

Environmental Monitoring Advisory Board

Minutes – June 15-16, 2017

EMAB Boardroom, Yellowknife, NT

9:00 am – 2:30 pm June 15

Present:

Napoleon Mackenzie, *Chair*
Charlie Catholique, *Vice-Chair*
Julian Kanigan, *Secretary-Treasurer*
Jack Kaniak, *Director*
David Wells, *Alternate Director*
Adrian D'Hont, *Alternate Director*

Yellowknives Dene First Nation
Lutsel K'e Dene First Nation
Government of the Northwest Territories
Kitikmeot Inuit Association
Diavik Diamond Mines
North Slave Metis Alliance

Absent:

Sean Richardson, *Director*
Arnold Enge, *Director*
Gord Macdonald, *Director*

Tlicho Government
North Slave Metis Alliance
Diavik Diamond Mines

Staff:

John McCullum, *Executive Director*
(minutes)
Allison Rodvang, *Environmental Specialist*
(minutes)

Environmental Monitoring Advisory Board
Environmental Monitoring Advisory Board

Guests:

Bill Slater, SEC (by phone, Day 2 only)
Randy Knapp (by phone, Day 2 only)
Jennifer Kirk, Arcadis (by phone, Day 2 only)
Patty Ewaschuk, WLWB (by phone, Day 2 only)
Nathen Richea, ENR Waters (Day 2 only)
Petr Komers, MSES (by phone, Day 2 only)
Abbie Stewart, MSES (by phone, Day 2 only)
Kyla Gray, Diavik (Day 2 only)
Dan Coulton, Golder (by phone Day 2 only)
Jae Woo Kim, Golder (by phone Day 2 only)
Andrea Patenaude, ENR Wildlife
Marc Casas, IEMA

1) Call to Order

Meeting called to order at 9:10 am. Minute of silence Chair noted this may be his last meeting
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2) Approval of Agenda

The Chair opened the floor for amendments to the agenda.

ED asked to add North-South Consultants' review of the 2016 AEMP Dust Erratum for June 16 at 11:30. Comments on this item are due Tuesday.

Motion: *To approve the June 15-16 agenda as amended*

Moved: Jack Kaniak

Seconded: Charlie Catholique

Motion carried.

3) Conflict of Interest

No conflicts were declared.

David Wells informed Chair he would be gone from 10:45 am – 1:00 pm.

4) Approval of Minutes

ED pointed out highlighted portions of meeting minutes:

- Highlighted portion of minutes were added by board members after draft minutes were circulated.
- ENR-Wildlife will not have comments on the 2016 WMR/CAR at this meeting
- Gord noted it would have been helpful if EMAB staff had circulated North-South Report on 2016 AEMP in advance
- At the previous meeting Gord noted it was highly inappropriate for Tracey Covey to be in room without conference call participants being aware during a Board only discussion

Comment: clarify that Inspector was not told to leave for a Board only discussion

Motion: *To approve May 23-24 Meeting Minutes as amended*

Moved: Charlie Catholique

Second: Jack Kaniak

Motion carried.

ED Actions Follow-up

ED presented item from kit.

Discussion

Noted that Diavik had not yet responded to EMAB's recommendation that Diavik formally review the EAQMP.

Q: Are there any changes to Diavik's flight schedule?

A: No changes. Diavik was trying to get more flights so people could go on day trips to site, but this is not being looked at anymore.

5) Financial Report

ED presented item from kit.

Discussion

Q: Diavik doesn't want to roll over TK funds?

A: Business rules with Diavik say EMAB can roll over funds when circumstances are beyond our control. Gord was not convinced that EMAB couldn't have held the TK meeting last year. EMAB had six meetings and couldn't organize the TK Panel to come.

Comment: Important to involve TK with all the closure at Diavik coming up.

Q: Has a formal request been submitted to Diavik to roll over funds?

A: Chair sent letter in mid-March. Have not received formal response from Diavik.

Comment: May have to ask Diavik for additional project-specific funds if we can't cover things under our budget.

ED informed Board that notice was received from Revenue Canada saying Directors CPP was underpaid last year ranging from \$60 to \$120. EMAB has now paid the employer and employee portion and needs to recover the employee portion from Directors.

Board agreed one deduction will be made next month from pre-approved preparation days to cover the outstanding CPP amounts.

