

Appendix H

Responses to Written and Oral Comments on the Draft SEIS

Author Name: Adams, Bert—Individual

Comment ID # 1.001

Response

Thank you for your comment.

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Monday, February 02, 2009 10:28 PM
To:
Subject: Fw: Akkaluq Deposit Draft

----Forwarded by Patricia McGrath/R10/USEPA/US on 02/02/2009 09:23PM ----

To: Patricia McGrath/R10/USEPA/US@EPA
From: Burt Adam <esun43@yahoo.com>
Date: 02/02/2009 06:34PM
cc: Kulas Jim RDOG <"Jim.Kulas."@teck.com>
Subject: Akkaluq Deposit Draft

Ms. McGrath

My name is Bert Adams I'am married with 4 children and lots of grandchildren. I and my family have lived in Kivalina all our lives.

I have been a public servant for the better part of my life and have been appointed, elected to local public offices. Currently I am the Mayor of Kivalina but personally speaking on behalf of myself.

Ms. McGrath, I cannot stress or say how the Reddog Mine have been "a blessing" for a lack of a better word to this Region. For the jobs it has provided to the shareholders to bring food to the table, to pay for gas costing \$7.15 per gallon, heating fuel at \$7.75 per gallon, the electric bill I recieved 2 days ago \$800.00 plus.

As far as subsistance activities go,the true,real hunters have probably seen some changes which is expected in Mining activities. As far as the not so lucky couch potatoes go you can draw your own picture, who just complain. However, both Kivalina and Noatak have their own Subsistance Committees, this is very powerful committee which can shut the Mine without the help of EPA. Ms. McGrath I can go on and on....

I am in support of Alternative B and I encourage the EPA to finish the permitting as soon as possible. If you have any questions feel free to call me at 907-645-2143.

Response

Red Dog Mine Extension – Aqqaluk Project
Meeting on Draft Supplemental Environmental Impact Statement and
Draft National Pollutant Discharge Elimination System Permit

Author Name: Argetsinger, Don—Individual

Comment ID # 2.001

Response

Thank you for your comment.

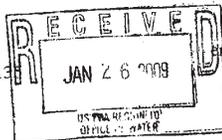
Name: Don ARGETSINGER www.ReddogSeis.com
Date: 1/19/09
Organization: Self
Mailing Address: PO Box 241914 Anchorage
Email Address: DARGETSINGER@AT.NET 99524
Comments:

2.001

I support Alternative B
Cominco and NANA have managed
RED Dog very responsibly
these past years. The mine
makes a tremendous positive
social and economic contribution
to the lives of a great
many Alaskans both within the
NANA region and across the state.
Expansion of the property using
the Alternative B guidelines will
be a tribute to Aqqaluk, a
man whom I was privileged to
know and work with.

Return written comments at the meeting or send to the EPA by email or fax no later than
February 3, 2009.

Ms. Patty McGrath
US EPA Region 10
1200 Sixth Avenue, OWW-13
Seattle, WA 98101



Fax: (206) 553-0165
Email: mcgrath.patricia@epa.gov

Response

January 31, 2009

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101
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Fax: (206) 553-0165

Author Name: Atoruk, Wilbur—Individual

Comment ID # 3.001

Response

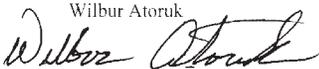
Thank you for your comment.

3.001

We are truck drivers for NANA Lynden and have been working at the Red Dog Mine. I have driven concentrate trucks on the haul road for over 19 years. I am a lead driver for NANA Lynden and a NANA shareholder who grew up in the region. Our job at Red Dog is to drive trucks on the haul road from the mine to the port. This involves up to three round trips a day. We have a company policy concerning caribou migration that is strictly followed. Whenever we drivers encounters caribou on the road, we stop a good distance away and allow the caribou to go whatever direction they are going. There are no exceptions to this policy, and no driver violates it. Sometimes we are stopped for most of the day. This is done not just in the fall when the caribou herd is migrating, but also at other times of the year when small bands of caribou or single caribou are encountered. During migration times when large numbers of caribou are moving, haul road traffic is shut down until the caribou pass. In our minds, the truck traffic on the haul road has not caused the caribou to avoid the road or the area, especially during migration.

