Red Dog Mine Draft Risk Assessment Meeting with joint Kivalina IRA and City Council April 20, 2005 (11:00 a.m. to about 1:15 p.m.)

Questions and comments raised by attending members of the Kivalina IRA and City Council on April 20, 2005 held at Kivalina City/IRA building regarding a summary of the upcoming presentation on the findings of the risk assessment of the fugitive dust issue from the port to the mine by Jim Kulas.

City Council members present: Richard Sage (Vice Mayor), Austin Swan, Lucy Adams, Alice Adams and Myra Henry.
City Council Administrator: Lulu Swan

IRA members: Nelda Swan. Also present, Colleen Swan the IRA council administrator.

Others present: Enoch Adams, Jr. and Dolly Foster (NANA resource specialist)

Teck Cominco representative: Jim Kulas
Exponent presenter: Scott Shock
DEC attendees: Rich Sundet and Lindsay Smith

Kulas gave a brief overview of the risk assessment process and encouraged individuals to attend the upcoming slide presentation of the findings to be given by Scott Shock later that day at the Kivalina school.

Comment - Did DEC use the information that it collected the last time they were at Kivalina?
Response-Sundet- Yes we used that information that was obtained on the type of food that you use and we did pass that written information back to Kivalina and Noatak representatives and to Teck Cominco for review. Then we provided that information to Exponent who used it in determining what species and food items to include in the risk assessment.

Comment - Did the risk assessment sample the same berry areas as in 2001 and did you document the weather patterns?
Response – Shock - Yes we did collect berries in 2004 at one of the previous sampling locations located just north of the port site (at the south end of Ipiavik Lagoon), so that we could compare with the 2001 results. In addition, we sampled two of your other harvest locations, one to the north and one to the south of Kivalina. We also documented the weather at the time of the sampling, and analyzed both washed and unwashed berries. [**Additional Note**: The 2004 concentrations at the south end of Ipiavik were lower in 2004 than they were in 2001. Also, the berry concentrations at Ipiavik in 2004 were not statistically different than those at the locations in the Kivalina area.]

Comment - Was sampling done after a big rain because the results then may not adequately inform us whether there was a risk?

Response – Shock - Good question. I believe there was some rain beforehand. [**Additional Note**: Variability in berry concentrations as a result of weather factors is not expected to significantly affect the results of the risk assessment. This is because the amount of berries eaten is much less than the amount of other foods such as caribou. These other foods which are eaten in much larger quantities contribute more greatly to the results of the assessment than the berries do. However, it is likely that there will be additional berry sampling at some frequency in the future, as mentioned in the next response.]

Comment - We would like more sampling effort and are concerned how the wind and rain affects the sampling. Also, were samples taken in the same places that were sampled in previous years and if so, were they collected from the south side of the port? Also, did you sampled during the times when people were actually collecting berries?
Response – Shock - It is likely that there will be ongoing monitoring at some frequency.

Response – Kulas - If the weather and timing are a concern to you, we can coordinate with you when and were to do the next berry sampling. [**Additional Response**

Response – Teck Cominco will take this request to the Subsistence Committee for their guidance].

Response – Shock - Samples collected at the south end of the Ipiavik lagoon where collected in the same location in 2004 as they were in 2001, so that the results could be compared. The samples were collected in late July/early August, with coordination with Kivalina, and Joe Swan participated in the sampling.

Comment - Are the findings inconclusive based on what you just heard?
Response – Shock - No because we evaluate the sensitivity of the risk assessment results to these types of uncertainties. The amount of berries eaten is small compared to the amount of other foods, such as caribou. Therefore the amount of metals taken in from berries does not contribute significantly to the overall metals intake.

Response - Kulas and Shock - There are a number of conservative assumptions taken by the model in the risk assessment.

Comment - Berries are an important part of our diet especially for the elders at a certain time of the year.
Response-Shock- I did not mean to imply that berries are not important. We assumed that all of the food eaten is 100% subsistence food (no grocery store foods) and we used the State of Alaska's database information on subsistence foods intake amounts (including berries) for Kivalina and Noatak to assist us in this evaluation (i.e., Fish and Game's Community Profile Database).

Comment - Did you address the moss that the caribou eat?
Response – Shock - Yes we evaluated that as well. We used the moss data in our assessment of the caribou, as part of their diet.

Comment - Most of our food is for subsistence. Not all communities eat the same things.

Response – Shock - We used only that information which is in the database (i.e., Fish and Game) that was specific to Kivalina and Noatak.

Comment - Why do you merge the Noatak and Kivalina data as the communities use different foods?
Response – Shock - We looked at both Kivalina and Noatak in our assessment, with harvest areas specific to each village. But our emphasis is really on Kivalina, and the subsistence foods data collected in areas surrounding the road and port areas because it is more conservative.

Response –Kulas - Again this is weighing on the conservative side so the risk assessment is really focused on the Kivalina people.

Response -Shock- [**Additional Note**: We combined the database information for Kivalina and Noatak and used that to evaluate three types of people; children, adults, and adults workers. The assessment results only vary a little if each village is looked at separately, and would not change the conclusions. We will add a section to the risk assessment document or to the formal comment responses to describe those differences.]

