects of the Environment on the Project, s. 16.4 Summary, pg. 16-10 and Appendix 3B Jay Project Conceptual Closure Report, s. 4.2.2 Configuration, pg. 14	The Jay WRSa will be as close as 100 m from the shore of Lac du Sauvage and there will be no separation of PAG rock within the WRSa to allow for potential seepage away from the shore. DDEC is relying on permafrost encapsulation to prevent acid generation in the Jay WRSa. As experience with the Misery and Fox dumps has shown, freezing may not occur as predicted. There does not appear to be any information presented on thermal monitoring of the Jay WRSa. Closure plans should consider the 'worst case' wherein internal freezing of the Jay dump (which, like Misery, contains significant portion of metasediments) does not occur, and present an adaptive management plan to deal with drainage that may require treatment prior to discharge. There does not appear to be any contingency measures outlined for potential seepage should encapsulation fail either in design or over the long-term with climate change.	DDEC should provide analysis of the potential effects of climate change on the performance of the Jay WRSa. DDEC should indicate how it intends to monitor thermal performance of the Jay WRSa and how monitoring data will be used for adaptive management that includes how seepage and run-off will be monitored, what triggers and thresholds will be used, and what mitigation or treatment methods will be applied if dumps fail to freeze. DDEC should indicate what the contingencies are for seepage from the Jay WRSa should encapsulation fail as a result of design or over the long-term with climate change.
17053	Project Description	WRSa	IEMA	23	Independent Environmental Monitoring Agency: Kevin O'Reilly	Waste Rock Storage Area Cover; DAR Reference: Appendix 3B Conceptual Closure and Reclamation Plan – Section 5.4.1.2 Waste Rock Storage Area	A 5 m cap of non-PAG granite is proposed to cover the Jay WRSa at closure. No estimate of the volume of rock is provided, or where/how it will be stored during operations.	DDEC should provide Information to demonstrate that there are adequate supplies of NAG, where it will be stored during operations, and that it will remain accessible for use in reclamation.
20662	project description	WRSa	KIA	19	Kitikmeot Inuit Association: Tannis Bolt	WRSa provisions used at Ekati may not protect against seepage for Jay Pipe given updates to climate change models since the time of permitting Ekati. Caribou EA, Section 12.3.2.2.1, page 12-52.	In explaining why there is no residual effect predicted for caribou due to ingestion of seepage and surface runoff from waste rock storage areas (WRSAs) and kimberline stockpiles, or due to ingestion of water, soil and vegetation that has been chemically altered, the proponent provides assurance that Ekati Mine WRSa practices to facilitate permafrost development and maintenance will be used. More details are required on these practices in the context of the proposed site and with considerations of updated climate change models released by the IPCC.	As WRSa practices were approved for the Ekati project based on earlier climate change models and predictions, please comment on whether WRSa practices proposed for Ekati will retain effective for the Jay Pipe location given updated climate change models and predictions provided by the Intergovernmental Panel on Climate Change (IPCC) since the time of permitting the Ekati project. What adaptive management approaches will be available into perpetuity by the proponent if the WRSa begins to thaw, to prevent seepage and impacts on water quality and caribou into perpetuity? Would the proponent consider monitoring farther into the future following project closure to provide opportunities for adaptive management, as compared to the time period comitted to following the Ekati closure?
20325	Project Description	WRSa	LKDFN	4	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Adaptive management for the freezing of the WRSa References Section 3, sub-section 3.5.6; Appendix 3B Directed to Project Proponent	Background The proponent proposes to encourage permafrost conditions in the WRSa to prevent leaching. LKDFN has not been able to locate adaptive management measures should the WRSa not freeze or if it were to thaw at a later time. □ Review Comment Given the threat to permafrost from climate change and the uncertainty of permanent freezing conditions in the WRSa, LKDFN would like to understand the potential impacts and the options for adaptive management measures should the WRSa not freeze or if it were to thaw at a later date.	LKDFN requests an analysis of the potential impacts on the environment should the WRSa not freeze or if it were to thaw at a much later date. LKDFN also requests some proposed options for adaptive management for this scenario.

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19187	Project Description	WRSA	EC	21	Gov of Canada: Sarah Robertson	EC-#6 Neutralization Potential Section: 4.2.2.1 Annex VIII	The Proponent states that the Neutralization Potential to Acid Potential (NP/AP) ratio of diabase samples is presented in Figure 4.2-3. A total of 75 diabase samples were analyzed for NP and AP, of which 72 diabase samples (96%) had NP/AP ratios greater than 2 and are classified as non-PAG (Table 4.2-2). Four diabase samples had NP/AP ratios between 1 and 2. Therefore, diabase is non-potentially acid generation (non-PAG). Given that the proponent has classified all the diabase samples as non-PAG, it is not clear how the samples that fall within the uncertain range would be managed.	EC requests the Proponent provide details as to how the samples that show potential to generate acid would be managed.
19188	Project Description	WRSA	EC	22	Gov of Canada: Sarah Robertson	EC-#7 Metal Analysis - Uranium and Thorium Section 4.2.4.1 Annex VIII	<p>Tables 4-2-3 to 4-2-6 show the Summary of Metal Analysis Results of Overburden, Waste Rock, Diabase, Granite, and Metasediment Samples from the Ekati Mine Parts A & B, (in comparison to crustal abundances); Summary of Metal Analysis Results of Kimberlite Samples From the Ekati Mine parts A & B; as well as Summaries of Results of Shake Flask Extraction Leach Testing of Samples From the Jay Pipe Parts A & B for in comparison to CCME guidelines. In places, Uranium and/or thorium are marginally higher or in some cases the maximum value are higher than the crustal abundance in diabase, granite, metasediments, Kimberlite and coarse processed Kimberlite. However, the concentrations of uranium (thorium not reported in table) are lower than CCME guidelines in the leachates as reported in the table.</p> <p>If with time, or should the concentration of uranium in the leachate become higher than the CCME guideline, is there a contingency plan to deal with that exceedance given the radioactive nature of uranium and/or thorium.</p>	EC requests the Proponent commit to developing a contingency plan to deal with any exceedance of Uranium and/or thorium in the leachate should that occur
16838	Project Description	WRSA	MVEIRB	37	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8e, Site Discharge Water quality Modeling report, page 8E-17	This section states that the concentrations in the waste rock storage area (WRSA) for Misery seepage from 2001 - 2004 were used to represent input water quality in the Project site water quality with respect to the Jay WRSA. It is stated here that about 24% of the waste rock produced at Jay is expected to be metasediment which is potentially acid generating. Then it states that the Misery seepage data "represent WRSAs that contain a higher proportion of possibly acid-generating material".	Please confirm that the percent of potentially acid generating metasediment in the Misery WRSA is approximately the same as predicted for Jay and provide a reference.
17033	Project Description	WRSA	IEMA	3	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Design; DAR Reference: Project Description, s. 3.5.6 Waste Rock Storage Area, pg.3-63	The Jay Waste Rock Storage Area is designed to have a minimum 100 m buffer zones between it and Lac du Sauvage, but only minimum 30 m between it and streams. This is the case for the streams flowing into Lac du Sauvage from Lakes C1 and C17 (Maps 3.5-1 and 8.4-1).	DDEC should explain the rationale for the 30 m buffer zone between the Jay waste rock pile and streams flowing into Lac du Sauvage and assess possible impacts to Lac du Sauvage water quality from any waste rock seepage flowing into these streams.
21225	Project Description		GNWT	19	GNWT - Lands: Paul Mercredi	Jay-Pipe Pit Geometry Section 3- Project description Section 3.5- Jay Project components, 3.5.4.1 - Pit Geometry Map 3.5-4 (p3-41), Map 3.5-2 (p.3-42)	Section 3 of the DAR outlined the conceptual design of the various components specific to the Jay Project. In Section 3.5, discussion was presented that details the conceptual design of the various components specific to the Jay Project during the construction phase (Map 3.5-1) and operations phase (Map 3.5-2). The Pit geometry and preliminary stable slope configurations are outlined in Section 3.5.4.1. The information presented provides limited discussion pertaining to the following: - Whether freeze-thaw effects were taken into consideration in the stability assessment of the Pit walls. Based on a preliminary review of the data, it appears the freezing and thawing index may be on the order of 5,000 deg-days and 2,000 deg-days, respectively; however these indices are not presented in the DAR. - The stability and shape of the overburden (lake sediments) located between the excavated Jay Pit and the toe of the dike.	GNWT requests that DDEC provide the following: a. Describe how freeze-thaw of the pit walls was taken into consideration in the stability assessment of the excavated Jay Pit walls. Provide further discussion regarding freeze-thaw effects as well as the effects of a frozen face on the rock permeability and Pit infiltration rate/volume. b. Provide an estimate of the freeze-thaw depths during operation of the Jay Pit. c. With regards to Section 10.4 of the DAR (mitigation and monitoring), provide a description of the proposed actions, mitigations and monitoring associated with the effects of freeze-thaw on the stability of the of the Jay Pit walls. d. Provide additional information on the slopes and stability of the overburden (lake sediments) located between Jay Pit and the toe of the dike once the area has been dewatered and describe how the lake sediments will be shaped.
19205	Project Description		EC	39	Gov of Canada: Sarah Robertson	EC-#24 Reclamation of Sediments - Water Quality and Quantity Section 8	During the dewatering process of the diked area, sediments will become exposed and will need to be removed in order to access the Jay pipe. Sediments can be used on site for a variety of purposes including reclamation cover. There is no mention by the Proponent as to how the sediments will be dealt with.	EC seeks clarification on how will the sediments be used once they are removed from Lac du Sauvage? Are the sediments to be disposed of, or stored and reclaimed at a later date?

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20283	Project Description		TC	47	Gov of Canada: Sarah Robertson	TC-#1 General Comment - The dewatering of Lac Du Sauvage for the proposed Jay Pit	With the changes from the Navigable Waters Protection Act 2009 to the Navigation Protection Act (NPA), proponents are not required to submit Notice of Works forms to the department for review on water bodies that are not listed in the Schedule under the NPA. Lac Du Sauvage along with the other water bodies impacted do not fall under the schedule, therefore no Notice of Works are required. This is only the case for the dewatering of a navigable water body, which this project falls. The proponent also has the right to have works that are in water bodies that fall outside of the schedule reviewed by the NPP. This is called "Opting-In". Notice of Work forms may be submitted for project review for works that include water course crossings, water intakes and outfalls, pipelines etc. When this request is made, the NPP will start by conducting a navigational assessment of the water body to determine if it falls under the scope of the NPA. The NPP will need to conduct a navigability assessment on Lac Du Sauvage for the dewatering of the proposed Jay Pit. The information required to assist in this determination are the water depths of the area, distance/area, use of the area for potential recreational, commercial or subsistence use. An open water or spring flow timing site visit may be conducted to obtain all relevant information. Once the review is completed, construction methodology of the dewatering and dike as well as plan and profile views will be required.	Transport Canada's Navigation protection Program (NPP) will require the following: A Notice Of Work form that will list out the water body details along with the specific type of work that will impact the water body; TC will need to conduct a navigability assessment on Lac Du Sauvage for the dewatering of the proposed Jay Pit.
20647	project description		KIA	4	Kitikmeot Inuit Association: Tannis Bolt	Additional Flights for the Jay Pipe Project are not enumerated. Project Description, Section 3.4.1.8.2, p. 3-31.	The project description states that the project is not anticipated to result in transport activity outside of that typically experienced at Ekati mine because workforce demand is not predicted to increase, and periods of heavy construction activity have been experienced through the life of the Ekati mine. While it may be true that additional flights for the Jay Pipe project will not increase flight densities beyond those maxima experienced at Ekati historically, increasing the frequency of dense air traffic over could impact wildlife. Further, past project licenses were granted for Ekati and Diavik based on the life of those projects. Increasing the frequency of high plane traffic for more years in the future should be evaluated for impacts on wildlife.	Please provide an estimate of the number of flights that will be needed to bring the estimated 1,252 workers to and from site and to bring project related supplies to site. Please include an estimate of flights per month stemming from the needs of the Jay Pipe project alone.
20724	project description		KIA	81	Kitikmeot Inuit Association: Tannis Bolt	Non-traditional land use: Human environment Baseline s. 3.8.1 (3-117-118)	More information required regarding non-traditional land uses specifically in the Kitikmeot Regional area as it pertains to Nunavut LSA communities. This is a term in the TOR (#2, p.22) that is not available in baseline and needed to be able to determine potential effects on trans-boundary land uses in the Kitikmeot region.	Add more baseline information regarding non-traditional land uses specifically in the Kitikmeot Regional area as it pertains to Nunavut LSA communities that will affect the Kitikmeot. E.g. Snowmobiling, air travel, low level flights from planes and helicopter; hunting/fishing etc.
20725	project description		KIA	82	Kitikmeot Inuit Association: Tannis Bolt	Non-traditional land use: Lac du Sauvage - Human environment baseline s.3.8.3 (p.121-122)	A description regarding the current use of Lac du Sauvage for traditional, commercial or recreational pursuits (including those related to trans-boundary LSA communities in Kitikmeot) is required as per term #8, p.23 in the TOR	Add a description regarding the current use of Lac du Sauvage for traditional, commercial or recreational pursuits (including those related to trans-boundary LSA communities in Kitikmeot). Confirm that non-traditional activities and land uses will not be affected by the Project.
16889	Project Description		MVEIRB	88	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Risk Assessment - DAR Section Appendix 3C Risk Assessment for Accidents and Malfunctions of the Jay Project	On Table 7: Risk matrix, the Likelihood Table is set out in terms of events per year Indices of >1 to 1/1000. Normally, failure modes are assigned annual probabilities based on the experience of the panel team. In this case significant experience has been gained from the Meadowbank and Diavik Dikes. For instance, excessive seepage through the East Dike occurred in the deepest channel during dewatering. It is not apparent that this and other experience at Meadowbank and Diavik is properly accounted for in the likelihood assignments.	Summarize the experience at the Meadowbank and Diavik dikes with respect to each failure mode and adjust likelihoods of occurrence as appropriate.

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Terrain								
21227	Terrain	Permafrost	GNWT	21	GNWT - Lands: Paul Mercredi	Permafrost Baseline Annex IV - Permafrost Baseline Report	<p>The Permafrost Baseline Report (Annex IV) described the existing permafrost conditions at the Project site. It intends to characterize the permafrost and active layer conditions at the site (including thermal conditions and ground ice/moisture contents of underlying material) and describe the relationship between the permafrost, active layer conditions and the groundwater regimes. Theoretical modeling of the critical depth to permafrost and formation of open taliks under Lakes are presented; however a comparison of the theoretical results to measured data in the vicinity of the Jay Pit is not provided.</p> <p>Reference to thermistors temperature profile data (Appendix A) are given for the Misery Pit zone but this data does not represent temperature profiles below the bottom of a lake. There is no reference to temperature profile data (thermistors profiles) in the zone of the proposed Jay Pit.</p> <p>It is reported in Section 3.3.3 that “a geotechnical and hydrogeological field investigation was carried out in the Jay pipe area from February to May 2014 (Golder 2104b,c,d)” during which deep thermistors were installed to collect ground temperature data with depth and time. In July 2014, Golder Associates submitted to Dominion Diamond Ekati Corporation a factual geotechnical and hydrological field investigation report. In volume 1, titled “Proposed Dikes”, it is stated that seven thermistors cables were installed (on one of the islands along the proposed dike trajectory) to record the ground temperature over depth and time. Initial readings were taken in the months of installation (March and April 2014). DDEC has likely continued the collection of the thermistor data.</p> <p>No thermistor cable installations are mentioned in volume 2 of the factual geotechnical and hydrological field investigation report, titled “Proposed Jay Pit area”; It is unclear if thermistors were installed in the in-lake geotechnical holes drilled at the Jay Pipe area.</p>	GNWT requests that DDEC confirm if any thermistor cables were installed within the in-lake geotechnical holes drilled at the Jay Pipe area. If so, DDEC should provide a comparison of the theoretical temperature profile data for the Jay Pipe area to the measured temperature profile data.
20723	Terrain		KIA	80	Kitikmeot Inuit Association: Tannis Bolt	SECTION 10 TERRAIN	It is surprising there is no mention of TK in this section, especially given the knowledge and importance of Aboriginal peoples regarding soils and permafrost. Elders of all groups have expressed many concerns about the melting of permafrost with climate change and its impact on their traditional activities, as well as the environment.	Consider comment and rewrite to reflect how Aboriginal people view the effects of climate change on soils and permafrost.
20225	Terrain		NSMA	12	North Slave Metis Alliance: Shin Shiga	10.3.1.2.1. Climate Change-related Effects on Terrain	DDEC used the “moderate greenhouse gas emissions” scenario in CSA Technical Guide – Infrastructure in permafrost (2010).	Please provide the details of the scenario in the referenced document
20226	Terrain		NSMA	13	North Slave Metis Alliance: Shin Shiga	10.3.1.2.1. Climate Change-related Effects on Terrain	Ditto	Please present the referenced scenario alongside the most recent comparable scenario analyses in the IPCC report. Please include in this the most severe climate change scenario that the IPCC report includes.
Traditional Knowledge								
19169	Traditional Knowledge		DFO	3	Gov of Canada: Sarah Robertson	DFO-#2 Consultation Reference documents use in annex XVII - Traditional land use and traditional knowledge baseline report for the Jay project. Throughout this document.	The references used in the report are mainly dated from the 1990s or provide information not related to the impacted area. Fisheries and Oceans Canada understands that consultations are undertaken annually regarding traditional and current use of aquatic resources. If more recent information is available, this would support the review of the potential impacts of a mine expansion on aquatic resources and use by impacted communities in the area.	Fisheries and Oceans Canada-Fisheries Protection Program recommends that the most recent information on aquatic resource use in the area around Ekati Mine by impacted communities be provided.
17048	Traditional Knowledge		IEMA	18	Independent Environmental Monitoring Agency: Kevin O'Reilly	Traditional Knowledge Reference; DAR Reference: Annex XVII Traditional Land Use and Traditional Knowledge Baseline Report for the Jay Project	The TK literature review for Lutsel K’e Dene First Nation appears to be incomplete. Not listed are two sources of TK for that First Nation: (1) Parlee, B. et al. 2005. Understanding and communicating about ecological change: Denesoline indicators of ecosystem health. P. 165-182. In: Breaking Ice: renewable resource and ocean management in the Canadian North. Ed: F. Berkes et al. Univ Calgary Press.396 p. and (2) Parlee B. et al. 2005. Using Traditional Knowledge to adapt to ecological change: Denesoline monitoring of caribou movements. Arctic 53:1. The former in particular explains how Lutsel Ké Dene traditionally assess health of land and water and the fish and animals living in it.	DDEC should reference and incorporate any relevant TK from the two Parlee et al. (2005) papers.