Anyone who has grown up near caribou herds and spent time watching and hunting caribou knows that they don't always follow the same migration routes from year to year. They may use an area or path for a few years, and then change to a different way the next year and for a few years after that. There are many reasons why this may happen. The biologists have theories, but it seems that only the caribou know why. In closing, we hope that permitting for Aqqaquluk under proposed Alternative B will be approved in order to continue mining activities through 2031. Thank you for allowing us to add our comments on this matter.

Sincerely

Wilbur Atoruk


Response

Author Name: Brownlee, Kevin—Midwest Steel Industries

Comment ID # 4.001

Response

Thank you for your comment.

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Kevin Brownlee
Organization: Midwest Steel Industries, Inc.
Address: 9000 Dry Creek Road
City, State Zip: Belgrade, MT 59714
Email: midwest@midind.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

I have skimmed through the documents at <http://www.reddogseis.com>. I approve of the proposal.

I also want to say that my company has done business with the folks at TeckCominco Red Dog Operations for quite a few years now. I want to express in the most sincerest way possible that the people we have dealt with are a “class act”. The character and professionalism of these folks at the Red Dog Operations adds a positive “peace of mind” element to their proposal that I urge you to consider.

Thank you for this opportunity to comment.

Kevin Brownlee
President and General Manager
Midwest Steel Industries, Inc.

4.001

Response

Author Name: Author: Smith, Mark—Crowley Petroleum Distribution

CROWLEY

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101

Feb 3, 2009



RED DOG MINE EXTENSION - AQQALUK PROJECT

Ms McGrath,

Crowley has served the unique fuel and transportation needs of the NW Arctic for over 50 years. During the life of the Red Dog Mine we have had occasion to do business with NANA and Teck Cominco and have found them fair, prompt and professional. We value the business they provide as it helps us efficiently use our dedicated marine assets. Without a large customer like the mine in our area, the remaining fuel customers will ultimately pay a higher price per gallon for their fuel.

5.001

In addition to their substantial contribution to the overall fuel and freight market, Red Dog provides a tremendous influx of wages to the NW Arctic in the form of payroll. With private sector jobs in most small villages in the single digits, Red Dog's employment of shareholders and other locals likely makes up 80% of private sector jobs outside the hub village of Kotzebue. Crowley's business depends on the viability of local villagers being able to pay for fuel and freight services.

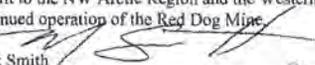
5.002

As in many rural areas, there are scant opportunities in the NW Arctic for residents to develop technical skills. Crowley has directly benefited from training provided to the labor pool. Crowley along with other businesses have hired ex-Red Dog employees who have developed a variety of skills while employed at the mine. The extensive training in both job skills and safety awareness at the mine are immediately transferable to other positions that might otherwise have been filled by an out-of-region worker.

5.003

The original sea-lift of the mine modules was done by Crowley in the 1980s. Then, and in subsequent years, Crowley has seen first hand the commitment by Teck Cominco to operate in an environmentally responsible manner. No corners are cut, instructions to vendors are clear, and on-site personnel are fastidious in making sure all operations and transfers are completed in strict compliance with regulations.

Alternative B, Applicants Proposed Action, is endorsed by Crowley who sees profound benefit to the NW Arctic Region and the Western Alaska general in general by the continued operation of the Red Dog Mine.


Mark Smith
VP Sales – Crowley Petroleum Distribution

OPTIONAL FORM 99 (7-02)

FAX TRANSMITTAL # of pages = 1

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RETROBOND
301 ARCTIC SLOPE AVENUE
ANCHORAGE, ALASKA 99508

HSN 7040-01-317-7948 5010-105 GENERAL SERVICES ADMINISTRATION

Comment ID 5.001

Response

Please see Section 3.17 for a discussion of socioeconomics.

Comment ID 5.002

Response

Please see Section 3.17 and Appendix G for a discussion of training and education.

Comment ID 5.003

Response

Thank you for your comment.