ED would like to have a motion to destroy all financial records prior to April 1, 2010 as per federal regulations.

Q: Does the EA have any requirements for this?

A: No.

Q: Does the Societies Act have any requirements?

A: EMAB files audit report but they don't deal with financial records.

Action Item: ED will check that there is nothing in the Societies Act preventing destroying financial records.

Break 15 minutes.

6) TSS Recommendations

ED presented item from kit and suggested EMAB comment on Section 67(1) b of the *Waters Act*

Still waiting on letter from Minister to Inspector from GNWT – ED contacted Monica Wendt for letter but hasn't heard back yet.

Q: Has the WLWB changed their procedure/implemented controls to make sure that procedural unfairness is no longer an issue?

A: At the last meeting WLWB stated they feel their recommendation was justified.

Q: What is causing the TSS?

A: Problem with turbidity curtain during A21 construction.

Q: How long has EMAB been asking for the letter?

A: First asked Robert Jenkins in March. At the May meeting Julian recommended getting in touch with Monica Wendt instead.

Action Item: Draft letter with EMAB comment on *Waters Act* and approve by email motion.

7) MMER Update

ES presented item from kit. ES will draft a comment letter after the ECCC meeting for Board review. The main point is that EMAB does not want the AEMP to change as a result of putting diamond mining under the MMER>

Discussion

Q: Would any Board members want to attend meeting with ECCC?

A: Comfortable with staff going.

9) EAAR Review

Agreed to move items forward from afternoon to allow Julian and David to participate in Annual Report review in the afternoon.

ES presented item from kit. Noted that Diavik doesn't report on recommendations received from EMAB, or others – this should be added.

ES reviews draft letter to Diavik.

Discussion

- Add TSS comments under public concerns section
- Diavik should acknowledge TK Panel and EMAB under public concerns

Comment: Community engagement is important so EMAB should make a strong recommendation to Diavik to include the results of their engagement in report.

Action Item: ES will revise letter to make wording stronger and present again later.

10) TK Recommendations

ED presents item from kit.

Discussion

- Lots of activities around mine that raise concerns
 - Fuel spills, landfilling of tires and plastic
- TK Panel should be better funded so it can have more meetings; women's panel is a good idea
- EMAB should include the landfill on the next tour
- Request an inventory of what's in the landfill
- Recommendations seem good
- Valuable to include youth

Q: Does the EA say anything about meetings for the TK Panel?

A: Option to set up TK Panel, which EMAB did. No direction beyond that. Now Panel is under Diavik so it is up to Diavik to set frequency of meetings.

Q: What does the recommendation on youth mean?

A: Continue inviting youth to Panel meetings. Sounds like Diavik already does this.

Board members are comfortable with recommendations.

Action Item: Put together a draft letter for Diavik with recommendations as set out in item background.

Lunch
12:00 pm – 1:00 pm

8) Annual Report Review

Agreed to do a page-by-page review of annual report.

Discussion

- Report card
 - water section to explain how Lac de Gras is changing due to increased chlorophyll *a*.
 - fish section - Check on another word for "contamination"
 - Is there any mercury in Ekati effluent
 - Wildlife section – comment on behavioural observations

- Air section - Could include that Diavik did not respond to air quality recommendation in report card section; clarify comment on dustfall monitoring
- Closure – note issue of placement of waste rock
- Might be good to allow relevant agencies to respond to recommendations

Q: Will DFO be getting their responsibilities back under new federal government?

A: Review was done, but if mandate is expanded they will have to hire more staff.

Comment: Fisheries report in AEMP no longer gets comments from DFO.

What We Have Done section and Governance section: EMAB Budget – Diavik agreed with EMAB’s budget proposal; at a point where both Parties agreed; should move forward.

- Possibly reword section
- Julian Kanigan will give written comments on budget section

Oversight section

- TSS – add in result of discussions with Diavik, ENR, Lands and WLWB
- NI – spills are also tracked in the monthly SNP reports
- Will be changing Closure and Wildlife sections based on consultant reviews
 - Grizzly hair snagging – note that 2017 was always planned for data collection; this is the final year to confirm effects
- Dust definition – dust is everything particulate; TSP is < 100 microns
- Add EMAB to comment table under report card
- Include responses from ENR, DFO, and ECCC if we receive them in time
- Check 2015-16 report for any threads left hanging
- Why more grizzlies on site? Speculation that sows with cubs and young males go to site for safety

Communications section

- Add website update

Action Item: staff to revise wildlife and closure sections by week of June 26

Action Item: Board members to provide written comments by July 10.