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17067	Traditional Knowledge		IEMA	37	Independent Environmental Monitoring Agency: Kevin O'Reilly	Response to Aboriginal Concerns; DAR Reference: Annex XVII - Traditional Land Use and TK Baseline Report.	Throughout the document DDEC notes that a particular Aboriginal group "Has expressed concern(s) about the impacts of mining on...(a VEC). There is no explanation given as to how DDEC has addressed or mitigated these concerns in the development of the project.	DDEC should make specific reference to the concerns expressed by the Aboriginal organizations and how they have addressed these concerns in the development of the project.
17068	Traditional Knowledge		IEMA	38	Independent Environmental Monitoring Agency: Kevin O'Reilly	Documentation of community Concerns; DAR Reference: s. 4 Community Engagement, Table 4.4-1, Table 4.4-2, and Table 4.4-3 and s.5 Traditional Knowledge, Table 5.3-1	Columns that are labeled: Relevant Comments/Issues/Commitments. These columns do not include relevant comments or issues or commitments made as the title indicates, they only summarizes what the objectives of the consultation was intended to provide. This is misleading.	DDEC should re-label the column with a different title such as "Objective for Meeting". A reference should be provided as to where in the DAR the general and TK comments, issues and commitments made at the workshops, scoping sessions, site visits and other consultation meetings can be found (i.e., Section 15 Culture).
20696	Traditional Knowledge		KIA	53	Kitikmeot Inuit Association: Tannis Bolt	Project Description ANNEX XVI ARCHAEOLOGY BASELINE REPORT FOR THE JAY PROJECT Citation of NTKP Reports	Improper citation of Inuit TK. (Banci and Hanks 2006) Banci and Hanks are the editors, not the authors. Further, two other authors are omitted. The proper citation is: Banci, V., C.C. Hanks, R. Spicker and G. Atatahak (editors) 2006. Walking in the Path of the Caribou. Knowledge of the Copper Inuit. Naonaiyaotit Traditional Knowledge Project. Report Series (Placenames atlas and 13 reports); Kitikmeot Inuit Association, Cambridge Bay and Kugluktuk NU. Published by Rescan Environmental Services Ltd., Vancouver BC.	Provide proper citations. Note that as the original report series does have "Copper Inuit" in the title, it should be included in the citation.
20703	Traditional Knowledge		KIA	60	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT General Comment	A report of 113 pages to present the traditional knowledge of five groups for all topics seems on the slim side. For Inuit, some sections are better written than other. Further, given that this is a TK report citing information from outsiders (Sadownik and Harris 1995) is neither necessary, nor respectful. This information has already been provided by Inuit themselves and is available to DDC in the NTKP reports. Care needs to be taken to be respectful of the knowledge and language, i.e., inokhok not inukshuk. Both spellings are used in this report. Lastly, it would have been useful to provide actual maps of TK (travel routes, migration corridors, etc.) for all peoples involved, rather than the general maps provided. The map of the Kitikmeot region does not nothing to explain the TK of Inuit.	Consider and revise.
20713	Traditional Knowledge		KIA	70	Kitikmeot Inuit Association: Tannis Bolt	SECTION 13 WILDLIFE AND WILDLIFE HABITAT 13.2.3 Summary of Local and Traditional Knowledge SECTION 12 BARREN-GROUND CARIBOU 12.2.3 Summary of Local and Traditional Knowledge	We acknowledge that it is a difficult task to integrate scientific and TK, especially from five groups. However, in order to effectively use TK to inform an environmental assessment, this integration is essential, and is not done at all in this DAR. In fact, the way the information is organized leads to attaching more importance to the group that has the most data. This is unfair to all given that the Ekati area was equally shared by all the groups. Further, much of the TK reported in the topic-specific sections is not actually TK, but an expression of the concerns people have stated.	Consider and revise.
20719	Traditional Knowledge		KIA	76	Kitikmeot Inuit Association: Tannis Bolt	SECTION 14 MAXIMIZING BENEFITS AND MINIMIZING IMPACTS TO COMMUNITIES General Comment	Since the initiation of the EA in 1995, Ekati has provided much support to Kitikmiut to document and preserve their TK. Further, efforts were made to actually integrate TK into environmental management programs. Many efforts were also made with the other Aboriginal groups. Although much of this TK is reported in the DAR, the integration of this valuable knowledge with science has not been done well, and not done at all with the assistance of the holders of TK. The traditional knowledge of all the groups has been presented through the eyes of scientists, and not with the assistance of those who know the land.	Comment for consideration to DDC and Board.
20720	Traditional Knowledge		KIA	77	Kitikmeot Inuit Association: Tannis Bolt	SECTION 8 WATER QUALITY AND QUANTITY 8.2.6 Summary of Local and Traditional Knowledge	Traditional Knowledge is specific to the people who hold it. It is not appropriate to present TK of five different groups in this kind of general summary. It would be the same as summarizing a variety of scientific studies and providing no citation or credit to the people who did the work. It takes more effort to write it properly, however, it is critical for the respectful consideration of TK.	Consider and revise.

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20491	Traditional Knowledge		LKDFN	20	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Traditional Knowledge from Lutsel K'e Dene First Nation References Annex XVII Directed to Project Proponent	Background The annex provides a great deal of information about land use but is missing key elements from LKDFN. Review Comment LKDFN has noticed that some key publications and some key travel routes are not listed in this section. The following publications should be added: Parlee, B. et al. 2005. Understanding and communicating about ecological change: Denesoline indicators of ecosystem health. pp. 165-182. Breaking Ice: renewable resource and ocean management in the Canadian North. University of Calgary Press. Parlee B. et al. 2005. Using Traditional Knowledge to adapt to ecological change: Denesoline monitoring of caribou movements. Arctic 53:1. In addition, LKDFN recommends reviewing some of the traditional knowledge gathered for the Gahcho Kue and Diavik mines, as some of the recorded trails reach close to the Ekati site.	LKDFN requests that the proponent update the Traditional Knowledge section to include these sources.
20306	Traditional Knowledge		Tlicho	17	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR17: Contributions to Monitoring DAR Section: 5.3.6	Dominion Diamond currently has existing monitoring programs in place to track effects on wildlife, aquatics, and air quality. Dominion Diamond has reported that they will discuss with potentially affected Aboriginal groups on ways to collaboratively involve community members in these monitoring programs. The goal of this involvement is to assist in mitigating residual concerns about effects on traditionally harvested resources and concerns about human and ecological health effects in the general Ekati area. However it is not clear on the approaches that will be taken, level of engagement that will take place, and plan that will be used to achieve the goal of mitigating residual concerns.	17.1 Please provide details of proposed engagement with Tli?cho? on additional monitoring programs. 17.2 Please provide further details on whether new traditional knowledge will be considered and integrated within existing and/or additional monitoring programs. Please advise on whether project changes will occur due to this knowledge.
20307	Traditional Knowledge		Tlicho	18	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR18: Archeology/Traditional Land Use DAR Section: 2.2.2.4	Since purchasing the Ekati Mine, Dominion Diamond has made several commitments to affected communities to support the ongoing collection and documentation of Traditional Knowledge for communities, and for integration into Project design, planning, operations, and eventual closure and reclamation activities. Dominion Diamond recognizes the significance of traditional land use activities and the connections local communities maintain with the Lac de Gras area, and will work with the communities to balance the traditional and present-day land uses so that the cultural connections can be maintained for future generations.	18.1 Please provide Dominion Diamond's approach for integration of Traditional knowledge into Project design, planning, operations and eventual closure and reclamation activities.
20308	Traditional Knowledge		Tlicho	19	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR19: Archeology/Traditional Land Use DAR Section: 2.2.2.4	In the Lac de Gras area, people often camped near areas where caribou, fish, and water were available such as on small bays along the shore, on protected islands, and areas where channels with swift currents kept the water open in winter, including the Lac du Sauvage-Lac de Gras Narrows. The Narrows (a relatively short stream connection between Lac du Sauvage and Lac de Gras) was identified as a fishing location, particularly during winter because of the swift currents that keep that channel open (Weledeh Yellowknives Dene 1997). Traditional knowledge also identifies this area as potential spawning habitat. Other potential spawning locations include locations above and below the Narrows, and adjacent to the western shoreline of Lac du Sauvage in internal basin Ac.The Tlicho Dene also express their concern with the destruction of the lands and waters and the effects the mine will have on their ability to fish at Ek'ati area (DCI 1995).	19.1 Please provide more detailed locations, information and mitigation measures of high value spawning habitat that have been identified through traditional knowledge in the Jay Pipe area. 19.2 Please provide detailed mitigation measures to directly address the concern with the destruction of used lands and waters within the Project area.

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Water								
21214	Water	Hydrgeo	GNWT	8	GNWT - Lands: Paul Mercredi	<p>Hydrogeology - Baseline Characterization and Conceptual Model Development</p> <p>Section 8 - Water Quality and Quantity - Appendix 8A - Hydrogeological model pre-mining, during mining, and closure - Table 8a3-1(p.13)</p> <p>Annex 9 - Hydrogeology baseline report - Table 4.4-1 (p.4-7)</p>	<p>Based on the information presented in Table 8A3-1, many hydrogeological parameters used in the reference case have been determined using arithmetic or geometric means of available hydraulic testing results (hydraulic conductivity) or have been derived from values used in the Diavik numerical model. There is limited discussion regarding the methodology used in selecting or adjusting parameters from the Diavik model to the Jay model, and the referenced model report is not provided within the DAR package.</p> <p>Table 8A3-1 (Appendix 8A) presents Reference Case hydraulic conductivity values for competent bedrock units as 3×10-8 m/s (30 - 300 m) and 1×10-8 m/s (300 – 1,500 m). Table 8A43-2 presents hydraulic conductivity values for Lower Bound (2E-10 m/s), Upper Bound (5E-7 m/s) and “Value Assumed in Developer’s Assessment Report” (3×10-8 m/s from 30 - 300 m, 1×10-8 m/s from 300 – 1,500 m). The same table provides the comment: “Conservative: The selected values represent 3 times the geometric mean calculated from in situ testing.” Although hydraulic conductivity values are indicated to have been increased by a factor of 3 for the EA Conservative Scenario model, explicit values are not provided.</p> <p>Table 8A3-1 (Appendix 8A) states that the Enhanced Permeability Zones (EPZs) are “assumed to be trending northwest-southeast, and to be 60 m wide in the Reference Case, based on the properties of EPZs observed at the Panda, Koala, and Diavik A154 mines, and on geological evidence.” Table 4.4-1 summarizes the identification/characterization of the EPZ as by “satellite imagery and hydrogeologic testing”. However, within Annex 3 – Geology Baseline Report, no specific discussion can be found that demonstrates how the satellite imagery, or other structural geology characterization data was used to determine a predicted, or conservative estimate for the thickness, depth and lateral extent of the enhanced permeability zones identified through hydrogeologic testing.</p> <p>Although discussion regarding groundwater quality within Annex 9 – Hydrogeology Baseline Report includes presentation of various datasets demonstrating a profile of Total Dissolved Solids (TDS) concentrations with depth, the Jay Project baseline data appears to consist of only three groundwater samples, collected from 430 mbgs or shallower. Figure 5.2-1 within Annex 9 demonstrates the regional variability in measured TDS concentrations as more than an order of magnitude difference in values is observed between Ekati Panda/Koala and Diavik depth profiles. Based on the results of the model sensitivity analysis within Appendix 8A, application of the assumed TDS depth profile increased by a factor of two, which would be less than measured values at Ekati Panda/Koala, resulting in a 94% increase of TDS</p>	<p>GNWT requests the following information be provided:</p> <p>a. The rationale for values used in the Reference Case model and provide a detailed description of how “parameter values were conservatively derived from the Diavik numerical model” where applicable. Please provide the reference report (Golder, 2004), for review. The specific reference is: Golder (Golder Associates Ltd.). 2004. Diavik Hydrogeologic Numerical Model December 2004 Re-Calibration. Submitted to Diavik Diamond Mines Inc.</p> <p>b. The rationale for why the Reference Case model predictions should be considered conservative predictions for groundwater inflow quantity and quality for the Project as indicated in Appendix 8A.</p> <p>c. Description of how the Lower Bound and Upper Bound values presented in Table 8A43-2 were determined, and how these values have been used in any of the model predictions presented.</p> <p>d. A clear summary table listing model inputs parameters and assumptions for each model case simulation, including the post closure hydrogeological model. Clearly indicate all inputs and assumptions used in the model case from which results have been used in any impact assessment completed within the DAR. For any values described to be conservative, provide quantitative rationale.</p> <p>e. In Table 8A3-2, the arithmetic mean of in situ testing results within the weathered bedrock unit appears to have been adopted for use in defining this material property within the model. This assumption is described as conservative within the table. Please provide rationale for why this value is considered to be conservative.</p>

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21216	Water	Hydrgeo	GNWT	10	GNWT - Lands: Paul Mercredi	Hydrogeology - Numerical model framework and simulations Section 8 - Water Quality and Quantity - Appendix 8A - Hydrogeological model pre-mining, during mining, and closure - Tables 8a3-5, 8a4-1, Figure 8(a)4-4 Appendix 8b - Hydrogeological model for Jay Pit - post closure period - Table 8b-3-3	<p>Brines are noted to be present in the subsurface to great depth (Annex 9) but in the case of the 3D model (Appendix 8A) the fluid density of the water is assumed constant (as fresh water) and hydraulic heads, or pressures, are not linked to concentration. The 2D model developed to simulate post closure hydrogeological conditions has included coupling between fluid density and groundwater flow. This transition, where initial conditions of the 2D coupled model are based on predictions from the 3D uncoupled model, raises uncertainty regarding the influence of this significant change in governing equations on the influence to post closure model predictions in the short term (less than 10 years). Additional uncertainty results from the initial conditions for hydraulic heads defined within the 2D post closure model as they are not adopted from the 3D model and are assumed to be static or not flowing. The combination of these two conditions has potential to result in bias as to the correct starting values for heads and TDS in the 2D model.</p> <p>It is not clear as to how, or why, certain components of the models were determined and represented within the operations and post closure model simulations. More specifically, limited or no rationale is provided for the selection of the existing model mesh or the decision not to represent unsaturated flow. Further, the results of any benchmarking efforts do not appear to be provided. Explanation for the selection of key assumptions in the numerical model's development and explanation of the potential influences on predictive simulation results provide much needed context for the technical review of model predictions and their use in the impact assessment process.</p> <p>The timelines and inflow rates presented with Tables 8A3-5, 8A4-1, 8B3.3 and Figure 8A4-4 do not appear to be consistent. This makes it challenging to interpret the model predictions for inflow rates at the Jay Pit from the end of operations (dewatering) through flooding and post closure stabilization. It is also not clear in all instances what, if any, inflow/discharge rates to the Jay Pit are a result of active pumping from the Misery Pit or discharge from the upper region of the Jay Pit mixolimnion into the flooded diked area and Lac de Sauvage.</p>	<p>GNWT requests that DDEC provide the following information:</p> <p>a. Explain why the 3D hydrogeological model (Appendix 8A) did not run coupled simulations, whereas the 2D post closure model included coupling between fluid density and groundwater flow. Provide an explanation of potential implications on Jay Pit water quality from using the uncoupled 3D model predictions in defining initial conditions for the 2D coupled model.</p> <p>b. Describe how the effects of pressure differences in the horizontal due to density variations were considered in the predictions of post closure water quality within the Jay Pit.</p> <p>c. Provide additional details regarding the selection of the boundary conditions for heads or pressures applied to the mine pit face. Address in the response if the hydraulic heads considered the TDS concentration in the pit water.</p> <p>d. Describe any benchmark calculations or simulations performed to examine the validity of assuming constant density and uncoupling fluid from transport. If none were completed, please provide rationale outlining why this was not completed.</p> <p>e. Describe the vertical and horizontal mesh spacing in the finite element grid in terms of approximate locations. Explain and provide rationale for refinement of the mesh in the vicinity of the EPZ and if the mesh size is appropriate for the numerical simulations.</p> <p>f. Provide explanation and rationale for exclusion of unsaturated flow within the model simulations. Describe the potential for any seepage faces developing at the pit face, and likely implications to the hydrogeological model results presented within the DAR.</p> <p>g. Clarify the results for periods 12 through 14 in Tables 8A3-5 and 8A4-1 with Figure 8A4-4 as there appears to be inconsistencies with the illustrated flow rates and timeline. Detail the net flow rates occurring through hydrogeological pathways, as well as assumed flooding rates from pumping water stored in Misery Pit.</p> <p>h. Clarify the timeline and groundwater inflow rates presented in Table 8B3.3 with respect to results presented in Table 8A3-5. Indicate the net flow rates occurring through hydrogeological pathways, as well as those through surface hydrology or any other fluxes in/out of the Jay Pit.</p>
16812	Water	hydrogeo	MVEIRB	11	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.2.1.2.2 Hydrostratigraphy, page 8-22	In this section, it states that: "experience at other mines in the Canadian Shield demonstrates that Enhanced Permeability Zones (EPZs) that are extensive on the scale of a mine can be challenging to identify in advance of mining on the basis of single-well response tests that sampled a limited volume of rock. However, experience at the Snap Lake and Diavik mines also shows that in situations where mining occurs beneath a major lake in a large open talik and far away from permafrost, the hydraulic connection that these EPZs provide to the lake can be substantial."	Is there any utility or any plans to do further hydrogeologic testing to further delineate the EPZ(s) prior to mining?
16813	Water	hydrogeo	MVEIRB	12	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-section 8.2.1.2.2, Existing environment - hydrostratigraphy, pg 8-24	Dominion stated that enhanced conductivity is not expected between the kimberlite and competent rock as this was the case at the Panda, Fox, and Koala pipes.	Is enhanced conductivity not occurring between kimberlite and competent rock in the Misery and Lynx pipes and is it fair to expect similar conditions for the Jay pipe?

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16814	Water	hydrogeo	MVEIRB	13	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Annex IX: Hydrogeology Baseline Report, Section 4.4, 7.3.	On the basis of hydrogeologic testing in the area of the Jay Pit, the presence of an EPZ intersecting the pit is inferred The orientation of this EPZ is inferred to be in a northwest to southeast direction based on data from boreholes 3, 5, and 6. As described in the text, there is a great deal of uncertainty as to the size and orientation of the EPZ or even if there is one large EPZ or several smaller ones running in different directions. In the interests of being conservative, a larger EPZ has been inferred and the uncertainty in this conclusion has been well documented in this Annex and in the DAR. Nonetheless, this is the current prediction and so it is important to understand how it was arrived at and what the implications are. For example, in Figure 7.1-1 (also see Figures 8A2-1 and 2 from Appendix 8A), the proposed EPZ has been pictorally represented as intersecting the Jay Pipe on an angle at a depth of about 500 m. This visual representation makes it seem as though most of the pipe could be mined (ie. down to 500 m) before the EPZ is encountered.	In general, it is hard to understand how the EPZ orientation, angle/depth of intersection with the Jay Pipe and other properties have been inferred from the borehole data. Yet this is important since it greatly affects effluent quality/quantity predictions. As it is likely difficult to provide further written description of the EPZ, it is recommended that Dominion/Golder come to the Technical Sessions prepared to describe and discuss this further so that all parties can understand the assumptions and uncertainties around the EPZ. For example, please come prepared with information on the final values used for the EA case (i.e. hydraulic conductivities), the contribution of the EPZ for the EA relative to the Reference case, and the implications on the water balance.
16815	Water	hydrogeo	MVEIRB	14	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Annex IX: Hydrogeology Baseline Report, pg 4-7, Section 4.4	The EPZ mentioned above is referred to as a "sub-vertical" EPZ but no definition is given.	Could you please define what "sub-vertical" means with respect to the EPZ?
16816	Water	hydrogeo	MVEIRB	15	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8A: Hydrogeological Model, Section 8A3.7	In the sensitivity analysis, the EPZ is discussed and assigned different dimensions in order to test the sensitivity of the model to the assumptions about the EPZ size and shape. Both of the additional possibilities analyzed with respect to the EPZ size and shape resulted in lower volumes of groundwater inflow than the original assumption. However, it seems possible to imagine other scenarios which would produce more conservative predictions than currently presented.	Does the amount of groundwater inflow from the EPZ depend on the depth at which it might intersect with the Jay pipe? Again, it would be helpful to explore the assumptions and possibilities around the EPZ more in the Technical Sessions.
16823	Water	hydrogeo	MVEIRB	22	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Annex IX: Hydrogeology Baseline Report, pg 1-4, Section 1.3	Section 1.3 describes the baseline study area for hydrogeology but does not rationalize how the area was chosen or provide any references.	Please describe how the boundaries for the BSA for hydrogeology was chosen or provide a reference to another part of the DAR.
21236	Water	hydrology - hydraulic	GNWT	30	GNWT - Lands: Paul Mercredi	Hydrological Modelling Section 8 - Water Quality and Quantity	Much of the characterization of baseline hydrologic conditions, and all of the predicted hydrologic effects of the project, are derived from watershed modeling, rather than empirical measurements. The watershed model is detailed and complex, some model parameter values appear unrealistic or subject to large errors. Further, the data available for model calibration are very limited. No estimates of accuracy or error limits appear to have been made. No allowance appears to have been made for model result uncertainties in design of the project water management plan or facilities.	GNWT requests DDEC provide additional information on how uncertainties are addressed in the hydrological modeling based on DDEC's assumptions noted in the comments section.
21237	Water	hydrology - hydraulic	GNWT	31	GNWT - Lands: Paul Mercredi	Hydrology Baseline Section 8 - Water Quality and Quantity	All of the baseline characterization and the presentation of project effects involve use of an annual calendar year period. Use of the calendar year period would underestimate the extremes of true annual variability of wet and dry years.	GNWT recommends that annual values used in the impact assessment should be based on the hydrologic year which extends from the onset of freezing temperatures in October through to the following September. For certain types of analysis of annual water yield and runoff coefficients, the runoff of streams which extends past the end of the hydrologic year (September) should be assigned to that runoff year, since such runoff is the result of that year's precipitation. For streams that discharge through the entire winter season, all of the runoff through into May (or whenever the new spring runoff begins) should be assigned to the preceding runoff year. Please provide a rationale for not using the above approach in the baseline hydrology work and any impacts to the assessment in the DAR.
21238	water	hydrology - hydraulic	GNWT	32	GNWT - Lands: Paul Mercredi	Water Management Facilities Section 3- Project Description, Appendix 3A - Mine Water Management Plan	The mine water management plan and design and sizing of all of the water management facilities (except the B diversion channel) are based on average climate and runoff conditions, applied over the entire life of the project. No evaluations appear to have been made to estimate the effects of sequences of wet or dry years, and how the mine water management plan and design and sizing of water management facilities would accommodate a reasonable range of conditions.	GNWT requests that DDEC provide information respecting the potential effects of sequences of wet or dry years as noted in the comments section.
21239	water	hydrology - hydraulic	GNWT	33	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	A 4-hour time step was used to develop the model, apparently using daily data, however it is unclear why a 4-hour time step was used and how 4-hour values were obtained from the daily data.	GNWT requests DDEC provide rationale on the utilization of a 4-hour time step and provide information on how 4 hour values were obtained from the daily data.