CENTER for SCIENCE in PUBLIC PARTICIPATION

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"Technical Support for Grassroots Public Interest Groups"



February 3, 2009

Patty McGrath
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Fax: 206-553-0165
mcgrath.patricia@epa.gov

**Re: Comments on the Aqqualuk Project Draft Environmental Impact Statement,
Tetra Tech, December 2008**

Dear Ms. McGrath:

6.001 I appreciate the fact that EPA, as a part of its analysis of the options in the DSEIS, identified an environmentally preferred alternative for concentrate transport that clearly addresses one of the major environmental concerns with the operation of the Red Dog Mine. While it is recognized that neither EPA nor any other of the cooperating agencies in the DSEIS can legally require that a concentrate pipeline be built as a part of the permits required for the Aqqualuk Project, the analysis provided in the DEIS does help greatly in identifying the long-term benefits of this option related to the potential elimination of additional heavy metal contamination from dust along the DeLong Mountain haul road, and the significant reduction in traffic conflict with wildlife along the road that would result.

While the capital cost of construction of a concentrate pipeline is understandably significant, in addition to the environmental benefits of the concentrate pipeline, the decrease in long term operating costs for concentrate shipment should more than recover this investment.

6.002 The time to build the concentrate is now. There are two reasons for this. First, infrastructure for the pipeline will be subsidized by the need to construct the wastewater pipeline, to which Teck Cominco has already committed. This should reduce the capital cost of the concentrate pipeline significantly. Second, the major economic savings in transporting concentrate by pipeline will be realized in the Aqqualuk deposit. The Main Deposit contained approximately 24 million tons of ore. The Aqqualuk Deposit contains approximately 61 million tons of ore. The Paalaaq Deposit, an underground deposit, contains 13 million tons of ore, and the Qanaiyaq Deposit another 5 million tons. Both of these deposits are located at the present Red Dog site.

6.003 There are three more remote deposits, 12 miles or less from Red Dog – Anarraaq, 17 million tons; the Su Deposit, 38 million tons; and, the Lik Deposit, 27 million tons. Ore from these deposits would need to be transported to the present mill for processing, but it is still likely the most cost-effective approach, as opposed to building a new mill at the Su-Lik site.

Most of the production from Red Dog and associated sites is in the future, but to realize all of the cost savings from a concentrate pipeline, it should be built before along with mining the large Aqqualuk deposit.

Response

Author Name: Chambers, David—Center for Science in Public Participation

Comment ID: 6.001

Response

Thank you for your comment. While some residents of Kivalina have voiced concern about the noise associated with dewatering activities at the port, EPA continues to believe that the concentrate and wastewater pipelines represent the environmentally preferred alternative. The installation cost would have a minor effect on the royalties paid to NANA; however, the effect would be short-lived and outweighed by the beneficial reductions in both dust and traffic. As you note, the concentrate pipeline is identified as EPA's environmentally preferable alternative, although EPA cannot require that Teck build the pipeline. While the SEIS includes gross estimates of costs for construction of the pipeline (Section 3.17.3.3), EPA does not have access to the level of detail that would be necessary to conduct a valid cost-benefit analysis between capital and operating costs of the pipelines versus the savings realized by eliminating concentrate hauling operations.

Comment ID: 6.002

Response

Comment noted. While construction of the wastewater pipeline would 'subsidize' the cost of installing the concentrate pipeline to a degree, the concentrate pipeline itself (HDPE-lined steel versus HDPE), the pumps necessary to move the material to the port, and additional generation capacity at the port all represent a substantial additional cost. The costs are discussed in detail in Section 3.17.3.4.

Comment ID: 6.003

Response

Comment noted. For purposes of the SEIS, EPA is only considering development of the Qanaiyaq Deposit as being reasonably foreseeable. All the others are considered in terms of their being in the exploration phase for the cumulative effects analysis.

Response

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SECTION-SPECIFIC COMMENTS

Section 2.2.4 – Enhanced Dust Control

Constructing year-round truck washes at the mine and the port would significantly cut down on the amount of zinc, lead and cadmium that is released along the haul road. With the advent of the use of hard-topped concentrate trucks, most of the contaminated dust will come from concentrate dust that gets on the outside of the concentrate trucks as they are loaded at the minesite, unloaded at the port site, and to a lesser extent as they drive on the minesite.