2:30 pm – Adjourn for the day

June 16, 2017
Meeting Reconvened at 9:00 am

9) NCRP Final Closure Plan review

Bill Slater, Randy Knapp, Jennifer Kirk, and Patty Ewaschuk all on phone. Nathen Richea came part way through.

Randy Knapp presented highlights of his review. His review is from an engineering and environmental perspective. In general the plan is well done and thorough. Key issues from EMAB's perspective

- The surface of the NCRP will not be like the test piles – there will be different sizes of rock, including large boulders, so may not be very smooth and there may be holes and gaps. There is no control in the QA/QC section on “grain size” or what will be safe for caribou to walk on.
- Thermal models show 5.6 C increase over 100 years. This is the mean of all models available. No sensitivity analysis was done. A key factor is moisture content of till. The maximum is set at 25%, but no minimum is specified. There must be a minimum moisture content of 10%. They should also model a slightly higher temperature increase.
- Plan now addresses long-term monitoring. Estimated annual cost of \$560,000, which is staggeringly high. Based on Net Present Value of 3% this would require a fund of \$18.7 million (if NPV is lower, fund would need to be bigger). The backup for the calculations is not very detailed and there is no discussion on who would provide the funds.
- Diavik has extensively tested seepage and has a model, which was reviewed by credible experts. Contingencies for the cover include: adding more rock, adding more till, implementing seepage control or seepage treatment.

Discussion

NCRP Surface

Q: Were TK caribou trails identified?

A: Yes, the trails are shown on the picture, but the design drawings do not include them.

Q: Could some of this (trails, evening surface) occur after the cover is built?

A: Yes. Right now it is just unclear who makes the decision that the surface will be safe for caribou. TK Panel could be involved in the assessment. QC is just visual inspection.

Comment: the design allows for boulders up to 1.5m in the cover; not sure how that can work.

Thermal model

Q: What is the standard for climate change projections?

A: 100 years, after this it gets much harder to predict.

Comment: 1 in 100 year flood seems to happen more often, things get more unstable the further out you go.

Comment: update data every 4-5 years due to climate change. There is an increase in flood frequency.

Q: If warming continued after 100 years, what could be expected to happen?

A: There would likely be some thawing on the south-facing slopes. Keep in mind that oxidation stops at about -2 degrees.

Q: If Diavik couldn't rely on permafrost would they come up with a different design?

A: Possibly use a design membrane, although those don't last forever.

Q: Is this a reasonable cover plan?

A: It is reasonable and will work for 100 years. Degradation will be localized and modest.

Long-term Monitoring & Maintenance

Q: What is your experience with sign off? Leave liability resting with company for 100 years?

A: Every jurisdiction is slightly different. Walking away almost never happens anymore. Governments require tremendous security. In SK a property can be turned over to crown but company is still responsible if something unexpected happens. Things are changing in the Territories; GNWT and LWBs are providing assurances for long-term solutions.

Q: Company puts up money that the government holds?

A: Yes, companies also put up a premium that is used to care and maintain facilities. Government can always come back to company for more money.

Q: Lower and upper temperature limits for climate model?

A: Do not know.

Q: Much of cost is associated with equipment on standby?

A: Yes, but the estimate doesn't include enough information to know what equipment is etc.

Comment: 18.7 million is the cost for the whole site, not just the NCRP. The fund is intended to last forever, although the discount rate is critical.

Comment: The process of holding security is not well defined anywhere. GNWT hopes to have a mechanism in place within the next year to hold security.

Q: Is this enough money?

A: Nobody has set aside any money yet for long-term care and maintenance. Diavik only provided a reasonable estimate. This might not be enough if seepage water needs to be treated. Elliott Lake long-term fund was \$100,000 per year.

Q: does maintenance cost decrease over time?

A: that is how it usually works – monitoring cost is stable

Q: how does it work in other places?

A: Saskatchewan - \$20 million plus 20% into core fund; Equity Silver in BC is at \$30 million; Nanisivik had \$2 million and that seems adequate.

Q: who will hold funds

A: GNWT would hold funds, WLWB would set amount. Note that DDEC has already received a refund of some security based on progressive reclamation – this process is set out in the MVLWB guidelines and pre-dates devolution.