Comment - What would happen if a person got *everything* they eat from around the port and road? Did you account for that in the risk assessment?
Response – Shock - Yes we did. In the assessment, we assume all of the foods consumed are subsistence foods, and we only used the subsistence foods data that were collected from the areas around the road and port, to be most protective.

Comment - Do the metals accumulate?
Response – Shock - It is different for various contaminants. Metals do not typically accumulate the way that some organic chemicals like PCBs do. Mercury is known to accumulate, but mercury concentrations were very low in our samples.

Comment - Is there a study for elders versus other age groups?
Response - Shock- We look at three different age groups: children, adults, and adults that work at the mine.

Comment - Doesn't the time of the year impact the findings?
Response – Shock - Somewhat, but for berries they are not a large part of your diet, as compared with caribou. Also, we used only the berry data that was from the port and road areas and not the berry data collected near Kivalina because that is a more health protective approach.

Comment - We use freshwater from Umayutsiak Creek which is located about 2 miles south from the port and also use freshwater from another one creek next to it and are they safe?
Response – Shock - We collected water samples from the creeks that cross the road. All freshwater sampled was found safe. [**Additional Response** – The creeks that cross the road would be expected to have higher concentrations of metals than creeks further away from the road if those metals come from fugitive dust. Since water in creeks crossing the road is safe, creeks further away should also be safe. However, Teck Cominco is willing

to address your concerns of the water quality in these areas – please let us know what you need.]

Comment - We have a lot of animals crossing the road. How far will that animal carry the dust?
Response - Kulas and Shock- We did not sample the animals for that. The important thing to evaluate is intake by the animals and by people eating the animals.

Comment - What latitude does DEC have on the timeline to public notice the risk assessment?
Response – Sundet - We have a lot of latitude from say 5 days to whatever, but typically we notice a document for 2-4 weeks. We elected to notice this draft report for 45 days because of the size and complexity.

Response - Can we ask for a longer review period?
Sundet- Yes but I have discussed this with Bud Rice of the National Park Service and Rebecca Bernard of the Trustees for Alaska and both indicated that was ample time to hire a contractor to review the document as well as review the document themselves. So, if you do want to make a request, there must be a substantive rationale.

Comment - Where do you see the effects of the contamination?
Response – Shock - Close to road, mine, and port facilities.

Comment - Did you factor into the risk assessment that we have been exposed already for 10-14 years to contamination from the mine? Also, was your sampling done after Teck Cominco performed a lot of their improvements to minimize the dust?
Response – Shock - Most of the sampling data was gathered between 2001 and 2004, and many dust control improvements have been made during that time. However, in the sense that metals accumulate in soil over the period of operation, soil incorporates the deposition over that period. The biggest intake people have of metals is from soil, as compared with food. We use soil concentrations from road and port facilities areas, to be most conservative about the soil concentrations people might be exposed to. Also, with regard to subsistence foods, we assume that subsistence eating has been, and will be on-going for life.

Response - Kulas- The State did the blood testing and that is another way to look at it.

Comment - The State did not give advance notice as we requested two years ago. We received only a one (1) day advance notice to the IRA council from the State that they were coming to test our blood. We could have had a public meeting. The object was that we could have informed the people through the IRA council. We believe that the findings are therefore, bad.
Response - Shock- We had nothing to do with the blood sampling. You should talk to the State's Health and Social Services (HSS) who did the sampling. We did not rely on the HSS study in the risk assessment, but we did look at it. There were some individuals that were tested during both the 1991 and 2004 sampling effort.

Comment - But that was not many individuals because we did not receive advance notice.

Comment - You are starting on the wrong foot and are not listening to us.

Comment - You need to take in data over some periods.
- I bet that the risk assessment document does not look at it over time.

Response – Shock - The risk assessment provides results that are like a snapshot in time, based on lifetime exposure to conditions as they are at present. We recognize that there are uncertainties in the risk assessment evaluation, but we look at all of those uncertainties and variables and consider what issues need to be evaluated in the future. [**Additional Note**: There will need to be some level of ongoing monitoring to assess changes relative to current conditions.]

Comment - My husband has a periodic inflammation in his ear. His doctor stated that something caused the inflammation. He worked at the mine in 1991.
Response – Kulas - Was that when he worked as a bear watcher at the port during that work there?
Comment - Yes.
Kulas - I will look into that and get back to you with an answer.

Comment - Sometimes our susceptibilities are higher than whites, e.g., tuberculosis and pneumonia, and mortality rates are higher, and sometimes that type of information is missing.
Response – Shock - The risk assessment does not focus on individual health histories. [**Additional Note**: The risk assessment uses assumptions that help to account for the possibility that some people might be more susceptible to health effects from metals exposure. This includes "safety factors" that are included in the toxicity factors for the metals when specific information about susceptibility is not available (e.g., for cadmium a 10-fold safety factor is used, which means that we are assuming that a person might be as much as 10 times more susceptible to a health effect).]