The hard-topped concentrate trucks were placed in service in late 2001. However, in a subsequent USGS report¹ that analyzed dust conditions along the DeLong Mountain road in 2005-2006, it was noted that dust related problems along the haul road continue:

“Thus, as of 2005, dispersal of mine ore wastes or concentrates by vehicles appeared to remain a potential source of metals along the DMTS road.”

and;

“Although procedures have been implemented in recent years to reduce the quantities of metal-enriched fugitive dusts, particulates dispersed near the road during the winter of 2005–06 were enriched in metals and these particulates contributed considerable metal loadings to the nearby terrain.” (USGS Scientific Investigations Report 2008–5040, p. 23)

In reviewing additional information in the DSEIS from Table 3.2-9 Summary of Mobile Emissions, it appears that Alternative D, which includes implementation of the year-round truck washes, would offer an approximate 20% decrease in the amount of dust over Alternative B. (It is also appropriate to note that Alternative C, the concentrate pipeline, offers an 88% decrease.) The 20% decrease is very significant because almost all of this reduction is directly correlated to dust that contains heavy metal contamination – that is, this dust reduction should theoretically eliminate most, if not all, of the heavy metal contamination along the DeLong Mountain road.

Recommendation: *Given the continuing detection of metals in dust along the DeLong Mountain road, efforts to reduce the level of contamination should continue. If the concentrate pipeline, which would be the most effective way to reduce heavy metal contamination from dust, is not built, then the year-round truck washes should be installed to lessen the amount of heavy metal dust contamination along the haul road.*

Section 2.3.3 – Waste Material Disposal

In this section it is noted that “... waste material with a high metal leaching potential will be placed ...” There is no explanation in the DSEIS of how waste material is classified for its metal leaching potential, and how “high metal leaching potential” is defined.

Recommendation: *An explanation of how waste rock is classified, and in particular how waste rock with “high metal leaching potential” is defined and will be identified during mining activities is needed in the SEIS.*

Comment ID: 6.004

Response

EPA agrees that efforts should remain focused on reducing the amount of fugitive dust associated with concentrate transportation, particularly that which is associated with concentrate itself. While requiring truck washes is outside EPA’s authority in issuing the NEPA ROD, we identified year-round truck washes as a mitigation measure in the SEIS and we recommend that Teck install and operate year-round truck washes to reduce the extent of metal-contaminated dust.

Comment ID: 6.005

Response

Teck’s management of waste rock has been presented as part of their closure plan. Prior to blasting, core samples would be analyzed for metal content to determine (1) whether the material is waste versus ore and (2) the content of the ore for stockpiling (blending) purposes. Material with greater than 6 percent sulfide would be considered to have high metals leaching potential. The text in Section 2.3.3 of the final SEIS has been clarified.

6.004

6.005

¹ Scientific Investigations Report 2008–5040, “Elements in Mud and Snow in the Vicinity of the DeLong Mountain Regional Transportation System Road, Red Dog Mine, and Cape Krusenstern National Monument, Alaska, 2005–06,” William G. Brumbaugh and Thomas W. May, U.S. Department of the Interior, U.S. Geological Survey.

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Section 2.5 – Mitigation and Monitoring

It is noted in this section that "... EPA and the cooperating agencies continue to discuss how some of these (monitoring) measures may be incorporated into permits and/or decisions." (DSEIS, p. 2-36, emphasis added)

There are two monitoring measures of particular concern to this reviewer.

1) First, there is the long term stability of the tailings dams. It is noted in the DSEIS Section 3.4.3.1 that "... there are concerns with long term stability due to the rise in phreatic surface within the main tailings dam and a lower than accepted safety factor." It is also noted that "ADNR has indicated that they will address these issues in their dam safety approval process for the final lifts of the dam."