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16851	Water	hydrology - hydraulic	MVEIRB	50	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Water balance modelling, Section 8, Appendix 8B	The regional water balance study of Desteffany lake used a 4 hr timestep where as the site water balance model used a 1 day timestep. This was apparently done to correspond with the longterm climate data; however, the timestep can be set independently of the daily climate data.	Please elaborate on why there was a difference in the timestep used.
21240	water	hydrology - hydraulic	GNWT	34	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	<p>Within Pages F-2 to F-9 of Annex X, the overall model structure is not clearly described. Apparently there are three sub-models: one for the watershed of Lac du Sauvage (LDS), one for that of Paul Lake (PL), and one for that of Lac de Gras (LDG). The LDS and PL sub-models are detailed models, with all watershed lakes having a surface area greater than 4 ha included in the model. The LDG model is less detailed, consisting of nine tributary sub-watersheds treated as lumped systems.</p> <p>The LDS (and PL) sub-models are complex (the LDS model has 476 lakes) and involve a large number of model parameter values, each having some uncertainty. This degree of complexity could be counterproductive in terms of the skill of the model in simulating hydrologic effects.</p>	GNWT requests that DDEC outline results that would be obtained if the LDS and PL sub-models were simplified using the lumped tributary sub-watershed approach as was used for the LDG sub-model, and describe how those results would compare with available observed data as well as with the results obtained for the detailed models.
21241	water	hydrology - hydraulic	GNWT	35	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	On Page F-2 of Annex X, the model does not appear to allow for the routing time effects of flows as they move through the complex of lakes and channels to the points of interest.	GNWT requests that DDEC clarify whether flow routing time effects are included in the model. If so, how is this done? If not, what are the potential implications of not including this aspect?
21242	water	hydrology - hydraulic	GNWT	36	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	On Page F-4 to F-6 of Appendix X, the method used for derivation of lake outlet discharge rating curves is based on a “regional” approach which appears subject to errors by a factor of 2 or 3.	GNWT requests that DDEC outline whether any other approaches were attempted. Additionally, DDEC should outline whether the accuracy of the adopted approach was tested by using the derived rating curve at several outlets with measured rating curves which can be used for comparative purposes.
21243	water	hydrology - hydraulic	GNWT	37	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	Pages F-4 to F-6 of Annex X, the description of the methodology for application of lake outlet discharge rating curves based on a “regional” approach appears incomplete.	GNWT requests clarification on the methods used for the determination of the zero flow depth “y” in the weir equation for each lake.
21244	water	hydrology - hydraulic	GNWT	38	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	GNWT notes that there is no information on lake stage-storage curves, or how lake storage was taken into account.	GNWT requests that DDEC provide information on lake stage-storage curves as well as information on how lake storage was taken into account.
21245	water	hydrology - hydraulic	GNWT	39	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	<p>On page F-11 of Annex X, the use of the Slipper Lake discharge hydrograph to adjust rating curves for the LDG Tributary Watershed 9 discharge is unclear and appears incomplete.</p> <p>Additionally, the methodology used for the other 8 Tributary Watersheds is unclear.</p>	GNWT requests that DDEC provide a complete description of the use of the Slipper Lake discharge hydrograph to adjust rating curves for the LDG Tributary Watershed 9 discharge. GNWT also requests that DDEC provide information on methods related to the other 8 Tributary Watersheds.
21246	water	hydrology - hydraulic	GNWT	40	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	<p>On Page F-13 of Annex X related to ice-affected discharges, all estimates of ice effects on discharges appear to be derived by modeling based on still water and air temperatures.</p> <p>GNWT notes ice formation at lake outlets are also influenced by water temperature and water velocity and that lake outlet ice cover dates differ from general lake ice cover dates. Some lake outlets are known to remain open all winter.</p>	GNWT requests clarification on the amount of actual data available which could be used to predict ice-affected discharges.
21247	water	hydrology - hydraulic	GNWT	41	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	On Page F-14 of Annex X, LDS and LDG discharges are stated to be reduced due to blocking of the outlet channel by ice, yet the method presented to compute reduced discharges is based only on ice cover roughness, not flow area reduction. It is not apparent if other factors such as ice thickness growth and smoothing of the under-ice surface over the winter season were considered. These factors could also potentially affect the discharge regime.	GNWT requests that DDEC confirm whether or not these additional factors were considered, and if not, please provide a rationale for the exclusion of these factors in this analysis.

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21248	water	hydrology - hydraulic	GNWT	42	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	On Page F-22 of Annex X, the calibration results show that unrealistic values of runoff coefficients were required for calibration - i.e. RC for rainfall land runoff = 0.57 and SC for snowpack runoff from land = 1.00. No explanation for this result is provided, and no justification for accepting this result is made.	GNWT requests the DDEC provide an explanation of the result noted above as well as provide justification for the acceptance of this result.
21249	water	hydrology - hydraulic	GNWT	43	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	On Page F-24 of Annex X, the rainfall and snowfall data used for inputs to the model were developed using “undercatch” correction factors. Corrections for undercatch are appropriate, and indeed are required for accurate inputs, especially in the north. Research has shown that such factors depend on whether precipitation occurs as rainfall or snowfall and the type of instrumentation used, as well as other aspects, and that the value of the correction factor can vary considerably from month to month and year to year. The method used in the DAR was to use one constant long term average annual correction factor for rain and one for snow, and then apply those two factors to each and every day of the selected recorded data.	GNWT requests the DDEC provide an explanation of the result and a justification of their approach.
21250	water	hydrology - hydraulic	GNWT	44	GNWT - Lands: Paul Mercredi	Baseline Water Balance Model Annex X: Hydrology Baseline Report for the Jay Project	On Page F-25 of Annex X, it is noted that the comparison of modeled and observed discharges was possible for only three locations. The modeled discharge peaks are much higher - up to 3 to 6 times greater - than observed peaks.	GNWT recommends that DDEC provide clarification on the relationship between modeled and observed discharges as noted above and their implications for the model.
16849	Water	hydrology - hydraulic	MVEIRB	48	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8D, pg 8D-12	The hydrologic model of the Desteffany lake system matches the observed stages well; however, there is a second lag peak which was not observed in the environment.	Could the lack of this second peak be related to shallow groundwater losses? Could higher groundwater losses in the system alter the overall predicted effects on the Desteffany system.
21255	water	hydrology - hydraulic	GNWT	49	GNWT - Lands: Paul Mercredi	Sub-basin B Diversion Section 3 - Project Description, Section 3.5.3.2 - Sub-Basin B Diversion Channel (p.3-52)	DDEC has proposed a Sub-basin B Diversion that will divert a small drainage area on the southwest shore of Lac du Sauvage to direct the Christine Lake outflow south around the dike into the main basin of Lac du Sauvage and will be approximately 1.3 km in length with a base width and depth of 1.5m. While Section 3.5.2.2 of the DAR states that a design flow of 1:100 year return period, plus a minimum 0.3m freeboard, was implemented, the flow and velocities of water moving through this area is unclear. Additionally, while it is stated that mitigation measures will be implemented to prevent erosion within the channel and at the discharge location, specifics do not appear to have been provided.	GNWT recommends that DDEC provide flows and velocities anticipated within the Sub-basin B Diversion that would prevent adverse effects from erosion and sedimentation from the channel or at the outlet to Lac du Sauvage. DDEC should outline proposed mitigations that will be implemented to prevent water with high TSS from entering or being created in Lac du Sauvage.
16817	Water	hydrology - hydraulic	MVEIRB	16	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.2.1 - Mitigation of Effects of Project Infrastructure and Dike Construction to Water Quantity, Roads and Culverts, pg 8-144	Dominion stated that culverts will be designed for peak flows corresponding to a 1 in 50 yr, 24hr rainfall event.	How was this event chosen? Does the 24hr event represent the peak Intensity-Frequency-Duration event?
16818	Water	hydrology - hydraulic	MVEIRB	17	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.2.1 - Mitigation of Effects of Project Infrastructure and Dike Construction to Water Quantity, Diversion Channels, pg 8-146	It was stated for roads and culverts that a 1 in 50 year event would be used; for diversions, 1 in 100 year event; and for the Jay run-off sump, a 1 in 10 year event.	Why is there a difference in the event chosen? If there are diversions crossing roads, what event will be used to size the culverts?
16819	Water	hydrology - hydraulic	MVEIRB	18	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.2.1, Mitigation of Effects of Project Infrastructure and Dike Construction on Water Quantity, page 8-146 (Diversions)	It states here that the Sub Basin B Diversion Channel will be built to accommodate a 1 in 100 year flood with additional freeboard.	Does the Sub Basin B Diversion Channel have the same design basis as the Panda Diversion Channel? If not what are the differences?
16821	Water	hydrology - hydraulic	MVEIRB	20	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.4.2 Secondary Pathways, p8-184	With respect to potential changes to groundwater discharges to lakes nearby to the open pit, it is concluded that there may be effects to Lake C1 but that: "Early monitoring during initial stages of Jay pit dewatering will allow refinement of the extent of hte enhanced permeability zone, and if necessary, the implementation of mitigation for changes in groundwater discharge from Lake C1"	What kind of mitigation could be implemented in this case?

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16822	Water	hydrology - hydraulic	MVEIRB	21	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.3.3.4, Modelling Methods, page 8-313	Table 8.5-4 shows a water transfer of over 20 million m3/year in 2017.	What event is this transfer related to? If it is the back flooding of the open pits at DDMI, this is confusing since other places in the DAR assume that event doesn't take place until 2019. Please explain.
16847	Water	hydrology - hydraulic	MVEIRB	46	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section3, 8.5.3.3.4, Water Management, Closure	For the regional assessment of the effect on Lac de Gras, consideration was given to the exisiting Diavik and Ekati operations. Does Diavik include the A21 pit?	Does the closure backfilling assessment account for the Diavik A21 pit? If not, please provide how the net annual water transfers will change with the addition of A21. This should include an expansion of Table 8.5-4.
16848	Water	hydrology - hydraulic	MVEIRB	47	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.3.3.5, Effects to surface hydrology due to project activities and potentially overlapping Ekati and Diavik operations	The effect on Lac de Gras water levels was described for the average climate year.	Please describe how non-average years would be propagated in Lac de Gras. This estimate should account for the A21 pit.
16853	Water	hydrology - hydraulic	MVEIRB	52	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.3.2 Results, Effects of Construction	The numbers presented in Figure 8.5 -8 do not appear to match the values reported in Table 8D5-47. The values for the 1 in 100 yr peak event indicate a 5.5% increase in the peak flow rate from Lac Ac35.	Please confirm the values in Figure 8.5-8
16854	Water	hydrology - hydraulic	MVEIRB	53	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.3.2 Results, Effects of Construction, Appendix 8D	The narrows width does not consistently increase for the dewatering case relative to the baseline conditions. In addition, the peak width for Narrows the 1 in 100 yr event decreases while the average event has the width increasing.	For the Narrows, why does the width not consistently increase for the dewatering case relative to the baseline? Why does the width of the narrows decrease for the larger (1 in 100 yr wet) event?
16855	Water	hydrology - hydraulic	MVEIRB	54	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.3.1.1 - Regional Water Balance model, Appendix 8D	The DAR references rating curves for Lac du Sauvage and Lac de Gras; however, rating curves were only provided for Desteffany Lake.	Please indicate where the rating curves are or provide the rating curves used and referenced in the DAR, including the HEC-RAS cross-section for the Narrows.
21219	Water	Misery	GNWT	13	GNWT - Lands: Paul Mercredi	Project impacts on hydrogeology and effects assessment Section 8 - Water Quality and Quantity Section 8.6- Prediction confidence and uncertainty Appendix 8a - Hydrogeological model pre-mining, during mining, and closure Appendix 8b - Hydrogeological model for Jay Pit - post closure period Appendi	<p>As discussed in the Section 8.6 of the DAR, a major underlying assumption in the predictions for water chemistry of effluent pumped from the Misery Pit to Lac du Sauvage during operations, and the water quality in both Misery and Jay Pits at closure, are the estimated values for groundwater inflow rates and the associated TDS concentrations at the Jay Pit during mining. Due to the lack of available data for model calibration or history matching, and the limitations associated with the sensitivity study presented for the 3D hydrogeological model, there is potential uncertainty regarding the performance of numerical models which have been used to develop predictions for project impacts. Although some discussion regarding the level of confidence and uncertainty is provided in this section and within the 3D and 2D hydrogeological model reports (Appendix 8A and 8B), there are some inconsistencies between model input parameters used (see IR#7) and unclear rationale as to why certain assumptions used in the modeling or a model simulation case (EA Conservative Scenario) have been determined to represent a “sufficient level of conservatism to provide a high level of confidence that the effects of the environment have not been underestimated”.</p> <p>Discussion presented within the DAR outlined that the presence of permafrost and the absence of identified transmissive structures between Misery Pit and Lac de Gras provide natural protection against lateral seepage that would affect Lac de Gras. It is unclear what geological and hydrogeological characterization activities have been completed to confirm this assumption. No description of the level of confidence and/or uncertainties associated with this prediction appears to be provided. Additionally, it is unclear if this prediction for mass loading to Lac de Gras has been represented in the site water quality model (Appendix 8E).</p> <p>Water quality model predictions for Lac de Gras have represented estimated chemical loading inputs from the Panda and Koala Pits, but this appears to have been done only for the surface water pathway. Discussion of the potential impacts to groundwater quality at the Panda and Koala Pits from deposition of fine processed kimberlite originated at Jay Pit outlines that, “seepage quantities from the back-flooded pits to the deep groundwater regime are expected to be small, with travel times to Lac de Gras on the scale of hundreds of years”. It is unclear what quantitative analysis was completed to develop these predictions, and no discussion regarding prediction confidence and uncertainty was apparent. This was rated to be a secondary pathway and no further analysis as part of the overall site water quality modelling was completed.</p>	GNWT requests that DDEC provide the following: a. Provide a quantitative assessment of the level of confidence, and uncertainty associated with hydrogeological predictions for the Jay Pit, and potential implications to the residual effects analysis which has been presented in the DAR. b. Provide predictions for seepage rates and quality from the Misery Pit (to groundwater) during operations and the expectations for deep groundwater discharges to Lac de Gras. Discuss how groundwater impacted by the Misery Pit during late operations through post closure was represented within the Lac de Gras water quality modelling. c. Outline any planned hydrogeological characterization or monitoring activities expected to occur at the Misery Pit area to refine and/or confirm these initial predictions. d. Provide explanation of the prediction confidence and uncertainty regarding seepage rates and quality from the Misery Pit to Lac de Gras through an appropriate post closure timeline. e. Provide an explanation of the quantitative analysis completed to assess the effects of fine processed kimberlite deposition within the Panda and Koala Pits on the surrounding groundwater, and the potential for impacts to down gradient surface water quality. Include a description of the applicable prediction confidence and uncertainty.

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21266	water	Misery	GNWT	60	GNWT - Lands: Paul Mercredi	Mine Water Management Section 3 - Project Description, Appendix 3A - Mine Water Management Plan Section 8.4.2.4.1 - Pathways with no linkages, p8-180	Based on predicted water flows, the Mine water Management Plan states that discharge from the Misery Pit directly to Lac du Sauvage will occur during the last 5 years of operation. This "effluent water will be monitored for compliance against the effluent quality criteria defined in the Water Licence". DDEC (DAR, s 8.4.2.4.1) also states that "the diked area will remain isolated from Lac du Sauvage until water quality in the back-flooded area meets acceptability (criteria) for mixing with the lake".	GNWT requests DDEC outline how water from the Misery and/or Lynx pits or the impounded water will be treated in the event that effluent does not meet effluent quality criteria. GNWT requests, as an alternative, that DDEC consider the implications of discharging from Misery Pit earlier than 5 years when water quality is projected to be better and curtail discharge in year 9 when water quality would be poorest. Note the water at the end of operations (year 10) will be moved to the bottom of Jay Pit and is intended to be isolated from Lac du Sauvage surficial waters post-closure.
16832	Water	Misery	MVEIRB	31	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.3.3. - Water Management, Operations Phase, pg8.138	During operations, water will be collected near the Jay Pit in a sump, high TDS water will be directed to the bottom of the Misery Pit, and water will be discharged from Misery Pit to Lac du Sauvage. What are the physical controls in place to ensure this will occur?	Please describe if there will be a valve that controls when high TDS water is released to the different strata within the Misery Pit and for release of water from the Misery Pit to Lac du Sauvage. Also, is there a contingency if the water in the Misery Pit is unsuitable for discharge and Misery is near capacity?
19196	Water	Misery	EC	30	Gov of Canada: Sarah Robertson	EC-#15 Contingency Planning for Water Discharge from Misery Section 8.3.3 Appendix 8E	The report indicates that mine water will be handled in a phased approach involving Misery Pit. The first phase will involve all mine water being stored in the pit until it reaches its maximum capacity, in approximately 5 years of operations. After this time, and for the remainder of the operation, mine water will be discharged year round from the surface of Misery Pit to Lac du Sauvage, as long as criteria are met. This mine water management plan relies on stratification within Misery to achieve the discharge criteria to Lac du Sauvage. With the dependence on Misery holding the water for 5 years and reliance on stratification, contingency plans become important in the event of unexpected volumes and concentrations.	EC seeks clarification on contingency and adaptive management planning involving: • where will water be stored if Misery reaches capacity prior to the 5 year time frame? Will water quality be suitable for discharge prior to 5 years if capacity is reached? • what contingency measures are in place if groundwater quality is underestimated? What specific contingency treatment options are available if water quality indicates that the Proponent is unable to directly discharge to Lac du Sauvage?
21270	water	Misery	GNWT	64	GNWT - Lands: Paul Mercredi	Closure Section 8 - Water Quality and Quantity Section 8.3.4 - Closure Phase	It is stated throughout the DAR that freshwater caps will be applied to both Misery Pit and Jay Pit to establish meromixis, or chemocline, where freshwater caps would be a layer above the higher TDS water. While GNWT is aware of other closure proposals similar in nature, it is unclear as to the similarities between concentrations and depths in Jay Pit and Misery Pit to any proposed pit lakes in the NWT or successful pit lakes in similar climatic regimes. The viability of the mine water management plan is contingent upon stratification in several pits. The Jay Pit mine water management plan uses modelling and also cites Boehrer and Schultze 2006; Castendyk and Webster-Brown 2007; Castendyk and Early 2009 as evidence of "isolating poor quality water (e.g., acidic water, high TDS water) under meromictic conditions in a pit lake (that) has been successfully applied at other mine sites".	GNWT requests a short description of the congruence between these cited studies and the Misery, Jay and Lynx pits where perpetual stratification is predicted. References: Boehrer B, Schultze M. 2006. On the relevance of meromixis in mine pit lakes. 7th International Conference on Acid Rock Drainage (ICARD), March 26-30, 2006, St. Louis, Missouri, R.I. Barnhisel (ed.) American Society of Mining and Reclamation (ASMR), Lexington. Castendyk DN, Webster-Brown JG. 2007. Sensitivity analyses in pit lake prediction, Martha Mine, New Zealand: Relationship between turnover and input water density. Chem Geol 244: 42-55. Castendyk DN, Early LE (eds). 2009. Mine Pit Lakes: Characteristics, predictive modelling and sustainability, Vol. 3. Management Technologies for Metal Mining Influenced Waters. Society for Mining, Metallurgy and Exploration Inc. (SME). Littleton, CO, USA
16833	Water	Misery	MVEIRB	32	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.3.4 - Water Management, Closure	The plan is to have a 60 m cap of freshwater in the Misery Pit.	How was 60 m determined for the freshwater cap in Misery? Is this a function of TDS, time?

