

Red Dog Mine Risk Assessment Meeting with members of the Ikayuqtit Team and invited Visitors April 25, 2005 (1:00 p.m. to about 5:00 p.m.)

Questions and comments raised by attending members of the Ikayuqtit Team and its visitors on April 25, 2005 held at the NANA Corporation building in Anchorage regarding a slide presentation on the findings of the risk assessment of the fugitive dust issue from the port to the mine by Scott Shock.

Teck Cominco representatives: Jim Kulas and Wayne Hall

Exponent presenter: Scott Shock

DEC attendees: Rich Sundet and Lindsay Smith

Attendees:

Robert Winfree, Julie Hopkins and Bud Rice of National Park Service (NPS);
Jerry Booth (Booth and Associates – Consultant) ;
John Wood of Alaska Industrial Export Authority (AIDEA) and AIDEA's legal counsel Susan Reeves;
Chuck Greene, Rosie Barr, and Paul Glavinovich of NANA w/ Roberta Lee taking notes;
Hilda Booth and Wanda Page (Noatak, IRA);
Meg Schlesinger of Northern Alaska Environmental Center;
Scott Brennan of Alaskans for Responsible Mining;
Jim Stratton of National Parks Conservation Association;
Greg Kellogg (EPA);
Millie Hawley, Betty Swan and Becky Norton (Kivalina);

On teleconference:

Scott Arnold of State of Alaska Health and Social Services;
Lynda Giguere of DEC
Greg Linder, Bill Brumbaugh and Edward Little of U.S. Geological Survey;
Colleen Swan (Kivalina IRA); and,
Amy Crook of Center for Science in Public Participation.

Kulas gave a brief overview of the risk assessment process and then Shock gave a slide presentation of the findings at 1:45 p.m.

Comment –Rice– What is the distance of the haul road that is shown on the figure that is colored in purple?

Response – Shock –The purple area is approximately 3 miles on either side of the road. This figure is simply a schematic showing the general areas evaluated in the risk assessment. The ambient air boundary for the road is not shown on this map. [Additional note: The ambient air boundary is 300 feet on either side of the road centerline. The length of the road is approximately 52 miles from mine to port.]

Comment– Hawley – Why isn't the bearded seal on the list to be sampled?

Response – Shock – We will talk about the marine environment soon but it is basically because metal concentrations were low in the marine water and sediment thus, the marine environment was screened out from further review at this time.

Kulas – Aside from the Risk Assessment we are going to conduct a study on bearded seal because of Kivalina's concerns. We have found a person that does bearded seal studies in northwest Alaska (Lori Quackenbush of Fish and Game) and have hired her to conduct a study with samples from Kivalina's seal harvest.

Comment –Alaskans for Responsible Mining – Did you begin collecting data before the workplan was finalized?

Response – Yes before the formal comments were submitted. [**Additional note:** We had preliminary comments on the work plan, and given the limited field season, we did proceed with the 2003 field effort prior to finalizing the work plan.]

Comment – Rice – It sounds like that metal concentrations are decreasing. If there were high metal concentrations, could there have been a past exposure from those higher levels?

Response – Shock – The marine sediment has been sampled in the past, but the metals that we are talking about do not bioaccumulate. [**Additional note:** Yes, there could have been a higher exposure in the past. However, even the earlier concentrations were not that high, and were localized near the port facility. The risk assessment is designed to evaluate example types of people (children, adults, and adult Delong Mountain Transportation System (DMTS) workers) that are more highly exposed than individuals would be in reality. In this way, it is protective for many types of conditions in the past or in the future, as well as conditions in the present. In addition, in the risk assessment it is assumed that media (e.g., soil) concentrations close to the port and road are representative of concentrations spread over a wide area, as much as several miles from the port and road, which would not be the case in reality. Because of this, exposure concentrations are overestimated to a degree much larger than any potential differences in exposure concentrations from the past relative to current concentrations.]