6.006

Although the ADNR dam safety permit may indeed be the appropriate place to address these problems, the dam safety permit process is not transparent to the public. This is partially due to the technical nature of this permit, but the result is that communication on dam safety issues is largely confined to the applicant and ADNR. The public can ask for written records of these communications – if the public is aware this communication process is going on.

Recommendation: *Since dam stability is an integral part of the evaluation taking place in this SEIS, we ask that ADNR formally commit, as a part of this SEIS process, to keep the interested public informed of correspondence on Red Dog tailings dam issues by either developing a distribution list of interested parties, i.e. all those commenting on this DSEIS, or by posting all tailings dam-related correspondence to the ADNR website page on the Red Dog mine.*

2) The second area of particular concern to this reviewer is contaminated dust monitoring along the DeLong Mountain road, at the minesite, and at the port site.

From January 1 to December 31, 2007, DEC and Teck entered into a Memorandum of Understanding.² The purpose of the MOU was to:

"... better identify and understand:

6.007

- potential historic and current sources of fugitive dust emissions at the Mine;
- reasonable control measures that can be implemented to reduce these emissions over time;
- the likely source of the elevated metals in the tundra around the Mine; and
- the likely impact, if any, of these elevated metals concentrations over time."

Part of the MOU agreement was that monitoring information would be published on a DEC website, and indeed this was done in 2007. Since the memo expired on December 31, 2007, there has been no new information posted on the DEC website. The MOU process has apparently stopped – at least as far as public interaction is concerned.

As a part of this MOU process Teck Cominco was to develop a "... Risk Management Plan in the second quarter of 2007..." (ADEC – Teck Cominco Fugitive Dust MOU, p. 3) As of the date of these comments no Risk Management Plan has been published. The Risk Management Plan is cited in the DSEIS as a solution to the dust monitoring issues (Section 3.2.3.1, p. 3-16), but the Plan has not been published, or a draft released for public review.

Comment ID: 6.006

Response

The State identified a lack of clarity in the draft SEIS with regard to the description of the long-term stability of the tailings dam. The factor of safety quoted in the SEIS was originally part of a sensitivity analysis that assumed there would be complete degradation of the geomembrane liner in the very long term. This would be mitigated by the construction of a wide beach behind the dam as indicated in Figure 3.12 in the draft SEIS (Figure 3.9 in the final SEIS). Teck is already incorporating a wide beach into the tailings dam operation, and continues to refine the understanding of the geotechnical stability of the dam. The State has addressed the SEIS clarity issues directly with EPA in an attempt to make the final SEIS more informative. The SEIS includes a mitigation measure that long-term stability concerns will be addressed prior to the final dam raise.

With regard to the request to post future information on its website, ADNR practice is and will continue to be making information available to the public based on a specific request.

Comment ID: 6.007

Response

Teck developed a draft Fugitive Dust Risk Management Plan (RMP) on August 26, 2008 for stakeholder review. The Draft Plan identified numerous mitigation measures to reduce fugitive dust and monitoring measures. However, it was not clear which measures will actually be implemented. According to the draft RMP these measures will be identified in six implementation plans that have yet to be developed. EPA would have preferred that the RMP, and the six implementation plans were completed by the time the SEIS was finalized, so that the SEIS could identify which mitigation and monitoring measures would be implemented. The SEIS process has continued to move forward since the timing for completion of the RMP and implementing plan(s) remains uncertain. Some of the mitigation measures identified in the draft RMP were included in the SEIS. EPA identified those mitigation measures in its December 16, 2008 letter to ADEC with comments on the draft RMP. These measures remain in the final SEIS. EPA, Corps and ADNR have worked with ADEC to describe, as accurately as possible in the final SEIS, the measures that can be required either within State permits, as part of the MOU, or would need to be implemented voluntarily on the part of Teck.

² Memorandum of Understanding Between the State of Alaska Department Of Environmental Conservation and Teck Cominco Alaska Incorporated Relating to Fugitive Dust at the Red Dog Mine (Restated and Amended Effective January 1,2007 through December 31, 2007), February, 2007.