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19189	Water	Misery	EC	23	Gov of Canada: Sarah Robertson	EC-#8 Water Balance of Misery Pit Inflows/Outflows Appendix 3A	<p>The filling and discharging of the Misery pit undergoes several stages over the life of mine. Initially the TSS-laden water from the dewatering of Lac du Sauvage will be pumped to Misery to allow the solids to settle out. Once mining commences the groundwater seepage through the walls of the Jay pit will be pumped to Misery. As capacity of Misery is reached the balance is maintained by pumping mine contact water from the Jay pit to the bottom of Misery, while withdrawing water for discharge into Lac du Sauvage from the top. As water is being deposited and discharged simultaneously, the conditions in Misery pit will also change, and the water quality will decrease. The rates of pumping will become important during these later stages to ensure stratification occurs and the chemocline does not break down.</p> <p>Figures 6-2 and 6-3 of the mine water management plan show the inflows and outflows of the Misery pit through to late operations. From the figures, the inflows and outflows can be estimated but no precise numbers are provided as to the volumes to be deposited and withdrawn from Misery on a daily, monthly and annual basis.</p>	<p>EC requests that with regards to the water balance within Misery Pit</p> <ul style="list-style-type: none">• how will pumping to the bottom of the pit be implemented so that the TSS from dewatering of the diked area are not re-suspended into the water column?• what are the estimated volumes to be pumped into Misery and out of Misery at each stage of mining on a daily, monthly, and annual basis?• how will mixing be prevented while water is being deposited and withdrawn simultaneously?• how will the chemocline be monitored in Misery?• what contingency plans are in place if the rate of inflows to Misery exceeds the rate of discharge?
17077	water	Misery	IEMA	47	Independent Environmental Monitoring Agency: Kevin O'Reilly	Misery Water Quality for Discharge; DAR Reference: Appendix 3A Minewater Management Plan, Table 7-2	<p>Predictions of Misery Pit water quality are presented at a point in time when discharge is to take place into Lac du Sauvage in Table 7-2. The text discusses how the bottom layer will have elevated levels of TDS and chloride compared to the surface but the Table does not provide this data. It would be helpful to have data for metals due to leaching from pit walls. The text also discusses the potential for some mixing of water within the pit so it would be more helpful to have the actual predictions of discharge from end of pipe at the diffuser into Lac du Sauvage.</p>	<p>DDEC should clarify the presentation of data in Appendix 3A, Table 7-2 to clearly indicate predicted Misery Pit water quality for TDS, chloride and metals at various layers within the pit. The effects of potential mixing and expected end of pipe water quality for the diffuser into Lac du Sauvage should also be presented for TDS, chloride and metals.</p>
20326	Water	Misery	LKDFN	5	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Mixing in Misery pit and in Lac du Sauvage References Appendix 3A, page 44, Sub-section 7.2.2.2; Appendix 3C, page 22, Sub-section 4.3.6; Appendix 8F	<p>The proponent plans to establish meromictic conditions in Misery Pit and Jay Pit as part of the closure plan. The proponent recognizes the possibility of mixing and loss of meromictic conditions as an environmental risk.</p> <p>Review Comment</p> <p>LKDFN views mixing of high TDS layers and freshwater as a significant impact, and has not been able to locate any modelling in the DAR to give an indication of the likelihood of such an event. Also, regardless of the low likelihood, LKDFN believes that there should be an adaptive management plan in place for this scenario.</p> <p>□</p> <p>□</p>	<p>LKDFN requests that the proponent provide more information on the likelihood of mixing of water layers in Misery Pit and Jay Pit, both from natural causes (unusually strong winds) and human error during mine operations and closure. LKDFN also requests more information on what adaptive management measures are possible should this mixing occur.</p>
16834	Water	Misery	MVEIRB	33	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.2.5 -- Mitigation of Effect on Water Quantity After Pit Back-Flooding, pg 8-150	<p>On pg 8-150 Dominion states that 87.1 million m3 needs to be managed via the Misery Pit; however, this total doesn't appear to match the values provided in Table 3.5-3 which estimates a total of approximately 78 million m3 to be managed throughout the Misery Pit.</p>	<p>Please explain the discrepancy in the estimates.</p>
16835	Water	Misery	MVEIRB	34	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 3.5.1.4 - Misery Pit flooding	<p>The Misery Pit will be backflooded with water from the Jay Pit.</p>	<p>Would flooding the Misery Pit potentially mobilize contaminants on the pit wall? If yes, is this accounted for in the water quality predictions? If not, what are the predictions for inflows from the Misery pit groundwater?</p>
21251	water	site water balance model	GNWT	45	GNWT - Lands: Paul Mercredi	Mine Water Management Section 3 - Project Description, Appendix 3A - Mine Water Management Plan, p.15	<p>On Page 15 of the Mine Water Management Plan, regarding flow to the diked area for dewatering, the land areas contributing inflow to the diked area are neither shown on the Figures nor quantified in the text. It also appears that part of the WRSA would drain into the diked area.</p>	<p>GNWT requests that DDEC provide the information noted in the comment section, in order for GNWT to be able to assess water balance.</p>
21252	water	site water balance model	GNWT	46	GNWT - Lands: Paul Mercredi	Mine Water Management Section 3 - Project Description, Appendix 3A - Mine Water Management Plan, p.18	<p>On page 18 of the Mine Water Management Plan regarding the diversion channel, no information is provided on the watershed area or derivation of the design discharge. The figures also show a stream entering the diversion channel near its downstream end. It is unclear if this stream is included in the computations.</p>	<p>GNWT requests additional information of the watershed area or derivation of the design discharge for the discharge channel.</p> <p>GNWT requests clarification from DDEC regarding the inclusion of a stream near the downstream end of the Sub-Basin B Diversion Channel in the computations regarding discharge.</p>

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21253	water	site water balance model	GNWT	47	GNWT - Lands: Paul Mercredi	Mine Water Management Section 3 - Project Description, Appendix 3A - Mine Water Management Plan, p.25	On page 25 of the Mine Water Management Plan, the proposed use of the Lynx and Misery Pits for water storage is based on average runoff conditions. The effects of wet years on the water management approach and capacity requirements are unclear. As well, it is not specified how the discharge from Lynx Pit to LDG is to be controlled/managed.	GNWT requests additional information on the effects of wet years on the water management approach and capacity and volume requirements, as well as how the discharge from Lynx Pit to LDG is to be controlled to prevent erosion or flooding.
21254	water	site water balance model	GNWT	48	GNWT - Lands: Paul Mercredi	Mine Water Management Section 3 - Project Description, Appendix 3A - Mine Water Management Plan, p.28	On page 28 of the Mine Water Management Plan, it is noted that changes in hydrologic conditions due to climate change should be of little concern, compared to what is known about historical dry and wet year cycles. It is not apparent that climate change impacts were considered in the design. A related but potentially significant issue is the uncertainty in the results of the hydrologic modelling, which has not been assessed in the DAR.	GNWT requests that DDEC discuss the need for a capacity safety factor to allow for or mitigate modelling uncertainty.
16321	Water	site water balance model	MVEIRB	5	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water BalanceTerms of Reference Section: Section 7.3.1.2, bullet 8 Impacts to water quantity from project componentsDAR Sections:Section 8 Water quantity and quality	Dominion has provided a regional water balance model and information regarding the site water balance through the water management plan and other portions of section 8 of the DAR. However, a detailed site water balance has not been included as a whole.	Dominion, please provide the site water balance for the Jay Project. This should include the water balance for the Jay Pit as well as the water balance for the main camp area as it will be altered by the Jay production.
16850	water	site water balance model	MVEIRB	49	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water- Section 3, Water balance model and water management for FPK	The ore from the Jay pit will be processed at the Ekati main camp.	Will the processed kimberlite for the Jay Pit differ from other pits on site? And if so, what are the consequences.
16852	Water	site water balance model	MVEIRB	51	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8D, runoff coefficients, Table 8D-5, Water management of WRSA	A rainfall runoff coefficient of 0.20 is assumed for the WRSA; however, the DAR has assumed that infiltration of the WRSA will be minimal and will likely not penetrate into the groundwater.	Please explain the basis of that assumption if it is assumed through the runoff coefficient that 80% of rainfall over the WRSA will infiltrate the pile.
21218	Water	WQ	GNWT	12	GNWT - Lands: Paul Mercredi	Uncertainty in Modeling Inflows Section 8 - Water Quality and Quantity Figure 8.2-2 (p.8-26) Section 8.2.1.2.3 - Groundwater quality	TDS groundwater concentrations are based on 3 measurements collected in the vicinity of the proposed Jay Pipe at depths not exceeding 500m. The slope of the TDS depth line is obtained from a regional scale database (Frape and Fritiz profile, Figure 8.2-2) and the intercept of that regression line is adjusted to intercept the 3 available samples. The adjusted TDS depth regression is used to extrapolate TDS concentrations well below the sampled depth. These extrapolated concentrations do not incorporate uncertainty due to regression within the range of measured depths, let alone the additional uncertainty attributable to extrapolation. During discussions with Dominion Diamonds (February 3rd, 2015, Yellowknife) the “conservativeness” of the TDS predictions was discussed. One aspect of conservatism was due to use of a high estimated porosity based on experience with a nearby fault line. Given modeling limitations, a full Monte Carlo analysis is time prohibitive. However a limited number of simulations are still possible.	GNWT requests that TDS concentrations in Jay Pipe water be predicted using the four combinations of low and high porosity estimates; and depth-specific upper and lower 95% confidence prediction limits. Those 4 scenarios would be carried through the sequence of models to predict TDS component concentrations at the 2m depth increments in at least the GEMSS model cell LDS1.
21256	water	WQ	GNWT	50	GNWT - Lands: Paul Mercredi	Mine Water Management Section 3 - Project Description, Appendix 3A - Mine Water Management Plan Section 8 - Water Quality and Quantity Table 8.1-1, p8-4, Section 8.2.2.2.3 - Granite (p8-33 - 8-34)	The mine water management plan describes the discharge of impounded water directly to Lac du Sauvage. Approximately 60% of this water is expected to be discharged to Lac du Sauvage with TSS as the sole discharge criterion. However other discharges (DAR, Table 8.1-1) discuss measurement indicators for the valued component water quality. These include specific analytes / measurements in sediment and water. The source of the granitic rock shell used in dike construction may be from the proposed Jay pipe waste rock storage area and /or the Lynx pit overburden. The proponent states that “the results of leachate testing indicated that granite could leach certain metals in neutral conditions” and “Kinetic testing of granite samples further identified that granite may have the potential for leaching several metals in neutral conditions” (DAR, s. 8.2.2.3).	GNWT requests that DDEC provide quantitative assurance that the various rock sources used to create the rock shell will not result in increased concentrations of contaminants of potential concern (COPCs) within the impounded water or serve as a source of metals to Lac du Sauvage.

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21260	Water	WQ	GNWT	54	GNWT - Lands: Paul Mercredi	Estimation of Baseline Water Quality Section 8 - Water Quality and Quantity, Section 8.2.5.2.1 - Water Quality Summary - Lac du Sauvage, Map 8.2-6 (p8-90), Table 8.2-45 (p8-91), Table 8.2-49 (p8-96)	<p>The DAR (s. 8.2.5.2.1) states: “Based on the most recent AEMP studies (Rescan 2012f; ERM Rescan 2013a), concentrations in Lac du Sauvage did not show evidence of increasing temporal concentrations compared to baseline or reference conditions; therefore, there has been no measurable change in water or sediment quality parameters in Lac du Sauvage over time due to mine activities”. The citation refers to the 2012 AEMP. Section 2.1.1.4 of ERM Rescan (2014) reports on the 2013 AEMP and assesses trends in chloride concentrations relative to changes in background lakes, separately by months. Analyses at LDS 1 or 2 are only possible for one month (April) for LDS1 due to excessive censoring in reference lakes and possibly (further investigation not conducted) to lack sampling data for August. The single analysis conducted shows increasing trends in chloride at LDS1 for the month of April. Trends in other analytes were not examined at this time. The results suggest that some data potentially should have been excluded in the estimation of background concentrations in Lac du Sauvage. This may have implications with respect to the DAR where statements are made regarding natural background concentrations exceeding proposed SSWQOs.</p> <p>Also, despite the inclusion of Map 8.2-6 and Table 8.20-45 in the Developer's Assessment Report it is not clear what data are used to compile the results presented in Table 8.2-49. Of particular concern is the inclusion of samples that could reflect influence from the current discharge to Lac du Sauvage, particularly AEMP locations LDS2 and LDS1. The same argument applies to the use of “S” –series of sampling location data from 1998 forward given that DDEC (formerly BHP Billiton) began discharge as early as 1998. Note that many of the water samples collected during 1994-2000 by DDMI identified as replicates were in fact duplicate quality assurance samples and depth-specific samples. Zajdlik (2007) found that when correctly counting the baseline pH, conductivity and Ni measurements, the data sets were reduced in size by 83.6, 52 and 54.8%, respectively.</p>	<p>As discharge from the Misery Pit to Lac du Sauvage has been episodic, GNWT requests that DDEC clarify what sample locations and years were used to create the Lac du Sauvage baseline dataset and whether discharge to Lac du Sauvage was occurring at the time of sampling.</p> <p>With respect to the S-series of stations used to create Table 8.2-50, GNWT requests that DDEC demonstrate that the data reflect baseline conditions within Lac de Gras.</p> <p>GNWT requests DDEC discuss the quality assurance steps taken in compiling the Lac de Gras data particularly with respect to the treatment of samples collected over depth and why data are not separated by open water and under ice seasons as was done for Lac du Sauvage data.</p> <p>GNWT requests that the water and sediment quality data collected within Lac du Sauvage in 2014 be made available. These data are necessary to corroborate the suitability of some sampling locations in the baseline dataset.</p> <p>References: ERM Rescan. 2014. Ekati Diamond Mine: 2013 Aquatic Effects Monitoring Program Part 3 - Statistical Report. Prepared for Dominion Diamond Ekati Corporation by ERM Rescan: Yellowknife, Northwest Territories.</p> <p>Zajdlik, B. 2007. Review of DDMI Baseline Data Set. Prepared by Zajdlik & Associates Inc. Prepared for B. Blais and N. Richea, DIAND.</p>
21261	Water	WQ	GNWT	55	GNWT - Lands: Paul Mercredi	Water Quality Section 8 - Water Quality and Quantity	Due to density effects, the effluent plume is expected to settle on the bottom quite quickly proximally to GEMSS modeling cell LDS1. This condition is most extreme during the winter months.	GNWT recommends that DDEC provide the existing conservative case predictions for the deepest GEMSS cells between LDS1 and the Lac du Sauvage narrows.
21262	Water	WQ	GNWT	56	GNWT - Lands: Paul Mercredi	SSWQOs Section 8 - Water Quality and Quantity	The SSWQOs presented appear to be relevant to the larger Ekati project and specific to the receiving waterbodies approved under that Water Licence, Leslie Lake and Cujo Lake, and their applicability to Lac du Sauvage is unclear.	GNWT recommends that DDEC provide additional information on the specific derivation of SSWQOS noted to be implemented at Lac du Sauvage, which has different characteristics than other Ekati receiving bodies.
21268	water	WQ	GNWT	62	GNWT - Lands: Paul Mercredi	Sediment Quality Section 8 - Water Quality and Quantity Section 8.2.5.3.1 - Surface Water Quality - Sediment Quality Summary - Lac du Sauvage	Section 8.2.5.3.1 of the DAR states that “there has been no measurable change in sediment quality parameters in Lac du Sauvage over time due to mine activities (Rescan 2012f; ERM Rescan 2013a)”. The latter document does not report on sediment quality and the statistical appendix (Rescan, 2012a) from the first citation (Rescan 2012f) appears to shows significant trends in arsenic and total nitrogen at LDS1. Rescan (2012b) states that the statistically significant “temporal patterns (in nitrogen) at site LdS1 and Cujo Lake (Rescan, 2012a, pg. 810) are (visually) similar to those observed in reference lakes” and on this basis conclude that there are no mine related effects. With respect to As, a statistically significant trend is detected that is different from the reference lakes. That is As concentrations at LDS1 are changing at a rate different than the reference lakes. Because As concentrations in 2011 are similar to baseline concentrations the conclusion is made that there is no mine effect. Finally, a trend in Cu at LDS1 appears to be only marginally insignificant. The results show that significant changes are occurring at LDS1.	GNWT requests that DDEC provide either the analyses using the latest sampling results or the raw data in order to determine whether changes in sediment quality are occurring in Lac du Sauvage. If changes are occurring, this may have implications on the sediment quality summary presented in Table 8.2-57 and longer term EA predictions.
21269	water	WQ	GNWT	63	GNWT - Lands: Paul Mercredi	Closure Section 8 - Water Quality and Quantity Section 8.5.3.1.9 - Effects on Surface Hydrology - Closure Phase Method	In Section 8.5.3.1.9 of the DAR, DDEC states that Project effects for the Closure period were modeled using the historical record (1964 to 2013). However, GNWT notes that predicted water quality at closure will be different than the historical record and this could lead to inaccuracies in model results. Closure modeling should be run over the end of operations and be reflective of conditions anticipated at closure (i.e. 10+ years into the future).	GNWT recommends that closure modeling be run using predicted water quality at closure rather than the historical record to provide a more accurate assessment of potential impacts to water quality at closure. If DDEC believes another method is more applicable, rationale should be provided.

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19191	Water	WQ	EC	25	Gov of Canada: Sarah Robertson	EC-#10 Effects Study Area for Water Quality Section 8.1.4.3 Map 8.1-5	<p>In determining the effects study area (ESA) for the Jay project water quality monitoring, a number of other reports were taken into account. Monitoring suggests that Lac du Sauvage is not currently affected by the Ekati or the Diavik mining operations. However, Lac de Gras is showing minor water quality changes from both direct mine-related discharges and the mine influences that flow through the Koala watershed. The Proponent indicates that although there have been changes in water quality in Lac de Gras, it is not anticipated that changes will be measurable at the outlet, therefore, the limit of the ESA for water quality was set at the outlet of Lac du Gras into the Coppermine River.</p> <p>EC notes that as minor effects have been observed in Lac de Gras, that the cumulative impact of the Jay expansion, plus existing mining operations, has the potential to cause changes beyond the outlet of Lac de Gras.</p>	EC requests the identification of the adaptive management measures that are in place to ensure that changes in water quality do not extend past the outlet of Lac du Gras into the Coppermine River. What thresholds would trigger sampling past the outlet?
19192	Water	WQ	EC	26	Gov of Canada: Sarah Robertson	EC-#11 Shallow Groundwater Flow Systems Section 8.2.1.2.3 Annex IX	Using information from the Gahcho Kue project (136 km SE of the site) it is expected that TDS in the shallow groundwater around the Jay pipe will be less than 100 mg/L with low concentrations of dissolved metals. Although these estimations may be accurate of the local shallow groundwater conditions, it is a very small data set to base predictions on.	EC seeks confirmation that regional information (Ekati or Diavik) that may be more indicative of the local conditions also been included in the shallow groundwater predictions.
19193	Water	WQ	EC	27	Gov of Canada: Sarah Robertson	EC-#12 Deep Groundwater Flow System Section 8.2.1.2.3 Annex IX	<p>The groundwater TDS profile that is used for modelling Jay groundwater concentrations is derived based on the groundwater quality analysis that was conducted on site, and then supplemented from other projects within the Canadian Shield. However, the groundwater sampling in questions includes only one Westbay multi-level monitoring well, for which samples were taken at several depths within a single borehole. Although samples were taken at different depths, this is still only a snapshot of one particular location and does provide enough information to reasonably model groundwater for the Project. The inclusion of only one location may over or underestimate the quality of groundwater by depth in the area.</p> <p>Groundwater seepage into Jay pit constitutes the majority of the water that will need to be managed on site. Since this water is such a large portion of the water management it is important that it is properly characterized in order to avoid incorrect estimation of water quality and quantity, leading to unnecessary water management plan alterations in the future.</p>	EC seeks confirmation as to whether there has been, or is there any planned, additional groundwater sampling to be conducted at the Jay project prior to construction in order to more accurately characterize the groundwater conditions.
19194	Water	WQ	EC	28	Gov of Canada: Sarah Robertson	EC-#13 Water and Sediment Quality Baseline Annex XI, Appendix A	<p>The most recent baseline data collected from Lac du Sauvage was completed in the open water season of 2013 from late July to mid-September. However, during this sampling year there were no samples collected during the winter to characterize under-ice conditions. Under the existing Ekati AEMP there are only two Lac du Sauvage sampling stations (LDS2 and LDS1) in the monitoring plan. Although the AEMP sampling is completed in both open water and under-ice conditions, this provides only a limited amount of data for which to base under-ice conditions on, as they can be highly variable throughout the lake.</p> <p>From the data provided it appears that the most recent thorough under ice sampling investigation in Lac du Sauvage, aside from the monitoring conducted under the AEMP, took pace in 2006 during the Jay Pipe Aquatic Baseline Study. This study included sampling 12 locations in Lac du Sauvage during ice covered conditions in February, March and May, and open-water conditions in July, August, and September. Although this sampling event may be sufficient to characterize the under ice conditions in Lac du Sauvage in 2006, the data is 9 years old and there are no other sampling years for comparison.</p>	EC seeks confirmation that with regards to under-ice water quality data, <ul style="list-style-type: none">• is additional under ice baseline water quality data available, currently underway, or planned prior to construction?• are the methods comparable between the 2006 and the 2013 Lac du Sauvage baseline studies?
19195	Water	WQ	EC	29	Gov of Canada: Sarah Robertson	EC-#14 Site Discharge Criteria Appendix 8E	Misery Pit discharge criteria have been simulated, and there is mention that water will only be discharged once criteria is met, however, there is no mention of what the proposed discharge criteria will be. In order to evaluate whether the environmental effects from the Jay pipe have been fully characterized, the proposed discharge criteria should be available. EC notes that if the simulated maximum Misery Pit discharge concentrations were to occur that ammonia would be acutely lethal, and chloride may have chronic toxicity effects.	EC requests the end of pipe discharge criteria from Misery Pit as proposed by the proponent.