Comment – Winfree – I understand then that there are two reasons why metal concentrations have decreased in the marine environment which are because of 1) ocean currents and, 2) source reductions.

Response – Shock – You are correct. The ocean is a very dynamic environment with the wind, waves, currents, and icepack working the sediments and dissipating metals, as the dust inputs have decreased over time through improved source controls.

Comment – Colleen Swan – What will DEC do for monitoring?

Response – Sundet – As I stated in Kivalina last week, we and others are currently reviewing the risk assessment document and it is premature to state what type of monitoring we will require or other types of requirements we will impose on Teck Cominco.

***Comment** – Colleen Swan – I am asking that more monitoring be done regarding the berry sampling.

Response – Sundet – Again, it is premature to impose further requirements until we finish our review, however, I will note your comment for consideration.

***Comment** – Colleen Swan – We would like to see a bigger berry sampling program.

Response – Kulas – We will take your comment and bring it before the subsistence committee. That is what I have previously told them that I would do.

Comment – Winfree – Were the changes you observed in samples collected in the tundra taken in the grids in the figure associated with road dust? [Note: Referring to grids used for vegetation surveys.]

Response – Shock – Yes they were associated with road dust. We attempted to differentiate between changes that might be caused by metals, and changes resulting from physical road dust deposition that you might see by any other gravel road in a tundra area. However, the study could not differentiate between these two possible causes. It is possible that the observed changes were caused by some combination of both factors.

Comment – Little – Was the effect the same on each side of the road?

Response – Shock – Data from dustfall collectors and from the NPS studies have showed higher metal concentrations on the north side of the road. Therefore, we focused our data collection on the north side of the road.

Comment – Linder – What is the basis for drawing conclusions at the population level?

Response – Shock – The basis for conclusions at the population level is that potential effects were predicted in a relatively small proportion of the area studied (i.e., the areas close to road and facilities). [**Additional note:** The other factors that come into consideration are 1) the low magnitude of exceedance of hazard quotients, 2) for some CoPCs (chemical of potential concerns), the fact that the endpoints examined in the toxicity reference value (TRV) studies were not particularly severe effects (e.g., growth not mortality) and that the degree of effect was small or moderate, 3) uncertainties related to bioavailability of metals which probably result in over-estimation of exposure.]

Comment – Winfree – The studies that you are referring to in the caribou slide, was that based on your (Teck Cominco/Exponent) studies or from studies elsewhere that are cited in literature?

Response – Shock – The study was conducted at Red Dog in 2002. We compared the results with studies from the literature (which is what the slide refers to). [**Additional note:** The analyses shown in the slide are described more fully in a report included in Appendix H of the risk assessment.].

Comment – Brennan – How many caribou were sampled?

Response – Shock – The subsistence committee worked with Fish & Game and sampled five caribou near the road down toward the port and five near the mine. The muscle, kidney and liver were sampled from those caribou, and we used that information in the human health assessment portion of the risk assessment. [Correction: six caribou were harvested near the road, and 4 were harvested near the mine. Further discussion is provided in Appendix H of the risk assessment.]

Comment – Brennan – How many caribou were in the herd?

Response – Kulas – About 750,000 animals are in that herd. The caribou are mostly migratory but the 10 that were harvested overwintered in the port, road or mine vicinity. [Additional note: if metals from the DMTS affect metals concentrations in caribou, the animals used in the study would have a higher likelihood of showing those effects than other animals in the herd. Because they had overwintered at the site, they would have had a higher potential for exposure. Despite this, metals concentrations in the study caribou looked much like metals concentrations in caribou from other areas of Alaska and the rest of the world.]

Comment – Brennan – Are you confident that 10 animals is adequate for this analysis and are you comfortable that they spent time in the area?

Response – Shock – It is a small dataset, but sampling these animals is a significant undertaking. These caribou were harvested opportunistically because they apparently had overwintered there. Comparisons with other Arctic caribou databases show similar results. What we have been discussing was the 2002 study. In 1996, there also was another caribou study performed at the Red Dog Mine and during that study, another 10 caribou were harvested and sampled the same way and showed results similar to the 2002 study.