Comment: muddy ponds have been seen forming next to the waste rock piles that are covered.

A: this will happen while the pile is being constructed, and will need to be managed.

Seepage

Q: the one kilometre contaminated zone in the water around the island seems quite large.

A: a mixing zone is not unusual – the size needs to be assessed.

Comment: the TK Panel information has been integrated into the plan. Where the Panel gives multiple advice Diavik tends to choose the one easiest for them eg. They will not put fine rock on the caribou trails.

Q: The south slope of NCRP will be covered?

A: Yes, but not re-sloped. This will provide denning habitat.

Q: Thoughts on practicality for a cover on that type of slope?

A: There shouldn't be any issues, no problems with drawings.

BREAK

Bill Slater presented his review of closure criteria.

- Timing – it can be difficult to evaluate criteria on a one-time basis eg. Seepage, cover performance. Seepage can take decades to develop.
- Criteria – still using original SSRBCC; these were not updated based on technical reviews
- Seepage – for human health Diavik will try to control access to contaminated water (uranium is a concern). For aquatic life, it is understandable there would be a mixing zone, but this one seems large. The approach of using back-calculation makes sense.
- Wildlife – not included in this draft.

Q: 1 km seems like a very large area to allow effects to occur on aquatic life?

A: Don't understand basis for modelling, need information to better understand rationale. In-lake criteria would be useful.

Q: Could Diavik provide this information at this stage?

A: Potentially, but will have to follow-up with other people on the closure team.

Q: What are the cumulative effects, will the whole lake be affected?

A: Shouldn't be affected over the years. Modelling predicts Diavik will be able to meet Aquatic Effects Benchmarks 1 km from island. Not sure how uranium, for example, would behave over time.

Q: Uranium does not go away so what are the cumulative effects?

A: Metals are not going to degrade; they will partition and become part of sediment, or plants, or fish tissue. Continuous loadings of metals to lake will have incremental effects over time, could become bound into materials making them less available to organisms. However, the amount of uranium in the ecosystem will not go away, unlike petroleum. Partitioning hasn't been considered in Diavik's closure criteria when it should be.

Q: 85:1 is that intended to be static dilution factor or change over time?

A: It seems to be a static factor. There is not a lot of information about it in the report.

Comment: Dilution factor can be reduced if contaminants keep increasing.

Q: Diffuser is meant to optimize dilution. For non point source discharge you may not get optimal mixing when streams enter receiving environment (may hug shoreline, may mix in certain areas); how does the 1 km zone factor this information in? Would it be beneficial to look at a small-scale mixing zone versus waiting till effects are noticed 1 km away?

A: Very beneficial – this will be a small amount of discharge at a relatively high concentration.

Comment: Should be avoiding effects to aquatic life, and area should be as small as possible.

Q: Were our previous recommendations on closure criteria addressed?

A: yes, but Diavik distinguished between closure criteria and design criteria. The design itself has changed and is slightly more articulate. Some design criteria changed, but nothing more. Still using "as-built conforms with design" for some criteria.

Q: Timeline for updated version?

A: Monday

Q: Highest priority items?

A: Water quality side needs more thinking-quite challenged by the 1 km band of potential effects. This is based on the CEAA assessment for significant project effects. Closure criteria are meant to define acceptable achievement of the objective which does not have same threshold of just barely avoiding significant effects. Aim for better at closure.

Jennifer Kirk presented her review.

- Previous comments – some have been addressed. Comments on Phase 1 and 2 reports have not been addressed, despite a commitment to do so
- Some parameters should have had criteria developed for them eg. Lead
- Human health – Diavik will use Diavik-specific benchmarks instead of Health Canada; not sure of the basis for this.
 - Any contaminants in water could expose humans by consuming fish and game that used it. This was considered in the Phase 1 & 2 reports, but not in this plan.
 - Can't control where humans get drinking water from lake – need to address how they will protect drinking water quality inside the mixing zone.
- Aquatic life – use of mixing zone is common
 - Set benchmarks at AEMP plus 20%. Can't understand this; it does not appear to be defensible from a risk assessment perspective.
 - Criteria must be set based on what is protective, not what is achievable
 - the 1 km zone seems excessive; expect significant impacts inside mixing zone
 - the mixing zone cannot adversely affect aquatic life
 - end of pipe cannot be acutely toxic – this has not been addressed within the mixing zone
 - no chronic effects at end of mixing zone
 - this approach raises concerns about the health of aquatic life.
 - Must take existing background into account.
- Partitioning needs to be considered: loading into sediment will have effects on benthics and fish, then on birds, wildlife and humans that consume them.
- Key Concerns:
 - 85:1 dilution calculations
 - 1 km. mixing zone
 - 20% increase over AEMP benchmarks
 - Human health issues of continual loading into potable water

Q: At closure there will be a diffuse source of runoff into water instead of point source? Have you considered this in your work?