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19197	Water	WQ	EC	31	Gov of Canada: Sarah Robertson	EC-#16 Explosive Residues Section 8.4.2.3.1	<p>The use of explosives during blasting can leave residues of nitrate and ammonia on the blasted rock that can in turn be transported to other locations. If these blasting residues enter a water body, the ammonia and nitrate can cause water quality issues by causing toxicity if concentrations are high enough, or by enhancing the primary productivity.</p> <p>The potential for impacts to water from nitrate and ammonia from explosives has been acknowledged by the Proponent in the form of the Ekati Nitrogen Response Plan. However, it is unclear what mitigation the Proponent may employ to reduce the introduction of nitrate and ammonia into Lac du Sauvage during dike construction. There is the potential for ammonia and nitrate to enter the environment through runoff that has come in contact with the blasted rock as well as by rock placement in Lac du Sauvage during dike construction.</p>	EC seeks confirmation on how the Proponent will minimize the explosive residues on the rock that is used for dike placement. Will nitrates and ammonia be included in water quality monitoring during the construction of the dike?
16828	Water	WQ	MVEIRB	27	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.3.1, Mitigation of Effects from Use of Explosives to Water Quality, p 8-151	At the Diavik Mine, large volumes of water entering the A154 pit from Dewey's Fault resulted in a high number of very wet explosive boreholes. Despite the use of ANFO explosives, large quantities of ammonia dissolved into the water in the boreholes prior to detonation. This dissolved ammonia was then collected in the mine sump for discharge to the receiving environment. Because of this problem, the concentrations of ammonia in the effluent exceeded predictions and DDMI was forced to seek an amendment to its water licence in order to raise the ammonia EQC. In the end, the WLWB directed DDMI to develop and implement an Ammonia Management Plan that, among other things, included special procedures for blasting in these very wet areas. In summary, the additional water flowing into an open pit can affect not only the quantity of effluent but also the quality because of the problems of excessively wet boreholes.	Going forward, it is recommended that Dominion become aware of the additional procedures implemented by DDMI with respect to blasting in excessively wet conditions. If the Enhanced Permeability Zone in the Jay Pipe is larger than currently predicted, then Dominion may want to consider the additional mitigations developed at Diavik.
19198	Water	WQ	EC	32	Gov of Canada: Sarah Robertson	EC-#17 Location of Diffuser during Dewatering Section 8.4.2.3.2	The Proponent states that the location of the diffuser will differ between the dewatering and the operation stage. However, there appears to be inconsistencies in the proposed approach during initial construction where, "the dewatering discharge will be pumped through a piped outfall which will be located near the shoreline or containment dike where there is a high potential to cause erosion or the shoreline and/or dike materials." There are no figures included that validate whether this statement is correct or was made in error. The location of the dike should be selected in a manner that has low potential to cause erosion.	EC seeks clarification on the proposed location of the diffuser during the dewatering stage, and what configuration will be used to prevent disturbance of lakebed sediments.
19199	Water	WQ	EC	33	Gov of Canada: Sarah Robertson	EC-#18 Water Quality Screening Values Table 8.5-13	The Ekati site specific water quality objectives (SSWQO) that have been developed for previous projects at the Ekati Mine are also proposed to be used for the Jay Expansion. Although the SSWQO were suitable for use during previous projects it may be inappropriate to apply them to Jay since the project lies in a different watershed than that which they were developed for (Koala Watershed).	EC seeks clarification on how the site specific water quality objectives that were derived for the Koala watershed were investigated for their applicability to Lac du Sauvage Watershed. Both generic and site specific water quality objectives should be analyzed for the specific receiving environment in question.
19200	Water	WQ	EC	34	Gov of Canada: Sarah Robertson	EC-#19 Phosphorus Water Quality Objectives Section 8.5.4.2.2 Annex XI Appendix A, Appendix E	<p>The report uses the CCME-developed Phosphorus framework that indicates "trigger ranges", where water quality criteria have been exceeded, depending on the trophic status of the lake. Using this framework, the Proponent indicates that, given the potential for natural variability of phosphorus in Lac du Sauvage, and values of up to 0.018 mg-P/L, the CCME trigger for mesotrophic to meso-eutrophic status was used as the screening value. This corresponds to a value of 0.01 to 0.02mg-P/L.</p> <p>When analyzing the available 2013 sampling data from Lac du Sauvage, only one out of 45 samples collected during the 2013 sampling period exceeded 0.01 mg/L, with the other 44 samples being below. It is possible that this sample is an outlier and therefore drawing conclusions that water quality values for Lac du Sauvage should be based on mesotrophic to meso-eutrophic would be inaccurate. In the 2013 baseline water quality report the trophic status of Lac du Sauvage is analyzed using several different methods (Vollenweider, CCME, and Carlson) all of which classified the lake as oligotrophic. It is therefore inappropriate to set a trigger range that allows the lake to turn mesotrophic.</p>	<p>EC requests that the phosphorus baseline dataset be reviewed, and the potential for outliers in the phosphorus data be analyzed.</p> <p>EC requests that the Proponent provide an assessment of the potential for project activities to change the trophic status of the lake, and identify mitigation measures to ensure the oligotrophic status is maintained.</p>

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19201	Water	WQ	EC	35	Gov of Canada: Sarah Robertson	EC-#20 Toxicity Testing Results Section 8.5.5.4 Appendix H	<p>The acute toxicity testing indicates that, using the projected maximum concentrations of TDS and major ions, that the simulated mine water from Misery is anticipated to be non-acutely toxic to Rainbow Trout and Daphnia magna. However, it should be noted that these test species may not be the most appropriate organisms to perform TDS toxicity tests on, as they are less sensitive to TDS and major ions in general. Additional tests using more sensitive organisms, such as Ceriodaphnia dubia, would provide more information on the potential for effluent toxicity at end of pipe into Lac du Sauvage. It is mentioned that chronic toxicity for Ceriodaphnia dubia and Pseudokirchneriella subcapitata will be completed in future monitoring but does not provide specifics on which stage of the project this testing will be implemented.</p> <p>The 48 hour LC50 was determined for Daphnia magna by a dilution series using 100%, 70.4%, 50%, 25%, 10% and 0% of the simulated end of open pit mining TDS concentrations (2740 mg/L). The results of the test indicated the D. magna LC50 to be at 89% effluent, and at 100 % effluent concentration survival was 45%, which would be considered a fail.</p>	EC seeks confirmation that the effluent to be discharged from Misery Pit into Lac de Gras is non-deleterious, and has concerns that high TDS concentrations will not be acceptable for discharge. 1. Can the Proponent conduct chronic toxicity testing for Ceriodaphnia dubia and Pseudokirchneriella subcapitata prior to the water licencing stage? 2. What contingency measures does the Proponent have to avoid the release of high TDS effluent (i.e. treatment or water management)?
19202	Water	WQ	EC	36	Gov of Canada: Sarah Robertson	EC-#21 Erosion of Sediments due to Lake Drawdown Section 8.5.6.1.2	In early operations, the hydrology of the Lac du Sauvage watershed is altered. Lakes C1 and C17 are modelled to have decreased discharges from baseline of approximately 18% and 80%, respectively, based on 2 year and 200 year floods. Lake C17 specifically is anticipated to only discharge during freshet and during high rainfall events. Decreases in discharge from these small lakes can have implications on fish passage as well as exposure and erosion of sediments causing increased TSS.	EC seeks clarification on how will erosion of sediments be managed due to the drawdown and reduced discharge from the smaller lakes surrounding Lac du Sauvage?
19203	Water	WQ	EC	37	Gov of Canada: Sarah Robertson	EC-#22 Site Discharge Water Quality Modelling Report Appendix 8E	<p>The closure and post-closure of the Jay and Misery Pits relies on high TDS water being isolated from the receiving environment through stratification and the application of a freshwater cap. This closure plan has little margin for error since incomplete stratification or turnover of the pit would result in high salinity water discharging directly into Lac du Sauvage, or overflowing into Lac de Gras, causing adverse effects.</p> <p>Characterization of the groundwater encountered in Jay, the rate of back flooding, as well as any upwelling that may occur with back flooding, are important factors on the success of the stratification. Previously at Ekati, several of the pits have been allowed to flood from inflows of groundwater upon closure. Information on the composition of the groundwater seepage encountered in other pits at Ekati, and if these pits stratified naturally would be valuable information to more thoroughly predict the conditions at Jay and Misery upon closure.</p>	EC requests, with regards to the stratification of the mined out pits, • was any sampling previously conducted on the groundwater seepage of mined out pits that have been allowed to flood? Did stratification occur naturally? • have alternatives been considered where high TDS water is not re-deposited into Jay? • has modelling been conducted on the water quality that would be released into the receiving environment if the pits fail to stratify or if they turn over? • how will the Proponent ensure that mixing during the re-flooding of Jay maintains the density gradient? • has the concentration of TDS needed to maintain a stable density gradient in perpetuity been evaluated? • is the lower salinity water from the top of Misery at closure sufficient to maintain the gradient?
19204	Water	WQ	EC	38	Gov of Canada: Sarah Robertson	EC-#23 Conceptual Aquatic Effects Monitoring Program Appendix 9C	The conceptual aquatic effects monitoring plan (AEMP) gives an extremely brief overview of what is expected of Ekati to be included in the AEMP for the expansion, and that this final version will be based on the existing AEMP. However, as minimal locations in Lac du Sauvage are included in the existing AEMP, it would be useful to have tentative sampling locations identified in Lac du Sauvage and the surrounding area to ensure that all effects from the Jay expansion are properly identified and captured under the sampling plan. Additionally, details on the monitoring locations help determine if existing baseline data is appropriate or if additional sampling is required.	EC requests identification of the proposed sampling locations that are to be included in the AEMP. How is sampling to occur at these locations and for what parameters?
17034	Water	WQ	IEMA	4	Independent Environmental Monitoring Agency: Kevin O'Reilly	Return to Baseline Conditions in Lac de Gras; DAR Reference: s. 8.5.4.1.2 Water Quality in Lac du Sauvage and Lac de Gras during Operations and Post-Closure; s. 9.4.3.2.1 Summary of Water Quality Changes, pg. 9-182 to 9-196, 9-199	In Lac de Gras, concentrations of various contaminants and nutrients are predicted to return to baseline or near baseline conditions post-closure. The DAR states “Concentrations of these parameters peak in the operations phase, but decrease in post-closure to a steady state concentration that is predicted to be within or slightly higher than the range of existing conditions.” (emphasis added) The DAR should state whether this is also the case for background concentrations for Lac de Gras. We would want to see the company strive for concentrations returning to Background (pre-2000) rather than baseline (2010 – 2012) as much as possible. See table 8.5-13 for last column, S2 and S3 for Open Water; background concentrations for at least two nutrients, two metals and one major ion are substantially below the existing condition.	DDEC should clearly indicate whether contaminants of potential concern and nutrients are predicted to return to pre-development background levels in Lac de Gras.

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17046	Water	WQ	IEMA	16	Independent Environmental Monitoring Agency: Kevin O'Reilly	Meromixis Predictions; DAR Reference: Appendix 8G Hydrodynamic Modelling of Jay and Misery Pits, s. 8G4 Conclusions, pg.8G-25; 9.5 Prediction Confidence and Uncertainty, pg. 9-204	There are no documented cases of meromixis occurring in reclaimed flooded diked areas in the Arctic (DAR, pg. 9-204). There are no predictions of impacts to benthic invertebrate colonization, fish use and habitat suitability in a scenario where meromixis is not established. The DAR also states: "Ultimately, even the best of models cannot compare with operational monitoring data..." In addition, for pit lake stratification patterns, "A lack of under-ice field data at most sampling locations throughout the lake added uncertainty in the calibration of the model to seasonal trends..." (pg. 8G-25).	DDEC should reassess the uncertainty ratings for water quality in flooded pits and predict the effects on closure requirements if meromixis is not be established in Misery and Jay pits.
17047	Water	WQ	IEMA	17	Independent Environmental Monitoring Agency: Kevin O'Reilly	Meromixis Predictions; DAR Reference: Appendix 8G Hydrodynamic Modelling of Jay and Misery Pits	The DAR should discuss what factors (e.g., pit wall slumping and other causes of extreme water column turbulence) could cause meromixis to be disrupted or prevented. There does not appear to be any predictions of the probability of these scenarios in the case of Misery and Jay pits. This is important information as a stable, thick pycnocline is what is thought to provide a barrier to chemicals of concern in the bottommost water depths from entering the water column, which would degrade surface pit-lake water.	DDEC should discuss what factors could cause the pycnocline in reclaimed mine pits to be destabilized, thus disrupting meromixis in reclaimed mine pits. It should assess what the probability is of this occurring in pit lakes at Ekati.
17076	water	WQ	IEMA	46	Independent Environmental Monitoring Agency: Kevin O'Reilly	Jay Dewatering Thresholds; DAR Reference: Project Description, s. 3.5.5 Dewatering and Mine Water Management, pg. 3-57	DDEC presents figures for dewatering volumes for Jay into various pits during dewatering but does not provide the assumptions behind what the TSS or other thresholds it uses for determining volumes and the rationale for same.	DDEC should clearly indicate what thresholds were used for TSS, phosphorus or other contaminants of potential concern thresholds were used in determining Jay dewatering volumes. DDEC should provide a rationale for the use of any thresholds including how they may or may not relate to water quality objectives.
20324	water	wq	LKDFN	3	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Water quality threshold for dewatering of Jay Pit References Section 3, sub-section 3.5.5.1 Directed to Project Proponent	Background <input type="checkbox"/> The Dar states, "The acceptable limit for TSS concentrations in dewatering water is anticipated to be addressed during the regulatory stage of the Project following successful completion of the environmental assessment review process." Review Comment Given that the estimates of water volumes for dewatering are based on predicted TSS concentrations, the proponent must have some idea of what the TSS threshold will be. <input type="checkbox"/>	LKDFN requests that the proponent provide, at minimum, a range for the TSS threshold (to be further specified during the regulatory process), as well as the values used to calculate the proposed water volumes described in the tables in this section.
20408	water	WQ	LKDFN	12	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Baseline water quality for Lake C17 References Section 8, sub-section 8.2.5 Directed to Project Proponent	Background It does not appear that there was any baseline water quality testing for Lake C17 Review Comment Given Lake C17's close proximity to the proposed Waste Rock Storage Area (WRSA), the potential for issues caused by runoff from the WRSA, and the predicted change in flows to and from the lake, LKDFN deems it would be prudent to have some baseline water quality information for this lake.	<input type="checkbox"/> LKDFN requests that the proponent provide baseline water quality information for Lake C17. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
16824	Water	WQ	MVEIRB	23	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.4.1.2, Water Quality in Lac du Sauvage and Lac de Gras during Operations and Post-Closure, p 8-340, (Identification of constituents for review)	The first screening criteria for constituents with benchmarks is listed as: "If concentrations under existing conditions (pre-Project) and modelled concentrations were above guidelines or benchmarks, but modelled concentrations were less than or equal to 10% higher than the maximum existing condition concentrations, the constituent was excluded from further review"	Based on the way Dominion has chosen to define the Base Case (i.e., on existing conditions instead of Reference or pre-development conditions), this screening criteria automatically cuts out constituents that have exceeded guidelines because of pollution from existing developments. This essentially eliminates issues of true cumulative effects from the Reference condition. Please verify if any constituents eliminated from further review at this step were actually below benchmarks prior to any industrial developments in the region.

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16825	Water	WQ	MVEIRB	24	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Table 8.4-1, Potential Pathways for Effects on Hydrogeology, Surface Water, and Surface Water Quality, page 8-164	Under the Project Activity of "Post closure reconnection of the back flooded diked area...", one of the effects pathway to water quality is described as "Closure of the Panda and Koala pits may cause a change to water quality."	Please explain how the pit closures could affect water quality and in which water body that effect is expected.
16826	Water	WQ	MVEIRB	25	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.2.5.1, Water Quality - Methods, p8-89	In this section, a supplemental program for collecting additional data in 2014 was described. It states that analysis and reporting of these data will be provided in a seperate addendum at a later date.	Why was additional data collected in 2014, how will this information be incorporated into this environmental assessment, will it effect the effects assessment conclusions and when will the information be submitted?
16827	Water	WQ	MVEIRB	26	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.4.2.2, Water Quality in Lac du Sauvage and Lac de gras during Operations to Post closure, p8-356	The analysis for Lac du Sauvage shows that the maximum predicted concentrations of total phosphorus will be about 0.012 mg/L which is higher than the level of phosphorus corresponding to oligotrophic lakes. However, Dominion concludes the following: "Given the potential for natural variability in TP in Lac du Sauvage of up to 0.018 mg-P/L, the CCME (2004) trigger for mesotrophic to meso-eutrophic status was used as the screening value. All predicted TP concentrations are less than this trigger value."	The conclusion here contradicts Dominion's earlier characterization of Lac du Sauvage as oligotrophic (see Section 8.2.5.2.1). Is the lake considered oligotrophic or not? Is it common practice to assign a trophic status (and therefore a phosphorus objective) based on a maximum measured value or on a median or mean? If the lake is oligotrophic, then the conclusion that "no COPCs were identified for nutrients" as stated on page 8-357 is not correct.
16829	Water	WQ	MVEIRB	28	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.5.4.2.2, Water Quality in Lac du Sauvage and Lac de gras during Operations to Post closure, p8-360	The second paragraph on this page seems to have incorrect units for the reported peak concentrations for various metals (i.e., written here as mg/L but likely meaning ug/L)	Please confirm what the correct units are for each metal.
16830	Water	WQ	MVEIRB	29	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.6.3.1, Adequacy of Water Quality Data (Uncertainty in Residual Effects for Water Quality), p 8-429	One source of uncertainty in the pit water quality data generated by the Site Discharge Model is the possibility that an EPZ may cause a higher than expected loading of ammonia in the pit water as was the case at Diavik. As mentioned earlier, at Diavik the unexpected volumes of water coming into the A154 pit from Dewey's Fault caused the explosives' boreholes to fill with water and much of the ammonia dissolved in the water instead of being consumed by the eventual blast. This was at least one of the factors that resulted in higher than expected ammonia concentrations in the effluent and DDMI was forced to seek an EQC amendment and to implement an Ammonia Management Plan.	There isn't really a way to reasonably incorporate the potential for higher ammonia concentrations in the pit sump water because of an EPZ; however, it should be considered as an additional uncertainty in the overall water quality modelling results.
16831	Water	WQ	MVEIRB	30	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8e, Site Discharge Water quality Modeling report, page 8E-11, Model Limitations and Uncertainty	The model simulates "the expected range of dissolved concentrations for the constituents considered". And yet the final simulated Misery Pit discharge concentrations in Table 8E4.1-1 give predictions for Total Metals.	Although there is some rationale given, it still isn't clear why total metal data were not used since this data seems to be available for most or all of the source terms. Please provide additional rationale. Also, please describe how the simulations on dissolved metals were then transformed back into predictions for total metal concentrations as presented in Table 8E4.1-1.
16836	Water	WQ	MVEIRB	35	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Section 8.4.2.3.4 - Mitigation of Effects from PAG material to water and sediment quality	If necessary, the WRSA runoff will be directed to the Misery and/or Lynx Pit. The purpose of the Misery pit is to separate out the salts. It is unclear what the plan is if there are elevated metals concentrations.	Please describe the mitigation if there are elevated metals in Misery Pit.
16839	Water	WQ	MVEIRB	38	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8F, Hydrodynamic and Water Quality Models of LdS and LdG, section 8F2.2.2.3.2, p 8F-16	In this section, it states that "for future simulations, predicted water quality concentrations from Slipper Lake to Lac de Gras were provided by the Koala watershed model (ERM Rescan 2014, Attachment 8F3)".	Are there expected to be any changes to the predictions of the total loadings of contaminants from Long lake Containment Facility (LLCF) discharges to Slipper Lake because of the Jay Project? Although effluent from the Jay Project will be discharged to Lac de Sauvage, presumably the length of time that processed kimberlite (and possibly wastewater from the processing) is deposited to the LLCF will be increased from several years over the Base Case. Has this been accounted for in the updated predictions for Slipper Lake discharges to Lac de Gras?
16840	Water	WQ	MVEIRB	39	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8F, Hydrodynamic and Water Quality Models of LdS and LdG, section 8F2.3.1, p8F-34	On page8F-34, it states: "The calibration was considered adequate if the observed specific conductivity profiles and the predicted TDS profiles followed the same vertical pattern, while recognizing that the absolute values would not be expected match."	Why would the absolute values not be expected to match?