Response

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EPA has also weighed in separately on the issue of dust monitoring. In a letter to ADEC on December 16, 2008, EPA asked that the points listed below be implemented:³

- Install year around truck washes at both ends of the DMTS.
- Implement an operational monitoring program to evaluate the effectiveness of dust control measures.
- Evaluate the potential for changes in mobility and migration of metals from oxidation or other changes in forms of minerals.
- Monitor health of local populations of voles, shrews, and ptarmigan.
- Monitor the health of local populations of fish at DMTS crossings that tend to be resident in the area.
- Develop and implement a monitoring plan to determine whether dust deposition from the Red Dog Mine is occurring within Noatak National Preserve.
- Monitor changes in the vertical distribution of metals in surface tundra and underlying soils.
- Monitor tissue concentrations in shrubs, herbaceous plants, mosses, and lichens to track rate of changes (1 year frequency).
- Monitor composition of shrub, herbaceous, moss, and lichen communities to evaluate community health and identify changes in community composition.
- Monitor remediated or reclaimed areas to ensure long-term effectiveness (at rollover sites and sites covered in risk assessment).
- Monitor metals concentrations in caribou.
- Recommend safe levels of consumption based on results of the caribou studies.

6.007
(cont)

6.008

Recommendation: *The ADEC – Teck Cominco Fugitive Dust MOU process should be reinitiated.*

Recommendation: *Meetings on the monitoring should be open to, and include, interested members of the public. Tribal entities and environmental groups would be interested in participating. EPA and NPS might also like to participate and actively comment.*

6.009

Recommendation: *Implement the EPA recommendations listed above as a part of SEIS related permits, or the Risk Management Plan. This will likely require a voluntary commitment from Teck Cominco to implement several of these items, including the year-round truck washing stations, and many of those issues that need to be incorporated into the Risk Management Plan.*

Section 3.3.3 – Geochemistry – Environmental Consequences

Table 3.3-5 – Short and Long (Term) Estimates of Chemical Concentrations in the Tailings Impoundment Derived from Mass Balance Modeling – lists the estimated water quality of the water remaining in the tailings pond post-closure. The post-closure cadmium and zinc levels are projected to be 0.02 mg/L and 25 mg/L respectively. Acute water quality for aquatic organisms for cadmium and zinc are 0.009 mg/L and 0.388 mg/L respectively. As can be seen, the projections for water quality in the post-closure tailings pond are well in excess of the acute aquatic water quality standard, so no aquatic life should be anticipated in the post-closure tailings pond.

6.010

It is also noted that “The long-term water quality in the Aqqaluk Pit is expected to be very similar to water quality associated with the current mine sump in the Main Pit.” (Section 3.3.3.3, p. 3-34) The water in the Main Pit is considerably worse than the water projected for the post-closure tailings impoundment.

³ Red Dog Mine, Draft Fugitive Dust Risk Management Plan, letter from Patty McGrath, Regional Mining Coordinator, United States Environmental Protection Agency, Region 10, to Rich Sundet, Alaska Department of Environmental Conservation, Contaminated Sites Program, December 16, 2008.

Comment ID: 6.008

Response

The fugitive dust MOU process is ongoing although it is being conducted outside the NEPA process.

Comment ID: 6.009

Response

Our understanding is that the development of the risk management plan has been a public process with input sought from within the region. While EPA agrees that broad participation in the process could be beneficial, a determination of the entities that may participate and how the process proceeds are outside both EPA’s authority and the scope of the NEPA process. Section 2.5 in the final SEIS identifies the authority associated with each mitigation measure or monitoring instance, including those that would be done voluntarily.

Comment ID: 6.010

Response

As long as mitigation measures are effectively implemented, aquatic life would not have access to either the reclaimed tailings impoundment or the Aqqaluk Pit. Section 3.9.2 discusses the effectiveness of hazing under current operations. Table 2.5-1 identifies hazing as a mitigation measure under wildlife to deter their use of the impoundment and pit lake. Section 3.9.3 in the draft SEIS noted that under alternatives A and B hazing would be employed as long as wastewater treatment was necessary to discourage the use of the tailings impoundment and (for Alternative B) the Aqqaluk Pit lake. The final SEIS has been modified to indicate that hazing would be employed under all alternatives as long as water treatment was necessary.