A: Yes, if it was a point source and a 1 km impacted area, potential effect on aquatic organisms would be much smaller than from seepage.

Q: Closure criteria for copper and silver?

A: The maximum seepage concentrations are higher than back calculated numbers. Diavik proposed using their seepage concentrations as closure criteria. This is an unacceptable approach.

Comment from WLWB (Patty Ewaschuk): If there is missing information, the WLWB encourages reviewers to contact Diavik to discuss submission.

LUNCH

10) WMP/CAR report review

Abbie Stewart and Petr Komers (MSES), Dan Coulton and Jae Woo Kim (Golder) on phone. Marc Casas and Andrea Patenaude in person, along with Kyla Gray from Diavik.

David Wells presented the 2016 WMP report and comprehensive analysis.

- Mine footprint has increased by 0.67 sq. km.; this is still below the predicted level
 - The only other disturbances will be the SCRP and re-sloping of the NCRP
- Waste – landfill and waste transfer area. Burn waste oil.
 - Wind farm saves 3.4 million liters of fuel
- Caribou – summer habitat loss is 2.79 HU's; less than 2.965 prediction
 - 2 behavioural scans in 2016
 - No aerial surveys
 - No injuries or mortalities
 - Behavioural surveys – Diavik has a good subset of far from mine observations; they stopped doing this a couple of years ago. They do observations on any caribou that come near the mine.
- Grizzly bear – habitat loss if 8.13 sq. km; below predicted level. Had 137 observations; mostly the same bears. No hair snagging in 2016; will complete hair snagging study data collection in 2017.
- Wolverine – track survey was done; no hair snagging. Waiting on analysis of recent data. Most recent report showed 9 males and 7 females. 105 observations – mostly two that were hanging around. One mortality – stuck in a dumpster
- ZOI – caribou do not unnaturally aggregate at 14 km. so no ZOI.
- Wolverine track density – not correlated with number of employees; negatively correlated with waste rock production. Track occurrence is increasing over time. Number of incidents is decreasing over time: 25 (2005-2008); 12 (2009-2016); Ekati 27 (2005-2008); 3 (2009-2015).
- Summary of conclusions:
 - Landscape changes less than EER prediction
 - Habitat loss less than predicted
 - No caribou or grizzly mortalities
 - One wolverine mortality; possibly one peregrine
 - Caribou density suggests little to no ecological effect from Diavik or Ekati
 - East-west movement follows EER predictions
 - Mines have not resulted in fragmentation of Bathurst caribou herd
 - Wolverine incidents have decreased over time
 - Mitigation is effective at reducing human-wildlife conflicts

Vegetation and lichen monitoring

- First done in 2005; current program started in 2010
- Looking for changes in plant species and abundance, and in plant chemistry
- Dust deposition decreased since the open pit phase

- Dust is four times higher near the mine (furthest sites are 10 km. from mine)
- No detectable difference in cover between mine and reference areas
- Lichen and bryophytes – no difference in species between mine and reference; metals are higher close to mine. Metals were significantly lower in 2016 than in 2013 or 2010.
- Conclusions
 - Decrease in metals due to less dust
 - Risk assessment in 2010 showed no concerns; no need to do another since metals are lower

Activities in 2017

- Grizzly hair snagging
- Wolverine snow track
- Opportunistic caribou observations
- Participating in geofence collar study

Waste

Q: Where are tires stored on site?

A: Diavik re-uses them in different places, store Lunds on them, recycling is too expensive

Q: What does Diavik do with the smaller tires?

A: They go in the landfill.

Q: Long-term plan for the landfill?

A: Landfill is within the NCRP so it will be covered.

Q: Is there an inventory of what goes in landfill?