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16841	Water	WQ	MVEIRB	40	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Appendix 8F, Hydrodynamic and Water Quality Models of LdS and LdG, section 8F3.1.1	In this section, it states that the the Lac du Sauvage model was not sensitive to changes in the input water quality for the Misery discharge to Lac du Sauvage, however examples were given only for TDS and chloride. This makes sense given that Table 8E4.1-1 of the Site Discharge Model shows little difference in the mean and 99th percentile maximum predicted concentrations for TDS and Chloride. However there is a big difference in Table 8E4.1-1 in the mean and 99th percentile values for nitrate and ammonia (i.e., 20 vs 67 and 5.4 vs 34.8 mg/L respectively). Therefore, predicted concentrations of these parameters in Lac du Sauvage may not have been conservatively estimated by using the mean concentrations from the Site Discharge Model instead of hte 99th percentile value	In light of these observations, please discuss why the choice was made to use the mean predicted Misery discharge concentrations rather than the 99th percentile values. Why not be as conservative as possible to clarify the worst case predicted?
16842	Water	WQ	MVEIRB	41	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Attachment 8F, Near-Field Modelling of the Misery Discharge into Lac du Sauvage	In section 8F 1-2.3.1, it states that an ice cover thickness of 1 m was assumed for the mixing model. However, Table 8.2-25 of Section 8 lists the measured ice thickness in Lac du Sauvage of 1.25 to 1.56 m.	What is the effect on mixing predictions of under-estimating the ice thickness in winter? Would this have any meaningful effect on the hydrodynamic model results?
16843	Water	WQ	MVEIRB	42	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Attachment 8F, Near-Field Modelling of the Misery Discharge into Lac du Sauvage	"Maximum discharge concentrations" are reported in column 4 of tables 8F1-3.2-1 through 8F1-3.2-5 and used to determine what the end of near-field concentrations could be under different mixing scenarios. However, there is no reference as to where those numbers were obtained and they do not correlate exactly to the values presented in Table 8E4.1-1 of Appendix 8E as one would expect.	Please confirm where the "maximum discharge concentration" values were obtained from and that they are correct. If values from Table E4.1-1 of Appendix E were uses, please indicate which condition (or column) was used - that is, maximum mean or 99th percentile, under ice versus open water.
16844	Water	WQ	MVEIRB	43	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Attachment 8F, Near-Field Modelling of the Misery Discharge into Lac du Sauvage	This document concludes that the dilution rate at 16 m from the diffuser should be in the range of 5 to 19 times. But it also says that the distance of 16 m is based on the limitations of the model and should not be assumed to be the final mixing zone size.	Has Dominion yet proposed a mixing zone for the project? Based on the stated limitations of the Cormix program, is Dominion proposing to use information from the hydrodynamic model to predict concentrations at the edge of a mixing zone?
16845	Water	WQ	MVEIRB	44	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water-Adequacy Review Response from Dominion: DAR-MVEIRB-17, dated Jan 19, 2015	The comparisons of the Reference Condition concentrations in Lac de Gras to the 2014 Base Case and to the Application Case in Tables 17-2 to 17-7 are quite helpful. However as noted on page 4 of this response, there is only limited Reference Condition data for Lac de Gras so the comparison is missing for most of the major ions. There is another source of information to fill in these gaps though, from DDMI's 2011 to 2013 AEMP Summary Report which was submitted in October 2014. In Table 5-4 of this report, DDMI lists the "normal ranges" for substances of interest including, hardness, TDS, chloride, sulphate, ammonia, nitrate, and several total metals and could be considered the equivalent to Dominion's Reference Condition. These normal ranges have been calculated from data in the far-field regions of Lac de Gras before those regions experienced any of the effluent plume and have been developed for both open water and under ice conditions. Dominion's response to the Review Board's adequacy review item 9.1 (DAR-MVEIRB-17 in Dominion's Jan 19, 2015 response) meets adequacy requirements. The following is an information request.	It would be very helpful to have a single table that listed the normal ranges of at least the "substances of interest" from DDMI's AEMP compared to the 2014 Base Case concentrations versus the maximum predicted concentrations at any location in Lac de Gras (i.e., no need to list individual stations, just choose the "worst-case" concentrations predicted) to water quality objectives. This would give reviewers a simple snapshot of the very worst-case potential water quality changes from baseline and existing conditions. Could Dominion produce such a table? The normal range information is in Table 5-4 of DDMI's 2011-2013 AEMP Summary Report dated October 15, 2014 (see: http://www.mvlwb.ca/Boards/WLWB/Registry/2007/W2007L2-0003/W2007L2-0003%20-%20Diavik%20%20-%20AEMP%20-%202011%20to%202013%20Summary%20Report%20-%20Oct%2015_14.pdf
16856	Water	WQ	MVEIRB	55	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Fish and Aquatics-Section 9.2.1.2.2. p. 9-16 p. 9-154 Section 9.4.1.2.1	Section 9.2.1.2.2. p. 9-16 Baseline water quality for Lac de Gras is taken from Ekati/Diavik AEMP reports from 2010 to 2012. These data therefore represent at least 10 years of mining activity, do not represent baseline conditions and are not adequate for assessment of cumulative effects. Although data from far field sites are used, DDMI AEMP reports show that TDS has increased at some sites. As the Ekati and Diavik mines are currently on the landscape as existing and approved projects, the 2014 baseline of existing conditions include the effects of these developments under the base case. "The Base Case represents a range of conditions over time ...before application of the Project ...environmental conditions before human development, which represent reference conditions, were considered...where possible."	Please explain why environmental conditions before human development, which represent reference conditions, were only considered ..."where possible." when baseline data on water quality and aquatic life are available from the Diavik EA process. The approach proposed does not allow assessment of cumulative effects from Diavik + Ekati+ Jay but only the effects of the Jay project on a baseline of alteration produced by Ekati and Diavik. Please provide true baseline data for Lac de Gras using EIS data for Ekati and DDMI. This should include water quality, sediment quality, zooplankton and phytoplankton
21263	Water		GNWT	57	GNWT - Lands: Paul Mercredi	Dewatering Section 8 - Water Quality and Quantity, Section 8.4.2.4.1 - Pathways with no linkages, p8-172	Page 8-172 notes that 15 million m3 will be dewatered from the isolated area of Lac du Sauvage during the initial de-watering phase. Water will be pumped from the diked area to the main basin through three open pit outfalls at 6500 m3/hr. The velocities associated with this discharge are unclear. As well, it is uncertain if the 6500 m3/hr represents the total pumping volume or the volume associated with each outfall.	GNWT recommends clarification on the total volumes and velocities of discharge water entering Lac du Sauvage from the diked area during initial dewatering.
21264	Water	Closure	GNWT	58	GNWT - Lands: Paul Mercredi	Re-filling of Pits Section 8 - Water Quality and Quantity	It is stated that re-filling of Misery and Jay Pits will occur from June to October. Has DDEC considered re-filling during winter to reduce the closure period or is this not feasible due to operational and temperature constraints?	GNWT requests that DDEC provide rationale on the proposed seasonal refilling of Misery and Jay Pits and provide information as whether winter filling has at all been assessed for the project.

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21265	Water		GNWT	59	GNWT - Lands: Paul Mercredi	Narrows Section 8 - Water Quality and Quantity Section 8.5.6.1.2 - Operations Phase	Section 8.5.6.1.2 of the DAR states that reduced flows may cause ice blockage at the narrows between Lac du Sauvage and Lac de Gras, therefore during refilling of areas during closure, pumping rates from Lac du Sauvage may be reduced. Flow rates at the narrows should be maintained within natural range during winter, as suggested, and monitoring and trigger levels will have to be linked to operational actions. There is a mention of mitigation for adaptive management during low periods, however little clarification was given.	GNWT requests additional information on proposed mitigations to ensure that ice blockage at the Narrows is avoided.
21267	water		GNWT	61	GNWT - Lands: Paul Mercredi	Diffuser Section 8 - Water Quality and Quantity Section 8.4.2.4.2 - Secondary Pathways Section 3 - Project Description, Appendix 3A - Mine Water Management Plan	The diffuser port will be situated in 8m of water and is designed to prevent scouring of the bottom and suspension of the lakebed by virtue of upward facing discharge ports. However, DDEC (DAR s8.4.2.4.2) states that "ports (are) directed at such an angle as to minimize the potential influence on surface ice. This angle is 45 degrees from the horizontal" (Mine water Management Plan, s 4.8). Using the number of ports, port diameter (8.4 cm), diffuser position and depth it is not clear that the port exit velocity will not affect ice formation. This may have an effect on safety for persons sampling this area or for animals crossing this waterbody.	GNWT recommends that DDEC provide additional certainty regarding the statement that the proposed diffuser does not pose any concerns in these regards.
16322	Water		MVEIRB	6	Mackenzie Valley Environmental Impact Review Board: Chuck Hubert	Water quality and quantity, description of thresholdsTerms of Reference Section: Section 4.2 DAR Sections:Section 8 p. 8-446 Section 8.7.1.2 (p. 8-447)	<p>Section 4.2 of the ToR requires Developer's opinion on significance of impacts. Section 8, p. 8-446 states "Through the above process, a screening threshold was identified for each constituent and used to evaluate the modelled data (Table 8.5-13)". Section 8.7.1.2 (p. 8-447) describes how significance was determined.</p> <p>Dominion has proposed very general classifications of criteria that could be used to inform the question of significance. General narrative statements ("relative contribution" or "weight of evidence"), are used or screening criteria or guidelines (CCME) which are, of themselves, far below the magnitude required for significance. As such, the statemetn that "...comparison of predicted values to the screening values provides confidence in...determining environmental significance" is not accurate.</p> <p>Significance is assessed as: "the key drivers to determining environmental significance are magnitude, duration, and geographic extent, with moderate to high magnitude effects generally leading to significance if it occurs over a large area (ie regional in geographic extent) and are long term or permanent in their duration"</p> <p>This does not provide any means for the reviewer to determine what the developer would consider to be significant. This statement of significance would also serve to inform the future Response Framework requirements for Adaptive Management.</p>	Dominion, please provide a narrative and semi-quantitative description of significance that incorporates magnitude, extent, duration, frequency and reversibility of impacts. One might consider statements such as "Constant increases in COPC of X% or higher in more than 20% of Lac du Sauvage or which interact with other developments to change X% of Lac de Gras and which persist for Y years or longer."
Wildlife								
19206	Wildlife	birds	EC	40	Gov of Canada: Sarah Robertson	EC-#25 Fish-Out Plan - Waterbirds Appendix 9B, Section 3.5 Annex VII, Sections 2.3.3, 3.9 Sable Addendum, Appendix 1, Sections I2.2, I3.2 and Table I-3	The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs is known as incidental take. Incidental take, in addition to harming individual birds, nests or eggs, can have long-term consequences for migratory bird populations in Canada, especially through the cumulative effects of many different incidents. EC is concerned by the frequency of waterbird entanglement during fish-out operations at northern mines, including a previous incident at Ekati mine. In Section 3.5 of the Conceptual Fish-Out Plan (Appendix 9B), the Proponent notes the potential for incidental mortalities of diving waterbirds and proposes to include a mitigation strategy in the detailed fish-out plan. Section 2.3.3 of the Wildlife Baseline (Annex VII) describes the survey methods for a waterbird aerial surveys completed August 8 and 12, 2013 on Lac du Sauvage but that results were not yet available (Section 3.9). Section I2.2 of Appendix I (Sable Addendum) describes survey methods for a waterbird aerial survey conducted on July 11, 2014. Table I-3 of Appendix I (Sable Addendum) presents results of aerial and ground surveys of Lac du Sauvage and Islands for 2013 (June) and 2014.	EC requests that the propoent provide: <ul style="list-style-type: none">• a clear summary of waterbird surveys conducted on Lac du Sauvage, including definitive survey dates, confirming and detailing survey methods (i.e. ground or aerial) and results of all years of waterbird surveys of Lac du Sauvage;• the details of the diving bird mitigation strategy during fish-out operations to prevent entanglement.

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19207	Wildlife	birds	EC	41	Gov of Canada: Sarah Robertson	EC-#26 Migratory Birds and mine-altered water Section 13.3.2.2.1 Table 13.3-1	Section 5.1 of the Migratory Bird Convention Act (MBCA) states that no person shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area. Section 13.3.2.2.1 predicts that the project will have no influence on the health of wildlife populations through ingestion of chemically altered water. The Proponent states that the prediction will be verified with the completion of an ecological risk assessment. Table 13.3-1 states that the small, intermittent water pond at the landfarm is covered with flagging to prevent bird landings as a mitigation measure.	EC requests that the propoent provide: <ul style="list-style-type: none">• confirmation that the water pond at the landfarm is the only water within the proposed project, natural or man-made, in which there is a potential for any harmful “deposit”, as defined by the MBCA, to enter contact with migratory birds as a result of mining activities;• the results on any monitoring to determine the effectiveness of the flagging to prevent bird landings;• a list and/or map of any additional water within the proposed project in which there is potential for any harmful deposit to enter contact with migratory birds as a result of mining activities and whether water quality and migratory bird usage will be monitored at each.
19208	Wildlife	birds	EC	42	Gov of Canada: Sarah Robertson	EC-#27 Species at Risk Section 13.1.3	<p>Subsection 79 (2) of SARA, states that during an assessment of a project, the adverse effects of the project on listed wildlife species and their critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. As a matter of best practice, EC suggests that species designated as “at risk” by COSEWIC receive similar considerations as those listed on Schedule 1 of Species at Risk Act (SARA). Subsection 79 (2) of SARA applies regardless of the level of significance of effects.</p> <p>The Red-necked Phalarope was recently assessed as Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in November 2014. The Red-necked Phalarope is also protected under the MBCA and has been identified as a conservation priority species in Bird Conservation Region 3 at the national and continental level. The range of the Red-necked Phalarope overlaps the project area and observations have been collected by the Proponent during the course of wildlife monitoring on site. Red-necked Phalarope was not considered in the assessment.</p> <p>The Proponent assessed the project effects on Peregrine Falcon and Short-eared Owl, both listed on Schedule 1 of SARA, through the raptor valued component (13.1.3). The raptor valued component assessment does not capture the unique requirements of the Short-eared Owl as the focus is on cliff-nesting raptors. Short-eared owls are ground nesters, nomadic and their abundance is linked to availability of small mammals. Short-eared owls have been detected in low abundance during monitoring activities on site, and the Proponent reports a Short-eared Owl mortality caused by a vehicle collision in the 2013 WEMP.</p> <p>The Proponent assessed the project effects on Rusty Blackbird, listed on Schedule 1 of SARA, through the upland bird valued component (13.1.3). Project effects on upland birds were determined to be non-significant and the valued component was removed from further assessment. Therefore it remains unclear what mitigation measures and effects monitoring were being proposed that were specific to Rusty Blackbirds.</p>	EC recommends that the MVEIRB consider requiring the Proponent to identify for Red-necked Phalarope, Short-eared Owl and Rusty Blackbird: <ul style="list-style-type: none">• the adverse effects of the project on the species• the measures that will be taken to avoid or lessen the effects on the species• the effects monitoring proposed for each species
19209	Wildlife	birds	EC	43	Gov of Canada: Sarah Robertson	EC-#28 Migratory Birds – Incidental Take Table 13.3-1 Section 13.3.2.2.2	The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs is known as incidental take. Incidental take, in addition to harming individual birds, nests or eggs, can have long-term consequences for migratory bird populations in Canada, especially through the cumulative effects of many different incidents. In Table 13.3-1, the Proponent states that if vegetation clearing is required, activities will be managed to comply with SARA and the MBCA and that siting and construction of the project will be planned to avoid environmentally sensitive areas to the extent practical. In section 13.3.2.2.2, the Proponent also states that bird nests, eggs, and/or birds could be destroyed during dewatering the diked area of Lac du Sauvage (i.e., flooding of downstream areas) but expects that mitigation policies and practices for dewatering activities will limit incidental take of migratory birds and nests. EC reminds the Proponent that any incidental take is non-compliant with the MBCA.	EC requests information on: <ul style="list-style-type: none">• the mitigation measures that will be used to comply with the MBCA to prevent incidental take of migratory birds, their nests and eggs during any land clearing and any dewatering, where there is a risk of change in water levels, within the proposed project.

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19210	Wildlife	birds	EC	44	Gov of Canada: Sarah Robertson	EC-#29 Migratory Birds – Incidental Take Sable Addendum, Appendix 1, Sections I2.1 and I3.1, Table I-2, Map I-2	Table I-2 presents a summary of 2013-2014 Environmental Setting Surveys observations. Map I-2 depicts the location of the 2014 Environmental Setting Surveys observations in broad categories (e.g. bird, bird sign, mammal and mammal sign) overlapping areas where most habitat loss would occur (i.e. proposed dewatered area, road alignment and WRSA). There is no map of the 2013 Environmental Setting Surveys observations.	EC requests: <ul style="list-style-type: none">• a revised Map I-2 with comparable data resolution to Table I-2 (i.e. species and number of individuals observed for each location on the map).• a map of 2013 Environment Setting Survey observations, similar to Map I-2, including revisions noted above• clarity on proposed timing of land clearing and dewatering activities where there is habitat loss
19212	Wildlife	birds	EC	46	Gov of Canada: Sarah Robertson	EC-#31 Migratory Birds Table 13.3-1	Section 5 of the Migratory Bird Regulations prohibits persons from “hunting” migratory birds except as authorized by the regulations. As defined in the regulations, “hunting” includes any attempt to chase, harass, capture or kill a migratory bird. Paragraph 6(a) of the Migratory Bird Regulations states that no one shall disturb or destroy the nests or eggs of migratory birds. In Table 13.3-1, the Proponent suggests that “birds showing nesting activity in areas of critical risk will be actively deterred” as a mitigation measure for bird valued components, including upland birds, waterbirds and raptors.	EC seeks clarification: <ul style="list-style-type: none">• if this mitigation measure is being proposed for upland birds and waterbirds valued components If the mitigation measure is being proposed for migratory birds, as defined under the MBCA, please provide: <ul style="list-style-type: none">• a rationale for not implementing avoidance as the mitigation measure
17063	wildlife	birds	IEMA	33	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Effects on Raptors; DAR Reference: s. 13.2.1.2.2 Raptors 2013 data adequacy and incorporation in the EA	The DAR states under baseline surveys that “An aerial survey was completed on July 24 and 25, 2013, of 36 potential nest sites located in highly suitable habitat (high elevation and steep terrain) to determine the presence of raptors” (pg. 13-38). Late July does not capture nest site occupancy (misses nest sites occupied earlier in the nesting period and abandoned and thus gives a misleading indication of occupancy; and gyrfalcons would have likely fledged by this period). The raptor distribution and abundance section (13.2.2.3, pg. 13-41 to 42) does not provide any data from 2013.	DDEC should provide the results of the 2013 raptor survey data, justify why these data represent a rigorous assessment of the raptors nesting within the study area, and demonstrate how the 2013 data were incorporated into the Project and cumulative assessment.
20676	wildlife	birds	KIA	33	Kitikmeot Inuit Association: Tannis Bolt	Breeding bird surveys and tundra breeding bird plots not done at proposed project site. Wildlife and Wildlife Habitat, Section 13.2.1.1.1, p. 13-12 to 13-15	All assumptions about breeding birds are derived from previous data collected for the Ekati, Gahcho Kue and Snap Lake projects. Only breeding bird surveys, done within Ekati and along Misery road, were done recently (2003 to 2013), and tundra breeding bird surveys were stopped in 2008. The breeding bird surveys conducted along Misery road were obviously conducted to enable before-after comparisons of the impact of Misery road on breeding birds. These data were not coupled with control points, and are considered unsuitable for a BACI study even for this purpose. However, none of the studies previously done for other projects have surveys points within the proposed project area. While other data may give some idea about the species present in the area, the actual site itself must be sufficiently surveyed during baseline years, along with control plots to: a. enable the detection of potential high quality or critical habitat for breeding birds or breeding bird SAR associated with the specific footprint of the project, and b. to enable a BACI study that is able to measure the impact of the proposed Jay Pipe project on breeding bird populations.	Please provide information on whether the proponent will be conducting baseline surveys for this project. We recommend conducting baseline surveys for breeding birds at an appropriate time, and over a two year period, within the proposed project footprint, as well as in comparable habitats paired to survey points outside of the likely ZOI for birds.
20679	wildlife	birds	KIA	36	Kitikmeot Inuit Association: Tannis Bolt	Effect of power line on raptors. Wildlife and wildlife habitat, Section 13.3.2.2.2, p. 13-83 to 13.83.	Power line mortalities of raptors due to electrocutions are noted as occurring at Ekati mine. The most effective mitigation method to protect against raptor electrocution is not listed in mitigation methods on p. 13-83 to 13-84., which is to include design-level spacing between phase conductors to allow for the largest wingspan of expected raptors in the region (likely golden eagle) without wings touching and creating a circuit. Design-level mitigation avoids the need for conductor caps, which may not weather well in the north.	Will the distribution line be a single phase single circuit, three-phase single-circuit, three phase compact single-circuit, crossarm construction three-phase single circuit, underbuild construction, or three-phase double circuit? Please provide information on whether there will be integration of design-level phase conductor spacing suggestions appropriate for the design type used as outlined in design level mitigation found on pages 61-102 of the APLIC (2006) manual on suggested practices for avian protection on power lines, to provide protection for raptors with wide wingspans (e.g., golden eagle) between phase conductors.
20689	wildlife	birds	KIA	46	Kitikmeot Inuit Association: Tannis Bolt	No reference for mean body weight of Rusy Blackbird used in models cited. Wildlife Health Risk Analysis, Appendix D, Table D-28, p. D-31.	A body weight of 0.0546 is used for Rusty blackbird in risk assessment models. No citation for this value is provided in Table D-28.	Please provide a reference for this body weight.