Comment – Norton – You sampled every six years? Was there a difference between 1996 and 2002?

Response – Shock – The data are consistent between the two sampling events, and are consistent with reference data from elsewhere in Alaska.

Comment – Rice – Were age classes of the caribou sampled for lead as metals do accumulate in marrow and bones so in older animals the metals would bioaccumulate?

Response – Shock – The animals were aged, but we did not observe any statistical difference by age. [Correction – Data were reviewed with age, and kidney cadmium was significantly correlated with age. Age correlations were not significant for other metals. Further discussion is provided in Appendix H of the risk assessment.] [Additional note: It is possible that lead might accumulate in the bones of older animals, but lead is primarily stored in the mineralized portion (i.e., the hard part) of the bone, not the marrow. In addition, the proportion of marrow eaten relative to other parts of the caribou, such as muscle or liver, is small and would not likely be a great contributor to exposure.]

***Comment** – Rice – The NPS requests that future monitoring/sampling be done in animals for lead in marrow and bone.

Comment – Brennan – Despite all those good questions, you may have sampled the wrong part – i.e., not including bone – so this raises a higher level of uncertainty.

Response – Shock – Studies show that local people eat mostly muscle so while there is some uncertainty, we are confident that the animals are safe to eat. [Additional note: See note above regarding the proportion of marrow consumption relative to other foods,

and the fact that lead is primarily stored in the mineralized portion of bone. Also, our analysis shows little or no consistent difference between metals concentrations in caribou that overwintered near the DMTS and caribou from elsewhere. The lack of differences in comparison with reference data appears to be consistent regardless of the specific organ or metal. Thus, there is no reason to believe that metals would be preferentially increased in bone marrow, which is not a significant lead storage organ.]

Comment – Brennan – I am concerned that your comment that the food is safe may not be fully accurate.

Response – Shock – I understand your concern. However, we have included many health-protective assumptions in the assessment, so that builds in many factors of safety. Despite uncertainties, the level of exposure of people in the villages is likely to be lower than the scenarios modeled in the risk assessment. We believe that the assessment is protective, and that subsistence foods are safe to eat.

Comment – Glavinovich – Didn't Fish & Game oversee this study and didn't they raise this question?

***Response** – Kulas – Yes Fish & Game did oversee the study but they did not raise this question. There will be a continued caribou study program.

Comment – Norton – When did you sample?

Response – Kulas – Both caribou studies were done in the spring to harvest the animals that may have eaten the lichen with the metals over the winter.

Comment – Barr – What assumptions did you make when you stated no effects were observed for the caribou?

Response – Shock – [**Additional note:** The slide referred to indicates no effects are expected for the typical migrating caribou, and that there is a possibility of slowed growth for an overwintering caribou.] We sampled the foods that the caribou eat, and we used that data to model the amount of metals taken in by the animal. Then we compare that data with laboratory studies to look at the effects at different exposure levels and that is how we look at what effects may occur on the animal. [**Additional note:** We compare empirical measurements of exposure with effects thresholds derived from controlled laboratory studies using surrogate species. We assume that the effects seen in laboratory species would likely be seen in wildlife at comparable dosages. Therefore, if the ingested dose, as estimated based on measured metals concentrations in plants and conservative assumptions about food ingestion rates, is less than the no-effects concentration as determined from laboratory studies, then we can conclude that no effects are expected for caribou.]

Comment – Barr – Did you assume that the animal spends its life within the air boundary at the port or the mine?

Response – Shock – For small mammals, we assume the animal lives in small home ranges at different distances from the port or road facilities including adjacent to these facilities. However, for a larger animal that ranges over a larger area we evaluated several scenarios, for animals that might live near the mine, or near the road, or near the

port, or range over the whole area. For caribou, we evaluated both animals that would migrate through in a short time, as would most of the herd, and animals that overwinter near the port, road, or mine areas.