A: Diavik captures tonnage only, no further breakdown. Do not compost on site. Waste goes to incinerator.

Caribou

Q: What is the issue with comparing caribou behavioural data over years?

A: Behaviour changes across seasons, climate change. Diavik has a long-term data set collected during post calving season. Now there are very few groups coming into the study area particularly in post calving period.

Note that Ekati started doing behaviour scans in 2010 and have 7 groups within 2 km. of the mine. They mostly do focal scans. Up until 2010 Ekati and Diavik did different things.

Q: What is the threshold for useful information?

A: Diavik needs about 65 groups, 5-10 km away.

Q: Did Diavik test power of ZOI data?

A: Not for Diavik, but the 65 groups is based on a power analysis from another study.

Q: Where was this year's behavioural data collected?

A: This was done on site, but used to use collar data, or do fly-overs. Bathurst caribou are spending longer at Contwoyto Lake.

Q: Given what we've heard on caribou behaviour data, is there another way to achieve the objective? Seems unlikely that sufficient data will ever be collected to do a statistical comparison.

A: Diavik would need to come up with a different objective if they were to begin a new study, and abandon existing data.

Q: Could Diavik extend their monitoring period?

A: Right now, Diavik doesn't limit when they do their observations to any time period. If caribou are present on the island, they will do the surveys.

Comment: YKDFN are starting their own caribou population studies.

Comment: Caribou don't seem to be joining other herds based on collar data. Female caribou don't switch.

Wolverine

Q: How many wolverine are in the study area?

A: Last DNA analysis showed about 18 males and females. Split is generally even.

Q: When will the next wolverine DNA study be done?

A: Haven't done anything to update the program. Diavik collected the data and are now waiting on ENR to complete the analysis.

Comment: ENR had to wait an additional year for Ekati to complete the program and get their data. Once ENR received Ekati's data, their statistician's plate was full. Analysis is happening later than ENR would have liked, and still can't speak to the timeline. Mines are reluctant to complete the program again not having seen an analysis. ENR would like to have the analysis done this year. Would help to have a recommendation from EMAB.

Comment: wolverine population seems stable, so there is no need to continue the study.

Comment: ENR would like to look at the program to make sure it is testing the effect of the mine.

Q: What happened to wolverine carcass?

A: Diavik contacted ENR and they advised to incinerate it.

Raptors

Q: There were no nests on the pit walls?

A: There normally aren't. More frequently on wall behind process plant.

ZOI

Q: What changed in this analysis compared to previous ZOI analyses?

A: This analysis removed lakes and used density instead of presence/absence. Previous analysis used logistic regression. With logistic regression, once a caribou has been seen in any location that segment always shows caribou present.

Q: was habitat taken into consideration

A: except for water, no.

Q: Golder just used southern migration data?

A: Yes.

Q: Has this methodology been used elsewhere?

A: A Boreal Caribou analysis in 2007 tried to account for change in space (Weir?).

Q: Caribou travel in groups, different factors affect density eg. caribou aggregate more when they feel threatened/stressed, so presence of predators. What other factors could affect size of groups besides habitat quality?

A: Distribution of water..many possibilities. Some of the highest densities are closer to the mine.

Q: Plans for the study?

A: Would like to do additional analysis of other factors and try to publish it.

Q: Does funneling affect density analysis?

A: It probably could, but did not explicitly model that. Focused on density.

Comment: it would be interesting to bring in water and land bridges.

Q: Did you run the analysis with land and water included?

A: No. Noted that Boulanger et al did not account for water directly, but analyzed for habitat type, one of which was water.

Comment: this analysis is refreshing. Shows that on land there is no difference in density close to the mine vs. far away.

Wolverine analysis

Q: Why is there a strong negative correlation with waste rock production with wolverine Track Density Index?

A: Diavik doesn't know for sure, it was an interesting finding though.

Discussion

Q: The mine has not caused fragmentation of the herd?

A: Bathurst caribou have been using the same seasonal ranges based on the migration data.

Q: any change over time in vegetation at all sites?

A: varies from site to site

Q: Why propose to decrease the sampling frequency of vegetation/lichen to five years if dust levels are already up?

A: If the dust exceeds Diavik's trigger they will go back to every three years. This is checked annually.

Q: Why the 400mg trigger?

A: The 95% confidence intervals yielded approx. 400 mg.