Comment - When do you see the symptoms, i.e., from the metal contamination?
Response - Shock- Most metals pass through, but lead does accumulate in bones. However, the risk assessment looks at the accumulation issue over long periods of time. [**Additional Note**: The risk assessment takes exposure information along with toxicity information to assess the possibility of effects. No adverse effects are predicted from the risk assessment.]

Comment - Did small mammals show problems by the road?
Response – Shock - The results of the models suggested the potential for effects in areas close to the road, port and mine.

Comment - Would that problem transfer to large animals?
Response – Shock - Metals will be taken up by a large animal to a degree, but the risk assessment takes this information into account.

Comment - Most of the older employees are now retired. My father got lung problems after a short two-year stay working at Red Dog Mine and he was a good employee. I worked there for nine (9) years in the laboratory and now I have lung and health problems. You need to take a look at the older employees. You need to perform those studies because we are not funded. Yes I have lung problems, but I can't say where it started. My father died of asthma.

Comment - Most of the lead is accumulated into the lungs.

Comment - I believe that lead inhaled is not subsequently metabolized so that it stays in the lungs.

Response – Shock - Most dust that is inhaled works its way up as mucus and then gets swallowed. This is accounted for in the risk assessment. [**Additional Note**: Lead does not accumulate in the lungs. The very small fraction from dust that makes it to the lungs is absorbed into the bloodstream and cannot be distinguished from the lead that is absorbed from the gut after swallowing it. The lead model used in the risk assessment assumes some lead is absorbed through the lungs.]

Comment - Are children included in the risk assessment?
Response – Shock - Yes.

Comment - Were there other metals that you looked at?
Response – Shock - Besides lead and zinc, we evaluated a whole list of other metals that are present in the ore concentrate.

Comment - Is this study part of the big report for the port expansion?
Response – Kulas - What you are referring to is the study by the port that is being performed by the U.S. Army Corps of Engineers (COE). They have asked for the risk assessment report. The risk assessment is completely separate from port study, but I expect that they will use the risk assessment information in their review.

Comment - What model did you use?
Response – Shock - We used several models to evaluate risk. For example, we used the EPA child and adult models for lead.

Comment - Will there be more opportunities to test our blood?
Response - Kulas- I believe that you can have Maniilaq Association test your blood at any time you request it.

Comment - That last blood testing was bad because it was done in November 2004 when the AFN meeting was on-going and no one was available in Kivalina.

Comment - I take offence that DEC arrived on a Teck Cominco charter and do not trust DEC. For example, in 1997 DEC was perceived against Kivalina on a water issue.

Response – Sundet - In remote areas and we (DEC) are offered transportation, we go with the operator/owner's transportation. DEC does not have a perceived opinion and comments are taken in fairness whether it is from you, Shock or Kulas. [**Additional Note**: DEC bills their time to Teck Cominco regarding its oversight activities associated with this contaminated site. DEC's oversight to this project is the same as for other projects in that the Contaminated Sites program reviews work performed by the responsible party (RP) and bills that party for that activity. DEC staff often accompany the RP or its consultant on inspections and in remote sites, this often needs to be well coordinated. In some cases, DEC accompanies the RP on charter flights and stays at their facilities, e.g., Shemya Air Station or Red Dog Mine, because they are the only facilities that are available in the area].

Comment - You are not hearing us. Our concerns are with our water and those concerns will continue when you will be long gone.

Comment - We are concerned for the long-term.

Comment - Who are those on the Ikayuqtit Team?
Response- Kulas - Kulas described who the beginning team members were (Teck Cominco, Nana Corporation, Alaska Industrial Development and Export Authority (AIDEA) and National Park Service (NPS) then what groups the Ikayuqtit Team later invited to meetings such as EPA and DEC and environmental groups.

Comment - Can the Kivalina IRA also be part of the Ikayuqtit Team as I do not recall getting an official notice that we are part of the team, only that we can participate occasionally as guests?
Response – Kulas - I can't approve this request by myself. The core Ikayuqtit Team needs to grant approval, and that includes representatives of the NPS, NANA Corporation, Teck Cominco and AIDEA. I can make that request for you though. [**Additional Response** – The membership of the Ikayuqtit Team was set at the time of formation, however, to facilitate the sharing of information, meeting attendance has been expanded to include all interested stakeholders (including the Kivalina IRA)].

Comment - Is EPA involved?
Response - Sundet- Yes. Julie Wroble a risk assessor with EPA in Seattle was involved earlier but she delegated the review of the draft risk assessment report to Marc Stifelman who is also an EPA risk assessor in Seattle. I talked to Marc two weeks ago and informed him of the risk assessment schedule and he stated that he would be reviewing the draft document.

General comment - Several individuals expressed that they as a community wanted to be more involved in the actual study and this would have helped them put more faith in the results that came out of the risk assessment. They also mentioned that they felt disadvantaged by not being able to hire their own consultant to do the review of the risk assessment.

The meeting ended at about 1:15 p.m. and Kulas encouraged individuals to attend the slide presentation at the Kivalina school's gym which would begin around 1:30 p.m. today.