Comment – Kulas – Which metals are an issue?

Response – Shock – Aluminum and barium were predicted by modeling to be an issue for small mammals, near to the mine boundary, and near the road and port. Aluminum is found everywhere, including on any gravel road in Alaska, because it is a major component of the earth's crust. [**Additional note:** Although some effects were predicted for small mammals from aluminum, this is based on lab studies that use a more bioavailable form of aluminum, so it is possible that effects may not actually be occurring in the field.] Barium is found in higher concentrations around the mine and in the waste rock from the mine. When you travel further away from the mine, levels decrease. The modeling predicted potential for effects to small mammals from barium. However, this is based on a forms of barium used in laboratory studies that may be more bioavailable than the forms found in the tundra. [**Additional note:** For overwintering caribou, it was aluminum that was predicted by modeling to potentially cause reduced growth of overwintering animals.]

Comment – Linder – What information did you use from EPA regarding aluminum and barium?

Response – I believe that we developed this information from literature but it is noted in the risk assessment document. [**Additional note:** Toxicity information for aluminum and barium was gathered from EPA and other literature sources. The human health toxicity assessment is provided in Section 5.3 of the risk assessment, and the toxicity reference value development for the ecological risk assessment is described in Section 6.5.2 of the risk assessment.]

***Comment** – Hawley – We eat all bone marrow and nothing is wasted. We also feed the marrow to our children. I suggest that you test the marrow from the animals. What studies did you use before 1989 and what are those results?

Response – Shock – The caribou studies at Red Dog were performed in 1996 and 2002. The data collected from those two studies were from muscle, liver, and kidney.

[**Additional note:** Pre-1989 data are not available for Red Dog, so we compared 1996 and 2002 study results with reference data from other regional studies and other literature data. With regards to bone marrow consumption, as noted in response to previous comments, lead is stored in the body primarily in the hard mineralized portion of bones, not bone marrow, which is considered a different organ and does not preferentially store lead.]

Response – Kulas – [**Additional note:** Red Dog is committed to periodic continued caribou studies because of their importance to the people – we will attempt to include marrow sampling in future work].

Comment – Hawley – Were any studies done in the 1980s prior to the mine starting up?

Response – Shock – We have regional data and when we compared the 1996 and 2002 caribou data to the regional data, it shows comparable results between our studies and the

regional studies. [**Additional note:** Environmental baseline studies were conducted in the early 1980's prior to development of the mine. However, pre-1989 caribou data are not available for Red Dog, as described above.]

Comment – Hawley – Is it safe to eat the liver which we do eat?

Response – Shock – Yes. The Alaska Fish & Game database record studies of how much liver and kidney people eat, and that data was included in the risk assessment, which found that the subsistence foods are safe to eat. [**Additional note:** The Alaska Fish & Game database indicates how much caribou people eat. The amount of caribou liver and kidney people eat was calculated by taking into account caribou liver and kidney weights as a proportion of total edible tissue, as reported by the Alaska Division of Public Health. This is described in Section 5.2.1.2.7 of the risk assessment.]

Comment – Norton – I suggest talking more with locals before and after a study. I also suggest that you talk to hunters from the villages.

Comment – Schlesinger – Did you perform any nesting studies? Did you perform any second generation studies?

Response – Shock – No we did not perform any behavioral studies. The risk assessment evaluates potential effects to survival, growth, and reproduction of animals and plants, but not necessarily behavioral changes. [**Additional note:** We didn't perform any second generation studies, but many of the toxicity reference values (TRVs) we used in food web modeling are based on chronic exposures, and sometimes entail multi-generational exposures. The endpoints in such studies typically relate to reproductive performance, therefore if chronic or multi-generational laboratory studies do not indicate that reproductive or second generation effects are likely to occur, we assume that the same holds true for wildlife exposed in the wild.]