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19211	Wildlife	SARA	EC	45	Gov of Canada: Sarah Robertson	EC-#30 Migratory Birds and SARA - reporting of mortalities Section 13.2.1.1.7	In Section 13.2.1.1.7, the Proponent states that project-related wildlife mortalities on mine sites in the NWT are monitored by voluntary reporting by site personnel. The WEMP does not specify if reporting is voluntary or required by staff, but rather reports on efforts to improve level and detail of mortality incidents. Voluntary reporting of project-related wildlife mortalities, including migratory birds and species at risk, may underestimate the impacts of the project on wildlife. Voluntary reporting may also delay the implementation of mitigation measures to prevent further impacts on migratory bird and species at risk.	EC seeks clarification: • if reporting of wildlife mortalities, including migratory birds and species at risk, on site is voluntary or required by on-site staff.
21276	wildlife	SARA	GNWT	70	GNWT - Lands: Paul Mercredi	Species at Risk Section 13.1.3	<p>Short-eared owl and rusty blackbird are territorially-managed species that are listed in Schedule 1 of the federal Species at Risk Act. Subsection 79 (2) of SARA, states that during an assessment of a project, the adverse effects of the project on listed wildlife species and their critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. Subsection 79 (2) of SARA applies regardless of the level of significance of effects.</p> <p>The Proponent assessed the project effects on Peregrine Falcon and Short-eared Owl, both listed on Schedule 1 of SARA, through the raptor valued component (13.1.3). The raptor valued component assessment does not capture the unique requirements of the Short-eared Owl as the focus is on cliff-nesting raptors. Short-eared owls are ground nesters, nomadic and their abundance is linked to availability of small mammals. Short-eared owls have been detected in low abundance during monitoring activities on site, and the Proponent reports a Short-eared Owl mortality caused by a vehicle collision in the 2013 WEMP.</p> <p>The Proponent assessed the project effects on Rusty Blackbird through the upland bird valued component (13.1.3). Project effects on upland birds were determined to be non-significant and the valued component was removed from further assessment. Therefore it remains unclear what mitigation measures and effects monitoring were being proposed that were specific to Rusty Blackbirds.</p>	Please identify for Short-eared Owl and Rusty Blackbird: a. the adverse effects of the project on the species b. the measures that will be taken to avoid or lessen the effects on the species c. the effects monitoring proposed for each species

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21271	Wildlife		GNWT	65	GNWT - Lands: Paul Mercredi	<p>Ekati Diamond Mine - 2013 Wildlife Effects Monitoring Program</p> <p>Caribou - DAR Section 12, s.12.3.2.1 (Review of mitigation effectiveness), s.12.3.2.2.2 (Secondary Pathways)</p> <p>Wildlife and Wildlife Habitat - DAR Section 13, s.13.3.2.1. (Review of mitigation effectiveness), s.13.3.2.2.2 (Secondary Path</p>	<p>The new Wildlife Act (NWT) came into force in 2014 making the completion of wildlife management and monitoring plans a requirement for operators of industrial projects likely to: 1) result in a significant disturbance to big game or other prescribed wildlife; 2) substantially alter, damage or destroy habitat; 3) pose a threat of serious harm to wildlife or habitat; or 4) significantly contribute to cumulative impacts on a large number of big game or other prescribed wildlife, or on habitat.</p> <p>The Act requires that a wildlife management and monitoring plan must include a) a description of potential disturbance and harm to wildlife and habitat, b) a description of the required measures for the mitigation of potential impacts, c) the process for monitoring impacts and assessing whether mitigation measures are effective and d) other prescribed requirements. ENR has issued draft guidelines for the development of Wildlife and Wildlife Habitat Protection Plans (WWHPP) and Wildlife Effects Monitoring Plans (WEMPs) to assist operators in developing plans that meet the requirements under the Act.</p> <p>GNWT acknowledges that DDEC annually provides a Wildlife Effects Monitoring Program (WEMP) document which reports on wildlife monitoring activities and provides some general information on mitigation. GNWT notes that the eight main objectives listed in DDEC's most recent 2013 WEMP (p.1-5) all refer exclusively to monitoring and that the report makes but general reference to mitigation and little reference to the process by which adaptive management is used to review and improve mitigation and monitoring. As far as GNWT is aware, there is no up-to-date, comprehensive plan that outlines mitigations, policies and procedures that are undertaken to mitigate impacts to wildlife at the Ekati mine.</p> <p>GNWT defines contents of a Wildlife and Wildlife Habitat Protection Plan (WWHPP) as the steps necessary to protect personnel, wildlife, and wildlife habitat within the project footprints with day-to-day standard operating procedures (SOPs) including mitigations (i.e. road closures triggers), staff reporting procedures (i.e. wildlife sightings/incidents), and best practices. The WWHPP is meant to complement the WEMP and may be a stand-alone document that is specific to minimizing impacts to wildlife and wildlife habitat along with addressing public concerns.</p>	<p>It is recommended that DDEC provide a detailed Wildlife and Wildlife Habitat Protection Plan, including standard operating procedures that outline preventative measures, monitoring practices, training and reporting procedures for wildlife staff on site to ensure that there is timely and effective reporting procedures to environmental staff and ENR if an emergency occurs.</p> <p>This document should also identify/reference the process for applying adaptive management to mitigating impacts to wildlife and highlight areas that have specifically been modified to accommodate the Jay Project.</p>
21277	wildlife		GNWT	71	GNWT - Lands: Paul Mercredi	Wildlife and Wildlife Habitat Section 13.3.2.1.3 Waste Management; 2013 WEMP	<p>In its review of mitigation effectiveness related to carnivores, DDEC states that improvement of waste management practices has been a contributing factor in a general trend of decreasing intentional carnivore mortalities, with no intentional mortalities being reported at Ekati since 2009. While the number of intentional wildlife mortalities provides one metric of assessing improvements to waste management practices, results of the 2013 WEMP highlight other metrics that point to a need for mitigation. Results of landfill monitoring and landfill wildlife observations reported in Section 4 of the 2013 WEMP show that after several years of relatively lower level of wildlife attractants being found and wildlife sightings in the landfill from 2006-2010, there appears to be an increase in these metrics in recent years. DDEC attributed this increase to the opening of the Misery Pit and the associated camp which "introduced many new employees and contractors to the site. This contributed to an increase in misdirected waste." There appears to be a lag period while new employees learn proper waste management at site.</p>	<p>Please elaborate on how DDEC plans to mitigate for this period of acclimatization of new employees to proper waste management.</p>
21280	wildlife		GNWT	74	GNWT - Lands: Paul Mercredi	Wildlife and Wildlife Habitat - DAR s.13.2.2.4 (Gray Wolf)	<p>The 2013 wolf den survey concluded that there are three gray wolf dens located approximately 400 to 600m west of the proposed Jay WRSA. One of the three dens was considered active. The proposed project is calculating the removal of ~4 ha of esker habitat in relation to the baseline conditions reported in 2014.</p> <p>According to a summary of the Table 13.2-2 Carnivore Incidents and Mortality at the Ekati, Diavik, Snap Lake, and Jericho Mines, 1996 to 2013, one wolf was intentionally destroyed in 2008, one wolf was un-intentionally killed in 2002 and there were a total of 24 "other" incidents, meaning that the wolf was deterred, relocated, or a damage report was filed.</p>	<p>Please describe how DDEC will deal with the possibility of increased wolf attraction to the project site.</p>

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21281	wildlife		GNWT	75	GNWT - Lands: Paul Mercredi	Wildlife and Wildlife Habitat Section 13.2.2.7: Carnivore Mine-Related Incidents and Mortalities; Table 3.2-2: Carnivore Incidents and Mortality at the Ekati, Diavik, Snap Lake and Jericho Mines, 1996 to 2013; Wildlife Baseline Report, Section 3, p 3-25-27	Table 3.11-2 only summarizes mortalities and incidents at the Ekati, Diavik and Snap Lake mines. It would seem more appropriate, in conducting this type of regional assessment, to perhaps take a more inclusive review of additional mine sites and camps along the winter road. In their assessment of the GK Project, DeBeers used a more regional perspective on the impacts of mining activity on carnivores. ENR data provided by the North Slave Region during that process also includes wolverines that were killed, relocated, or found dead at Kennedy Lake, Nuna and Lockhart camps. Inclusion of all known wolverine mortalities (and relocations), at multiple sites involved in mining activities, would suggest a higher number of cases (n=27) than reflected in the Jay Project – Wildlife Baseline Report (n=6).	Please revise Table 3.11-2 to include a column that specifically addresses relocations and which includes data from other mining-related camps.
21282	wildlife		GNWT	76	GNWT - Lands: Paul Mercredi	Wildlife and Wildlife Habitat Section 13.3.2.1.2 & 13.2.2.7.2, Incidental Mortalities; Table 13.2.2	There appear to be inconsistencies in reports of wildlife mortalities. P. 13-55 states that there have been 6 unintentional carnivore mortalities associated with vehicle collisions at all the mines, while Table 13.2.2 lists a total of 13 non-intentional mortalities across all mines. This is also in contrast to the statement that 11 carnivores were killed in vehicle collision at Ekati alone since 1998, although this metric appears to be consistent with the table.	Please clarify the history of non-intentional mortalities of carnivores that have occurred at Ekati and other mines.
17056	Wildlife		IEMA	26	Independent Environmental Monitoring Agency: Kevin O'Reilly	Wildlife Management Plan; DAR Reference: s. 3 Project Description	The project description states “The Wildlife Management Plan will be amended to include the relevant information and changes resulting from the Project. This amendment will be addressed during the regulatory process subsequent to successful completion of the EA. The DAR will provide the basis for the amendment” (3.4.3.9). The current Plan is out-dated (the last version the Agency is aware of is dated 2001). An updated Plan that incorporates the Jay Project will enable a more knowledgeable assessment of the implications of the project.	To enable full assessment of the implications of the Jay Project, DDEC should provide an updated Wildlife Management Plan that addresses the Jay Project.
17061	wildlife		IEMA	31	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Effects on Wolves; DAR Reference: s. 13.1.4.4 Gray Wolf Effects Study Area adequacy and s. 13.2.1.1.4 Gray Wolf review of research	The wolf assessment focusses on denning, but the wolf effects study area (ESA) is only 3% of the size of the wolverine and grizzly bear ESA (pg. 13-9 to 13-11). Wolf movements are often long-distance from den sites. Wolf populations are affected by and tied closely to caribou, and any impacts of development on caribou would impact wolves. A study area that considers wolf denning in the larger context of treeline (Heard and Williams 1992) and long distance movements during denning would be more appropriate. The Review of Regional Effects Monitoring and Research for wolves (13.2.1.1.4) ignored several regional papers (Heard and Williams 1992, Walton et al. 2001, Mattson et al. 2009, Dean Cluff and current student’s larger study areas).	DDEC should a) redefine the wolf ESA to consider an area that encompasses wolf movements during the denning period, or justify why the ESA selected is adequate to assess potential impacts on wolves, and
17062	wildlife		IEMA	32	Independent Environmental Monitoring Agency: Kevin O'Reilly	Project Effects on Wolves; DAR Reference: s. 13.1.4.4 Gray Wolf Effects Study Area adequacy and s. 13.2.1.1.4 Gray Wolf review of research	The wolf assessment focusses on denning, but the wolf effects study area (ESA) is only 3% of the size of the wolverine and grizzly bear ESA (pg. 13-9 to 13-11). Wolf movements are often long-distance from den sites. Wolf populations are affected by and tied closely to caribou, and any impacts of development on caribou would impact wolves. A study area that considers wolf denning in the larger context of treeline (Heard and Williams 1992) and long distance movements during denning would be more appropriate. The Review of Regional Effects Monitoring and Research for wolves (13.2.1.1.4) ignored several regional papers (Heard and Williams 1992, Walton et al. 2001, Mattson et al. 2009, Dean Cluff and current student’s larger study areas).	DDEC should a) redefine the wolf ESA to consider an area that encompasses wolf movements during the denning period, or justify why the ESA selected is adequate to assess potential impacts on wolves, and b) update the literature review and discussions of wolf denning success and pup productivity (all declining in recent years), and provide this context for the evaluation of development impacts on wolves.
20648	wildlife		KIA	5	Kitikmeot Inuit Association: Tannis Bolt	Proposed project and project footprint is missing from baseline maps. Annex VII: Wildlife Baseline Report, Maps 1.4-1, 2.1-8, 2.1-12, and 2.1-16.	The location of the proposed Jay Pipe project is not included on this map showing the wildlife baseline study area.	Please include the location of the proposed project on Map 1.4-1.

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20652	wildlife		KIA	9	Kitikmeot Inuit Association: Tannis Bolt	Spatial context of data collection for other projects not provided relative to the location of the proposed project. Annex VII, Section 2.1.4.3.2, p 2-15 and p. 2-16, Map 2.1-7, and Maps 2.1-10, 2.1-15, 2.1-4.	Throughout the wildlife baseline section, wildlife data collection efforts done at project sites such as Snap Lake and Gacho Kue, but they are not place in spatial context of other efforts done closer to the proposed project to evaluate spatial relevance and methodological similarity among sites.	On the maps indicated, please provide an inset showing the relative locations of the Snap Lake grizzly hair collection stations and survey efforts relative to the proposed project, or include all projects onto one map.
20653	wildlife		KIA	10	Kitikmeot Inuit Association: Tannis Bolt	Wolverine hair sampling methods between projects. Annex VII, Section 2.1, p. 2-19, Map 2.1-9	This map shows a large, contiguous area monitored for wolverine hair samples between 2005-2013. From the text and maps, it is difficult to tell whether methodologies used for the Diavik grids (2005 to 2006 and 2010 to 2011), the Ekati grid (2005 to 2006 and 2010 to 2011) and the Daring Lake grid (2005 to 2006, and 2010 to 2011) were similar, and can thus be combined into a meta-dataset.	Please clarify whether methodologies, grid sizes, and temporal sampling periods were the same among sites and time periods. Where differences in methodologies occurred, please identify them.
20655	wildlife		KIA	12	Kitikmeot Inuit Association: Tannis Bolt	Baseline report reads like a literature review of previous data collection efforts in the region and their results, presents very little to no new baseline information for the proposed project itself. Annex VII, Section 3.10.1, p. 3-17 to 3-18 and thereport in general	While Annex VII is presented as the baseline report supporting the proposed Jay Pipe Project, many sections deal almost exclusively with discussions of past data and trends from data collection efforts at Diavik, Ekati, Daring Lake, and Snap Lake. These data are useful as informing the impact assessment, and should be included in the environmental setting of such a document, rather than as a basedline. The baseline report should focus on baseline data for wildlife collected within the potential Zone of Influence for the Jay pipe project itself, in a way that will facilitate predictions and a Before-After-Control-Impact analysis against monitoring data, if the project is built. For example, Section 3.10.1 includes a discussion of past data and trends from Diavik and Ekati on raptors, but does not indicate whether any suitable raptor cliffs with nesting activities have been identified within 5 to 10 km of the proposed project, even though other project areas did not include surveys of habitat sufficiently far east to the east of the Jay Pipe project to be considered as covering the potential ZOI for that project.	Please provide at least 2 years of systematic baseline data for each of the indicated wildlife VECs within the Zone of Influence of the proposed Jay Pipe project, which can be combined and compared against later monitoring data for that same area.
20657	wildlife		KIA	14	Kitikmeot Inuit Association: Tannis Bolt	Sensitivity of Grizzly Bears to harvest versus project-related mortalities. Section 3.4.3, p. 3-11 and Section 4, p 4-2.	<p>Section 3.4.3 states that there is a 40% chance of a 25% decrease in the population of barren ground grizzly bears with an additional 6 bears harvested per year. The first paragraph of page 3-11 section states that the barren-ground grizzly bear is considered a sensitive species in the NWT to increased harvest rates. It does not comment on whether this species is sensitive to increases in problem grizzly bear killed following incidents occurring at mine sites and exploration camps.</p> <p>Current levels of haresting were noted as approximately 13.4 grizzly bears per year. At least four grizzly bears were destroyed due to interactions with Ekati, Diavik, and Snap Lake (Section 3.11.2.1) and any more "incidents" involving grizzly bears were reported (> 20; Table 3.11-2). Therefore, it is possible that many of these grizzlies that were recored in incidents, but were not killed at site later destroyed after interacting with other projects and hamlets when they displayed problematic behaviours, leading to a need to destroy the animal for human protection.</p>	<p>Please clarify whether grizzly bear populations are also sensitive to increases in mortalities due to problem grizzly bear kills due to incidents occurring at mine sites and exploration camps (e.g., obtaining rewards by accessing a portion of the camp).</p> <p>Please comment on the number of problem bears killed per year due to their problem status within the Slave Geological Provice of NWT and NU versus the number estimated purely for harvest. As an example of scale, 34% of grizzlies killed in the Kitikmeot in the past 24 years have been problem bears, and many of these animals move between the NWT and Nunavut.</p>
20669	wildlife		KIA	26	Kitikmeot Inuit Association: Tannis Bolt	Power line as an attractant to predators, Section 12.4.2.2.2, p. 12-97 to 12-98.	The potential effects of power lines are discussed on pages 12-97 to 12-98. The potential for grizzly bears to be attracted to power lines, as they may be considered attractive as scratching opportunities, is not considered in relation to how this could impact caribou through predation.	Please comment on attraction of grizzly bears to power line poles.

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20677	wildlife		KIA	34	Kitikmeot Inuit Association: Tannis Bolt	Insufficient waterbird baseline data at proposed project site on one day only. Wildlife and Wildlife Habitat, Section 13.2.1.1.2, p. 13-15 to 13-18, Section 13.2.1.1, p. 13-38, Map 13.2-16 and 13.2-17.	Most assumptions about waterbirds are largely derived from previous data collected for the Diavik, Gahcho Kue, and Snap Lake projects, the closest of which, Diavik, is more than 12 km south of the proposed site. A one-day survey of Lac du Savage was also done on August 8, 2013, but rough water rendered the survey inaccurate, and a second survey had to be done from the shoreline on August 12, 2013 (no map provided of search area). While other data may give some idea about the species present in the area, the actual site itself must be sufficiently surveyed during baseline years, along with control plots to: a. enable the detection of potential high quality or critical habitat for waterbirds or waterbird SAR associated with the specific footprint or shoreline of the project, and b. to enable a BACI study that is able to measure the impact of the proposed Jay Pipe project on waterbird populations.	Please provide a map showing the shoreline area surveyed for waterbirds on August 12, 2013. Please provide information on whether the proponent will be conducting another aerial waterbird baseline surveys for this project. We recommend conducting at least two proper aerial baseline surveys for waterbirds at appropriate times of the year within the proposed project footprint and surrounding lake, as well as in comparable habitats paired to survey points outside of the likely ZOI for birds, particularly as this project proposes to dewater some of the lake and to modify the shoreline and as Lac du Gras and its shoreline is consider high quality habitat for waterbirds (Appendix 13C, Maps 13C-2 and 13V-5; RSF Maps).
20678	wildlife		KIA	35	Kitikmeot Inuit Association: Tannis Bolt	Grey wolf den surveys prior to construction. Wildlife and Wildlife Habitat, Section 13.2.1.1.4, p. 13-21 to 13-22.	All information about wold den sites comes from surveys done for Ekati, Snap Lake, Diavik Gahcho Kue, and Snap Lake. While the BSA that include the project was surveyed for Ekati, den locations and occupancy change over time, and the last survey done for Ekati and Diavik in 2013 (last survey in Gahcho Kue was in 2007, and in Snap lake was in 2010).	Will another den presence and occupancy survey be done prior to construction? If a den or dens are found within the intended construction area, how will impacts be mitigated? How will impacts to the three dens identified in 2013 within 50-100 m of the proposed project be mitigated?
20681	wildlife		KIA	38	Kitikmeot Inuit Association: Tannis Bolt	Traffic along Misery Road and Jay Roads likely underestimated, as are predicted impact due to traffic (movement, mortality, and sensory disturbance) on birds, grizzly bears, wolves, and wolverines . Wildlife and Wildlife Habitat, Section 13.2.2.3, p. 13-89, and Section 13.3.2.2.3.	See IR #25, which outlines similar concerns for caribou	See IR # 25, which outlines similar concerns for caribou. Please update traffic estimates and reconsider assessment and results section portions that discuss effects of traffic against thresholds from literature.
20684	wildlife		KIA	41	Kitikmeot Inuit Association: Tannis Bolt	Definition of significance allows for population-level effects. Wildlife and wildlife habitat, Section 13.6.1.2, p. 13-146.	Not significant is defined as: "impacts are measurable at the individual level, and strong enough to be detectable at the population level, but are not likely to decrease resilience and increase the risk to a self-sustaining and ecologically effective population." However, given the population estimates for species like grizzly bear, a change in > 6 bears would need to occur to detect a change at the population-level. In fact, it is likely that a greater change would be required to detect a population-level change significantly, accounting for uncertainty around population estimates. If impacts can be detected at the population level, especially for populations like grizzly bears, which have a high variation around baseline population estimates, they will have to change substantially. We suggest that accepting this definition, particularly for grizzly bear, would be disastrous considering statistical power and the difficulty of detecting population-level changes with high levels of baseline and monitoring population variance around estimates, and since it is known that a small change in losses of grizzly bears will have strong population-level manifestations.	Please provide an a-priori statistical power analysis based on grizzly bear baseline population estimates from DNA hair sample data collected from grids to show how many grizzly bears would have to be lost in a two year sampling period following project development before even the smallest a population-level change (very small effect size) could be detected as significant, using a typical alpha level of 0.05, and assuming a similar level of variation during monitoring as seen during baseline population estimates. Please do this power analysis based on effect sizes that wildlife specialists who wrote this report would categorize as ok for these species, and still "non-significant" such as a small change in population of less than 0.03%. Once this excercise is done, please consider whether the loss of this number of grizzly bears can be considered non-significant. Please provide a similar a-prior power analysis for wolverine and for barren-ground caribou. We suspect that the results of this excercise will be that a surprisingly large number of animals will need to be lost before a small effect size can be seen, due to the influence of large variation in estimates. Please consider these results in the definition of significance for these three species.