Q: Are any Regional Wildlife Workshops planned?

A: no. When there are results to discuss they will meet; still waiting on analysis of wolverine hair snagging data from 2015.

Noted that the Grizzly hair snagging program ends in 2017.

Q: When will the ZOI Task Group meet?

A: when the members can be available.

BREAK

Abbie Stewart and Petr Komers briefly presented their review.

- Generally at or below predicted effects
- Questions in some areas:
 - ZOI
 - Caribou behaviour
 - Wolverine abundance – hair snagging does not test mine effects
- No questions on grizzlies
- Some unanticipated effects on vegetation and lichen
 - Relation between lichens and metals, and effect on caribou habitat

Noted that the 2014 wolverine hair snagging study showed 16 individuals (nine males, seven females) in the study area.

Q: Is there anything to add onto the ZOI discussion? Strengths or weaknesses to this analysis we should be aware of?

A: Presence/absence analysis did not take groups into account. Density is better because it takes into account the number of animals. The weakness of the density study is that it doesn't look at confounding factors eg. habitat

Q: Caribou deflection around the island raised questions that caribou are not following the predicted migration route?

A: Overall migration has continued as predicted, however when will Diavik consider that migration patterns may be changing? Over the last several years caribou are encountering Lac de Gras later in the year. No baseline data, so the degree of change is unknown. No mitigation measures in place.

Comment: there have not been any adaptive responses to variation from EER predictions

Noted that migration has been tested using data from July to October; caribou are arriving later and later; Golder tried extending the analysis into November and then the collars do follow predictions. They are not seeing a long-term effect.

Q: What is the concern with shifting migration? Normal for there to be some change in biology/

A: May have effects on where caribou are able to travel to. Could fragment the herd. In general there are less caribou and they come through the mine area later.

Q: Next steps for behavioural observations? Disappointed with lack of behavioural data near the mine. MSES would like to improve this and suggested having more mines collect data. There is not much description for the behavioural data they do have. Has Golder tried non-parametric analysis? This can work on low sample sizes.

A: Analysis was last done in 2011, and minimal data collected since then; doing another analysis likely won't help.

Q: could Diavik expand the time period for observations?

A: there is no restriction. They bring crews in autumn, but if caribou are on site at other times the staff do observations.

Staff will update wildlife recommendations and send to Board for review and approval through email motion.

Action Item: request written comments on the 2016 WMR and CAR from ENR.

9 Cont.

Motion: *Accept the revised letter to Diavik with EMAB's comments on the 2016 EAAR*

Moved: Adrian D'Hont

Seconded: Charlie Catholique

Motion carried.

13) IEMA Update - postponed

11) Closure (cont.)

Action Item: Staff will assemble all comments and send by email for review and approval next week, or following.

ES presented her analysis

- EMAB was quite unsatisfied with community engagement on original version of NCRP closure plan
- Diavik has done a lot of engagement since
- Current version includes community views and TK Panel views and identifies which is which
- Diavik included records of engagement with a good level of detail

- Outstanding concerns from communities
 - Caribou safety – EMAB should make a recommendation on grain size specifications
 - Revegetation – there is general agreement that there should be some revegetation around the NCRP – EMAB should make a recommendation on this.

Noted that any revegetation should be done with local species.

14) Board Member Update and Community Concerns (Roundtable)

Napoleon Mackenzie left meeting at 4:45; Charlie Catholique chaired the remainder of meeting

Jack Kaniak – KIA

- Essential that board members are present when EMAB is having important discussions

Adrian D’Hont – NSMA

- Don’t have a long history with EMAB like Arnold. NSMA wants closure that the people support.

Julian Kanigan – GNWT

- Good for ENR-Wildlife to hear concerns from EMAB and hopefully will give them a push to review the reports – EMAB should make recommendations on this.
- EMAB is doing a good job at inviting the regulators to our meetings
- Found schedule tough with having two meetings in three weeks
- Trying to be present as much as possible

David Wells – Diavik

- Requested an extension on the 2016 EAQMP Report – Board had no concerns

Charlie Catholique – LKDFN

- Hard to attend with work schedule
- Covered a lot of information at this meeting
- Concerned with who will be next EMAB Chair

Next Meeting

Next meeting is tentatively Sept 11 -13

Chair asked for minute of silence

Meeting Adjourned at 5:00 pm