***Comment** – Rice – I have heard that metals are basically not bioavailable. However, for long-term I believe that they can be oxidized and take another form which can be bioavailable. Therefore, I suggest that long-term monitoring occur.

[**Additional note:** Bud Rice may be referring to the concentrate study that found the bioavailability of the lead in concentrate from Red Dog to be low.]

Comment – Colleen Swan – The NPS and DEC had some previous comment that the metals were not totally unbioavailable.

Comment – Brennan – I would like to see some more studies occur on this issue.

Response – Kulas – These compounds start in one form and over time change to another form such as zinc sulfite to zinc sulfate, and as sulfate is not necessarily any more bioavailable.

Response – Shock – [**Additional note:** To be protective, in the ecological risk assessment, all metals were assumed to be 100-percent bioavailable. Also, in the human health risk assessment, all metals other than lead were assumed to be 100-percent bioavailable. For lead, both the site-specific bioavailability from the Red Dog ore-concentrate studies and the EPA default bioavailability were used, so results can be evaluated both ways.]

Response – DEC– [**Additional note:** The definitions of bioavailability and bioaccumulation are the following: Bioavailability – The propensity of the chemical to be absorbed into the bloodstream across the gastrointestinal tract, skin, or lungs. For metals, different physical or chemical states of the metals can affect bioavailability.

Bioaccumulation –The tendency of the chemical to accumulate in biota (plants animals or humans.)

Comment – Betty Swan – Do metals accumulate also in human bones?

Response – Shock – I'm not a toxicologist but for example – for lead we used EPA models for children and adults, which simulates the blood lead concentrations, and we use that to assess the potential effects. [**Additional Note:** Some metals, for example lead, may accumulate in human bones. EPA's child lead model accounts for the amount of lead in various parts of the body, including bone. EPA's lead models use exposure information and what is known about how lead moves through the body to predict blood lead levels. The predicted blood lead level can then be compared to blood lead levels at which there may be a health effect. Currently, the best information available about the health effects of lead is related to blood lead levels. The relationship between bone lead levels and health effects is not well characterized. So even if bone lead levels were available for people residing near the DMTS, it would not be possible to draw any conclusions about the potential for health effects.]

Comment – Betty Swan – I see a cloud of dust towards the mine all of the time.

Response – Kulas – What you see is a cloud from our burning of diesel fuel. The diesel exhaust can become trapped as a result of temperature inversions. Our dust is not occurring as large clouds. We also have meteorological data and use that information to determine areas of deposition. We also did air monitoring in Noatak and Kivalina and the lead levels seen were 200 – 300 times lower than the EPA regulatory levels for air.

Comment – Betty Swan – You state that it is safe to pick berries and we pick berries by the port.

Response – Shock – We used data from the berry studies within the port and along the road to be conservative [health protective] in our evaluation, although those areas within the ambient air boundaries are off limits to berry pickers because of safety issues associated with the mine's activities. We also used data from another location just north of the ambient air boundary (from the south end of Ipiavik lagoon). We harvested ptarmigan along the DMTS, and caribou near the road and port. Using all of the subsistence foods data collected near the road and port in the risk assessment, we found that the subsistence foods diet is safe, and it is safe to eat the berries whether inside or outside of the port boundary (although again, harvesting inside the boundary is off-limits).

Comment – Betty Swan – What about the water, did you study it?

Response – Kulas – We do perform monitoring on Kivalina's drinking water and so does EPA and DEC. All the results show that the water that you use for drinking is safe.

- Shock – We also sampled the creeks that cross the DMTS road and we found that is safe also. The water data was included in the risk assessment analysis.

Comment – Winfree – The Executive Summary of the report shows no consistent effect on fish. Was there any inconsistent effect on fish?

Response – Shock – Fish & Game did those studies in creeks crossing the road, and they generally did not detect any metals concentration differences in fish attributable the road.

Comment – Winfree – Regarding macroinvertebrates, were the referenced streams impaired by runoff [from the road]?