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20685	wildlife		KIA	42	Kitikmeot Inuit Association: Tannis Bolt	Dietary composition assumptions not supported by data or citations. Wildlife Health Risk Analysis, Appendix D, Table D-28, p. D-31.	Table D-28 presents the assumed dietary composition, as percentages of various prey items, for caribou, muskray, grizzly bear, Rusty blackbird, green-winged teal, common merganser, and bald eagle. These compositions have implications for model outcomes, but no citations or justifications are provided for the percentages give.	Please provide citations and rationale for the presumed dietary compositions given for each species in this table.
20686	wildlife		KIA	43	Kitikmeot Inuit Association: Tannis Bolt	Soil/Sediment consumption not supported by data or citations. Wildlife Health Risk Analysis, Appendix D, Table D-28, p. D-31.	Table D-28 presents the assumed consumption rates of soil and sediments for caribou, muskray, grizzly bear, Rusty blackbird, green-winged teal, common merganser, and bald eagle. These rates have implications for model outcomes, but no citations or justifications are provided for the percentages give.	Please provide citations and rationale for the presumed dietary compositions given for each species in this table.
20687	wildlife		KIA	44	Kitikmeot Inuit Association: Tannis Bolt	Soil/sediment ingestion (fraction of diet) was assumed to be 0.02 based on diet for grizzly bear. Wildlife Health Risk Analysis, Appendix D, Table D-28, p. D-31.	Table D-28 presents the assumed soil/sediment ingestion rate based on diet, which appears to also be assumed.	The assumption that such a small fraction of the ingested diet is comprised of soil seems unsubstantiated, as it is estimated based on diet, which also appears to be based on estimates of composition with no study supporting it. Please run models using a range of soil/sediment ingestion fractions, and assumed dietary compositions to see how these assumptions affect outputs.
Misc								
20680			KIA	37	Kitikmeot Inuit Association: Tannis Bolt	Add subheadings to Secondary pathway discussions, and Primary pathway discussion, Sections 13.3.2.2.2, and 13.2.2.3 p. 13-78 to 13-106 and sinilar sections in the Caribou EA, Section 12.	These sections, and similar/parallel sections like them in the caribou EA (Section 12) are long and skip between topic, species, infrastructure discussed, etc. It is difficult to follow as it is generally not well-organized into topics or by wildlife species/group. Clear subheadings would help greatly with organization.	Please include clear subheadings in these sections, and other similar sections for caribou, to indicate for topic divisions. The bulleted sentences do not serve this purpose well, as the reader sees them initially as unrelated bulleted ideas immediately after a paragraph with unrelated information, which is confusing.
20690			KIA	47	Kitikmeot Inuit Association: Tannis Bolt	Maps missing or wonky labels. Vegetation Section 11.2.2.2.1 , Map ?, p. 11-14, Map 11.2-3, p. 11-16, Section 11.4.2.2.1, Map ?, p. 11-47, Map ?, p. 11-51, Map 11.4-4, p. 11-56.	The map on page 11-14 is blank. Map 11.2-3 on page 11-16 is labelled with square wingding symbols only, with wingdings symbols in the legend. The map on page 11-47 is blank. The map on page 11-51 is blank. Map 11.4-4 on page 11-56 is labelled with windings.	Please add and correct the maps in this section.
20691			KIA	48	Kitikmeot Inuit Association: Tannis Bolt	Many sections - general comment Use of "Kitikmeot Inuit Association" in TOC and headings to refer to the TK of Inuit of the Kitikmeot region	"Kitikmeot Inuit Association" is used improperly to refer to the knowledge of Inuit. KIA is the political association that represents the people, it is not the owner of their data. The proper term is "Inuit of the Kitikmeot Region" or "Kitikmiut"	Edit

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20692			KIA	49	Kitikmeot Inuit Association: Tannis Bolt	PROJECT DESCRIPTION Section 3 -3.2 p. 3-2, last paragraph "The Copper Inuit from the north also hunted, trapped, and travelled as far south as the Lac de Gras area. The big game animals harvested included barren ground (Rangifer tarandus groenlandicus) and woodland caribou (Rangifer tarandus caribou	Woodland caribou did not occur in the Lac de Gras area, and neither did moose, or wood bison. It is correct however, that Inuit did hunt in the Lac de Gras area, and even further south.	More attention to accuracy required.
20693			KIA	50	Kitikmeot Inuit Association: Tannis Bolt	PROJECT DESCRIPTION p. 3-4 Following the destruction of the plains buffalo and a decline in the number of caribou around the 1880s, the Inuit, Dené, and Métis shifted focus to the trade of musk ox, which were hunted to the northeast of Great Slave Lake... Until the 1950s, the Inuit at an outpost at	The correct term is Plains Bison, not plains buffalo. Further, Inuit never hunted bison nor muskox near Great Slave Lake. The second sentence is incorrect. A few Inuit families continued to live year-round and seasonally at Pellatt Lake and Contwoyto Lake until recent times. This wasn't an outpost, they lived at traditional camp locations. Inlanders always travelled to the coast to visit and trade with other Inuit, and during the fur-trade, also did so to trade pelts and obtain supplies. Rescan 2006 is not the proper citation	More attention to accuracy required as well as proper citation of copied material.
20694			KIA	51	Kitikmeot Inuit Association: Tannis Bolt	PROJECT DESCRIPTION Section 3.2.3, first paragraph "Elders discouraged the use of eskers for camping and recommended places behind high points that provided protection from the wind."	Which elders, and what is the citation? Inuit elders used eskers for camping during buggy seasons.	More attention to accuracy required as well as proper citation of copied material.
20695			KIA	52	Kitikmeot Inuit Association: Tannis Bolt	PROJECT DESCRIPTION, Section 3.2.3, same page as above "Copper Inuit, who lived near Lac de Gras, harvested caribou, seal, grizzly bear (Ursus arctos ssp.), fish, waterfowl, wolves (Canis lupus), wolverine (Gulo gulo), musk ox, and moose from around the Coppermine River and Contwoyto Lake in the spr	Given that DDC has access to Inuit traditional knowledge, the first source for Inuit information should be the TK provided by Inuit themselves, not a report written by outsiders. Further, Sadownik and Harris is a literature review, and not a proper source.	Respectful consideration of TK

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20697			KIA	54	Kitikmeot Inuit Association: Tannis Bolt	SECTION 4 COMMUNITY, REGULATORY, AND PUBLIC ENGAGEMENT p. 4-6 "The First Nations and Métis groups included throughout each engagement period are: ... Kitikmeot Inuit Association and Hamlet of Kugluktuk..."	Inuit are neither First Nations or Metis.	Change to Aboriginal groups or include Inuit in list
20698			KIA	55	Kitikmeot Inuit Association: Tannis Bolt	Many places throughout Spelling of name of Inuit TK database	Proper spelling is: Naonaiyaotit Traditional Knowledge Project (NTKP)	Edit where it occurs.
20699			KIA	56	Kitikmeot Inuit Association: Tannis Bolt	SECTION 15 CULTURAL ASPECTS p. 15-35 "Representatives from the Kitikmeot Inuit Association who were involved in the Naonayaotit Traditional Knowledge Study were reluctant to talk about spiritual places or supernatural events. However, in Banci et al. (2006), all places on the land are said to be sp	Improper citation of Inuit TK. (Banci and Hanks 2006 - see proper citation above). As noted above, Sadownik and Harris is inappropriate citation. Further, as explained in the report series, the authors of the NTKP are not "representatives from the Kitikmeot Inuit Association". There are many appropriate terms including authors, consultants, TK holders, but not KIA reps.	Edit.
20700			KIA	57	Kitikmeot Inuit Association: Tannis Bolt	SECTION 5 TRADITIONAL KNOWLEDGE 5.1 Introduction p. 5-1 Note that this also is found in other report sections. "... It also includes the Inuit of the Kitikmeot Region, including the communities/settlements of Kugluktuk, Bathurst Inlet, and Umingmaktok."	The Inuit name for Bathurst Inlet is Kingaok, and Omingmaktok is the proper Kitikmiut spelling.	Edit

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20701			KIA	58	Kitikmeot Inuit Association: Tannis Bolt	SECTION 15 CULTURAL ASPECTS p. 15-37 "The Inuit identified Lac de Gras (Tahikpak) as a good spring hunting area. Caribou could always be found on the islands, especially in the summer, at Tahikpak (Lac de Gras), Tahikyoak (Contwoyto Lake), and Nonatoklik (Pellatt Lake) (Banci et al. 2006). During o	The sentence in red is patently untrue, has it been taken out of context?	Edit
20702			KIA	59	Kitikmeot Inuit Association: Tannis Bolt	SECTION 15 CULTURAL ASPECTS p. 15-54 First paragraph "In 1958, in an effort to conserve the caribou and improve the welfare of the Kitikmeot Inuit, the Canadian government supported the development of a domestic fishing camp, the first one at Tahikyoak (Contwoyto Lake) and then one at Nonatoklik (P	What is the source for this? Although the gist of this paragraph is true, it missed the point that Inuit always lived at Contwoyto and Pellatt Lake, thus they were logical places for government to provide support. Note Pellat is incorrect spelling.	Edit
20704			KIA	61	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT p. 1-11 (Also in Project Description) "Around the 1880s, following the destruction of the plains buffalo and a decline in caribou, the Inuit, Dene, and Métis shifted focus to the trade of muskoxen, which w	The correct term is Plains Bison, not plains buffalo. Further, Inuit never hunted bison nor muskox near Great Slave Lake. The second sentence is incorrect. A few Inuit families continued to live year-round and seasonally at Pellatt Lake and Contwoyto Lake until recent times. This wasn't an outpost, they lived at traditional camp locations. Inlanders always travelled to the coast to visit and trade with other Inuit, and during the fur-trade, also did so to trade pelts and obtain supplies. Rescan 2006 is not the proper citation	Edit

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20705			KIA	62	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT p. 1-13 "The YKDFN share the TG view. The knowledge of the people is a reflection of their identity, culture, lands, and resources, and cannot be artificially separated (Weledeh Yellowknives Dene 1997). Th	Where is the Inuit citation for this term? Author should strive to show TK through the eyes of the TK holder, not an outsider.	Edit
20706			KIA	63	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT 3.8 Kitikmeot Inuit Traditional Land Use p. 3- 55 "...Elders interviewed for the Naonayaotit Traditional Knowledge Project (Banci et al. 2006)..."	General comment: As described above, "Kitikmeot Inuit" are "Kitikmiut" It is a subtle point, but the author treats Inuit TK like a scientific study. Elders were not interviewed for the NTKP. The meaning of Naonaiyaotit is the collective Traditional Knowledge of Inuit elders and land-users. The NTKP is their knowledge. To properly reflect this ownership, it would be best to have a statement at the beginning of this section that unless otherwise indicated, all TK presented is from the NTKP (Banci et al. 2006) instead of citing Banci et al, which are the editors, not the owners of the information.	Edit
20707			KIA	64	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT p. 3-60 (Also in SECTION 15 CULTURAL ASPECTS) "In 1958, in an effort to conserve the caribou and improve the welfare of the Kitikmeot Inuit, the Canadian Government supported the development of a domesti	What is the reference for this? Although the gist of this paragraph is true, it missed the point that Inuit always lived at Contwoyto and Pellatt Lake, thus they were logical places for government to provide support.	Edit

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20708			KIA	65	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT p. 3-64 "In response to concerns about the Ekati project, Inuit participants have provided feedback to Ekati staff to help minimize the Project's impacts on caribou and other wildlife. In 2006, the Kugluk	The Caribou and Roads project was more than a response to concerns. It was a project designed to integrate traditional knowledge within the environmental management program of Ekati. The recommendations regarding inokhok were made regarding specific problem areas where caribou and mining activity were in conflict. This is not explained well in this paragraph.	Edit
20709			KIA	66	Kitikmeot Inuit Association: Tannis Bolt	ANNEX XVII TRADITIONAL LAND USE AND TRADITIONAL KNOWLEDGE BASELINE REPORT FOR THE JAY PROJECT 3.8.3.4.1 Grass p. 3-68	Cottongrass is technically not a grass but a sedge. Further, this text is a continuation of the previous section "Plants" and better belongs there.	Edit
20710			KIA	67	Kitikmeot Inuit Association: Tannis Bolt	SECTION 1 INTRODUCTION Table 1.2-1 p. 1-15 Caribou "Traditional knowledge study led to the installation of Inuksuit as deterrents to caribou approaching the Ekati Mine. An Elders Advisory Committee was established to study other means of preventing disturbance to caribou."	As explained in the Caribou and Roads report, the elders ask that the Inuinnaktun dialect be used for terms. Thus, it is inokhuit (inokhok), not inuksuit (inukshuk). Further. The Inuit Elders Advisory Group was established to provide advice on all environmental management programs, not just caribou.	Edit
20711			KIA	68	Kitikmeot Inuit Association: Tannis Bolt	SECTION 11 VEGETATION 11.3 Valued Components, Assessment Endpoints, and Measurement Indicators p. 11-3 Traditional Use Plants 11.2.2.3 Table 11.2-5 Traditional Use Plants and Associated Ecological Landscape Classification Map Units p. 11-18	Why are only the Tlicho names used for plants? Given that the area is shared by different cultural groups, if Aboriginal names are given for plants, animals, places, etc., they should include the names of all groups, including Inuit.	Edit

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20712			KIA	69	Kitikmeot Inuit Association: Tannis Bolt	SECTION 13 WILDLIFE AND WILDLIFE HABITAT p. 13-62	Naonaiyaotit Traditional Knowledge Project (NTKP), not: Naonayaotit Traditional Knowledge Study Also note proper spelling, as indicated above.	Edit
20714			KIA	71	Kitikmeot Inuit Association: Tannis Bolt	SECTION 12 BARREN-GROUND CARIBOU	p. 12-38 Inokhuit not Inuksuit p. 12-39 "In 1961, a Royal Canadian Mounted Police report stated that Kitikmeot Inuit Association (KIA) living inland supplied..." - Nunamiut, Inuit, or Kitikmiut, not KIA	Edit
20715			KIA	72	Kitikmeot Inuit Association: Tannis Bolt	SECTION 12 BARREN-GROUND CARIBOU 12.2.3.7 Kitikmeot Inuit Association P. 12-38 Also in ANNEX XVII p. 3-62 "...During a tour of the Ekati Mine about traditional knowledge and wildlife monitoring, Vivian Banci (Banci et al. 2006) recalls the advice of two Elders from Kugluktuk..."	Incorrect description, this wasn't a tour, it was a project designed to integrate Inuit TK with environmental management, which came to be known as the Caribou and Roads Program.	Edit
20716			KIA	73	Kitikmeot Inuit Association: Tannis Bolt	SECTION 12 BARREN-GROUND CARIBOU 12.3.2.1.4 Open Pits p. 12-47 "... Caribou mitigation in the vicinity of open pits has included the installation of 'snow' fence in the Beartooth and Pigeon areas...."	Fails to acknowledge that this recommendation and erection of these fences came from and was carried out by the Inuit Advisory Group - it was an example of how Ektai attempted to integrate TK into environmental management	Edit
20717			KIA	74	Kitikmeot Inuit Association: Tannis Bolt	SECTION 17 CUMULATIVE EFFECTS SUMMARY 17.7.3 Traditional Use Plants and Traditional Use Plant Habitat Potential p.17-20 "...Confidence in this prediction is high because the majority of the traditional use plant species and the land cover types that support them are well distributed throughout the	This statement refers to the cumulative effect from loss of traditional plant habitat. It may be true that the effects will not be significant, however, it is not because species are common and "well distributed". The importance of a particular area to Aboriginal people is due to many factors which operate at different spatial scales, from regional to site-specific. Just because a resource also occurs elsewhere, it does not mean that its value is equivalent to the value of a resource that will be destroyed or altered due to development.	Consider comment with respect to this section and others.
20718			KIA	75	Kitikmeot Inuit Association: Tannis Bolt	SECTION 17 CUMULATIVE EFFECTS SUMMARY 17.11 Cultural Aspects p. 17-32	General Comment: This discussion conveys a lack of understanding of how Inuit and other Aboriginal groups view cumulative effects. Elders frequently talk about how each new development, no matter how small adds another stressor to the environment that ends up becoming apparent in a myriad of ways, since everything is connected. The conclusions as to the significance of cumulative effects do not talk about how Aboriginal people view cumulative effects. These views must be presented. Further, although there is an acknowledge of the effect of climate change for fish, there is no real consideration of climate change as a cumulative and synergistic impact, a factor that elders always express.	Consider comment and rewrite to reflect how Aboriginal people view cumulative effects.

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20721			KIA	78	Kitikmeot Inuit Association: Tannis Bolt	SECTION 7 AIR QUALITY Summary of Local and Traditional Knowledge 7.2.4	Same comment as for Section 8	Consider and revise.
20722			KIA	79	Kitikmeot Inuit Association: Tannis Bolt	SECTION 9 FISH AND FISH HABITAT Summary of Local and Traditional Knowledge 9.2.7	Same comment as for Section 8	Consider and revise.
21285			KIA	112	Kitikmeot Inuit Association: Tannis Bolt	Kitikmeot Inuit Association	Cover Letter for EA1314-01-Jay Project DAR IRs- KIA to MVRB- Feb 23, 2015 Submission	Cover Letter
20492			LKDFN	21	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	Removal of IEMA board members Directed to GNWT, Project Proponent, implicated Government of Canada departments	Background The Northwest Territories government, Dominion Diamond Corporation and the federal government are removing three long-time members of the board responsible for monitoring Dominion's Ekati mine. Review Comment Given that these board members have been working with IEMA for a substantial amount of time, LKDFN finds it curious that they would be removed now, in the middle of the environmental assessment process for the Jay Project, when their input is most needed. LKDFN does not question the justification, but the timing. If it wasn't a problem for their initial appointment and the time they have served, then it should not be so pressing an issue to act now in the middle of the environmental assessment process.	LKDFN requests justification for the timing of this removal. LKDFN also requests that the board members be retained until the environmental assessment process for the Jay Project is completed and suitable replacements can be instated immediately afterwards.
20493			LKDFN	22	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment: Peter Unger	New Impact Benefit Agreement References Section 14 Directed to GNWT, Project Proponent	Background The Jay Pit is a new development not covered under the current IBA with LKDFN. The DAR does not mention the plan for the way forward in terms of an IBA. Review Comment LKDFN is curious to know the views of the project proponent and the GNWT in terms of what is viewed as the best way forward in terms of an IBA.	LKDFN requests some information on planning for a new IBA, if this is the intent of the proponent. LKDFN would appreciate GNWT's views on this subject as well.
20317			Tlicho	28	Tlicho Lands Protection Department: Sjoerd van der Wielen	IR29: Changes in Board Members at the Independent Environmental Monitoring Agency, IR to the GNWT	The Agency informed the Tli?cho about changes made in the IEMA composition. The Government of the Northwest Territories, the Government of Canada and Dominion Diamond Ekati Corp. jointly appoint three of the seven Directors, following consultation with the appropriate Aboriginal governments. The three Directors jointly appointed by these parties (Bill Ross, Laura Johnston and Kim Poole) were notified on February 9, 2015 that their appointments would end in March 2015. Consultations have begun on replacements and it is expected that new appointments will be made soon.	28.1 Please advise on how the long term capacity that was held between these three scientists will be made up for in future agency developments. Please also advise on the thinking behind loss of three key individuals who have great respect and authority on the topic at the time of critical change occurs within the EA process for Jay Pipe. Why were all three let go at once, rather than staging the exit? How will the gutting of this expertise be made up for in future work?