Response – Invertebrate results from the streams that cross the road were generally similar to results from streams in the reference area several miles away in the prevailing upwind direction from the road. The reference area is not mineralized like the road and the mine areas.

Comment – Wood – Did the risk assessment include addressing aluminum and barium?

Response – Shock – The risk assessment began investigating lead, zinc and cadmium, but during the revised workplan we did a screening of the metals in the ore concentrate, and aluminum and barium were two of the 14 or so metals that were retained for further evaluation in the risk assessment.

Comment – Winfree – Isn't aluminum in the form of aluminum silicate that is found in rock that is not part of the mine and that the barium found is part of the ore concentrate?

Response – Kulas – The material that we built the port road from had aluminum in it, as does all rock. Barium is part of the ore and the waste rock, but is very low in the ore concentrate. We are seeing changes in vegetation along the DMTS road but feel this is more due to normal road dust than it is to ore concentrate.

Comment – Linder – Is the traffic consistent on the DMTS?

Response – Kulas – Yes the traffic is consistent year round.

Comment – Winfree – Is the term industrial site applied to the port?

Response – Kulas – What we are referring to is the area within the ambient air boundary. The area inside of that boundary is not open to the public and the area outside of that boundary is available to the public for use. The ambient air boundary is located 300 feet from the centerline of the DMTS road, the ridge tops around the mine and about ¼ mile around the port on the tundra. [**Additional Response** – the port air boundary is larger than what was stated. It is approximately a mile around the port and totals about 6 square miles.]

Comment – Winfree – Where did the 300 feet boundary by the road come from?

Response – Kulas – When the DMTS road was developed, there was a 300 foot easement and we continued to use that measurement as the ambient air boundary along the road.

Comment – Rice – On the truck spill that you discussed, did you do something to address it?

Response – Hall – The NPS gave us some requirements and we used that criteria to clean-up those truck rollovers and performed revegetation. [**Additional Response** – Kulas – all spill sites were sampled to confirm there was adequate original clean-up. Those that required more work were excavated and confirmed clean with follow-up sampling. Sites outside the park will be hydroseeded. Those within the park will be left to naturally re-vegetate as per the Park Service's request.]

Comment – Norton – When I was at Sitka, they talked about long-term negative effects of a mine and I am concerned for my children.

Response – Kulas – That is why we are developing a closure plan to ensure things like that do not happen. [**Additional Response** – the closure plan is required by state regulations and it will include a financial assurance agreement that sets aside money for the State to use for further cleanup or reclamation activities if necessary.]

Comment – Rice – I think that Teck Cominco has installed a lot of good improvements, but can you do some better washing of your trucks during the winter to minimize tracking of the dust?

Response – Kulas – We focused first on the port area and feel confident that we have improved source reduction there for the dust. At the mine, we installed a similar system as at the port but we are evaluating that system. We are still washing at the mine in the summer and will continue to do so until we reach a point when we are comfortable that the other system at the mine works. [**Additional Response** – winter weather does not allow us to wash the trucks due to the safety problem of freezing brakes – instead our focus is on changing the loading and unloading systems so that the trucks don't get dirty.]

Comment – Colleen Swan – You have not talked about wastewater going into our drinking water and not just total dissolved solids but the chemicals added during the mining process. I see yellow deposits in my cooking pots in which I boil water. It used to be white so I know it is in the water treatment system that you may use to take out the lead and zinc but something remains that I think is in the dissolved solids. We also still see dead whitefish in freshwater.

Response – Kulas – We have and continue to give you the total dissolved solids data. We use lime to raise the pH of the water, this causes the metals to settle but leaves elevated calcium sulfate in the water we discharge. [**Additional Response** – Red Dog's TDS is virtually all calcium sulfate – this substance is the chalky material in sheetrock. Studies have shown that the levels that we discharge to the river are not harmful to fish or humans. Drinking water studies have been done at Kivalina and no elevated levels of any contaminants were found – the water is safe to drink].

Comment – Colleen Swan – Our health effects continue to grow over the years. It is not our fault and we do not have the resources to study such things. We need to teach our children to learn to tell whether something is safe or harmful.

Comment – Becky Norton – The fish we eat do not taste the same.

Comment – Winfree – The NPS share the concerns that the people have expressed. I toured the mine last year and observed the controls that Teck Cominco have implemented to decrease the fugitive dust. These controls are the best that I have seen at any mine that I have visited. I appreciate that Mr. Kulas has come today to present the information to everyone.

Comment – Colleen Swan – I have only seen that Teck Cominco makes improvements after they are caught doing something. [**Additional Comment** – Kulas – Red Dog is committed to operating in an environmentally sound manner. Problems that have been encountered in the past have been addressed. We work extensively with the Subsistence Committee and through community meetings to respond to stakeholder concerns].

The presentation by Shock for the risk assessment ended at about 4:50 p.m. Several questions continued.

***Comment** – Greene – I request that a summary be made available of the risk assessment that was discussed today regarding what traditional information is available.

Response – Kulas – Yes we can provide this. We did gather this information at the beginning of the risk assessment process.

*Shock – During the meetings at Kivalina and Noatak during the early portion of the risk assessment process, we gathered that information from the attendees. I do not know whether we have put that information into the risk assessment document or not, but we certainly can do so. [**Additional Note:** The information gathered in meetings in the villages on traditional subsistence foods usage was compiled following those meetings, subsequently included in the work plan, and is also included in the risk assessment in Table 2–4.]

Comment – Norton – We have that information.

Response – Kulas – That is one of the issues that the subsistence committee brings to the table. [Also see **Additional note** above.]

Comment – Norton – That is fine if they addressed this issue.

Comment – Greene – Regarding the bone marrow, what are the next steps?

***Response** – Kulas – We can include that in the next study.

Comment – Barr – There is other historical data available that was compiled in the 1980s that should be looked at as well such as the Ernest Burch study that looked at subsistence use patterns in NW Arctic villages.

Response – Shock – There were environmental baseline studies conducted in the early 1980's, however, they did not have data for all of the media or metals that we needed data for in the risk assessment. That is why when we collected samples in the field, we also collected similar samples from reference areas for comparison. [**Additional Note:** The baseline studies included information and maps describing subsistence use patterns in the villages of the area. These maps were used in the risk assessment. Also, the State

has a subsistence consumption database, which is where data on consumption rates of different food types was obtained for use in the assessment.]

Comment – Greene – What about the dead whitefish?

Response – Kulas – We have stated before that we would have those dead fish analyzed and Enoch Shiedt also would do this for the Maniilaq Association.

Comment – Brennan – How can a lay person address such a large document?

Response – Shock – I recommend that you start with the Executive Summary and Conclusions to get an overview of the results and identify issues of interest to you, and go from there into looking further at the details of the assessment.

– Sundet – DEC is always open for suggested extensions but I talked to the NPS and the Trustees for Alaska and they thought that the 45 day public comment period was adequate. If you make such a request for an extension, please provide a rationale for the request.

– Winfree – I suggest that an extension be granted by DEC for a longer time to review the risk assessment document.

– Brennan– I second that request for an extension.

Comment – Colleen Swan – Do you have any more CDs of the draft risk assessment report?

Response – Kulas – We can make them available to you.

– Shock – I will have some CDs sent to you.

– Hawley – I would like a CD?

– Sundet – I brought an extra CD along so you can have this one.

Comments – unknown – Where were fish collected?

Response – Juvenile Dolly Varden were collected by Fish and Game in several streams that cross the road. These data were reviewed in the ecological risk assessment. For the human health risk assessment, fish collected by Fish and Game in 1999 through 2003 from the Wulik river were used in the assessment.

Comment – unknown – We are seeing elevated cancer levels in small communities.

Response – Kulas – We encourage you to use the local health care agency (Maniilaq) to address your individual health concerns.

The meeting ended around 5:00 p.m.