Response

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Aquatic life in the post-closure tailings pond or Aqqaluk Pit Lake aside, birds and terrestrial wildlife will probably have access to the tailings pond and Aqqaluk Pit Lake after post-closure. It is not clear that levels of contamination in the post-closure tailings pond and Aqqaluk Pit will be protective of birds and terrestrial wildlife.

Recommendation: *There should be discussion of the potential risks to birds and terrestrial wildlife that might be exposed to water in the tailings pond and Aqqaluk Pit Lake, and potential mitigation measures, if required, outlined.*

Section 3.4 – Geotechnical Stability

“... the maximum design earthquake has a 2 percent chance probability of exceedance in 50 years.” (DSEIS, p. 3-36) Or, to express this probability in another way, the maximum design earthquake has a 100% probability of exceedance in 2500 years. This means that in the next 2500 years there is 100% probability that the Red Dog minesite will experience an earthquake large enough to seriously damage or destroy the integrity of the tailings dam.

A conservative design criterion for a tailings dam is to use the maximum credible earthquake (MCE) as the design basis earthquake. The MCE is generally considered to be a 1 in 10,000 year event – four times longer than the standard used for dam construction.

The choice of the present design basis earthquake is unfortunate, because the tailings dam is almost at its maximum height, and the only way to bring the dam up to a higher earthquake standard is to add a buttress to the downstream side of the dam. This would be very expensive at best, and, depending, on the size of the buttress required, could be difficult to construct.

This is a relevant issue in light of the seepage problem with the main tailings dam (see Section 3.4.3.1, p. 3-43). If the phreatic surface rises in the dam, then the dam becomes more susceptible to seismic-induced failure.

Recommendation: *An analysis should be undertaken to determine what would be required to increase to design stability of the tailings dam to the MCE.*

Section 3.4.2.5 – Stability Evaluation

It is noted that “The waste rock dump is considered generally stable, and has a low probability of failure.” (emphasis added) This is the only discussion of waste rock dump stability.

Waste dump static or seismic failures could lead to a significant increase in ARD, and would require significant time and funds to remediate.

Recommendation: *More detail is needed. Were static and dynamic failure evaluations preformed? What were the results?*

Section 3.5.3 – Water Resources – Surface Water – Environmental Consequences

Wastewater treatment discharge will require a mixing for either Red Dog Creek or to the Chukchi Sea.

1) Red Dog Creek Mixing Zone

It is noted that “The draft (NPDES) permit includes mixing zones for ammonia, cyanide, and pH that extend 1,930 feet from the confluence of the Middle Fork and North Fork of Red Dog Creek to Station 151 in the mainstream of Red Dog Creek.” (DSEIS, p. 3-69) A mixing zone with varying limits for TDS extends from the confluence with the North Fork to Station 160, a total of approximately 12 miles.

Comment ID: 6.011

Response

Design of dams is addressed through the State of Alaska’s Dam Safety Program. EPA does not have the authority to require a specific seismic design for the tailings impoundment dam. While the SEIS analyzed the geotechnical stability of the tailings dam, the analysis requested by the commenter is beyond the scope of the SEIS.

Comment ID: 6.012

Response

The stability of the main waste rock pile has been evaluated several times during the history of the project. Most recently, this was assessed in 2002 by Golder & Associates (Golder 2003) as summarized in SRK 2005. The stability evaluation addressed both static and dynamic (seismic) conditions. The evaluation showed that the pile was stable at the time of the analysis and provided recommendations to ensure stability in future construction. These recommendations have been adopted by Teck as the pile continues to be expanded. Additional text on waste rock pile stability has been added to the final SEIS.

Comment ID: 6.013

Response

Much of this comment refers to the draft NPDES permit and Clean Water Act 401 certification. Section 3.10.3.3 of the final SEIS specifically describes the impacts of the mixing zones, including that there would be no barrier to or impacts on passing organisms.

6.010
(cont)

6.011

6.012

6.013

Response

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Alaska regulations provide that a mixing zone must not form a "... barrier to migratory species (or fish passage)..." (18 AAC 70.250) The mixing zones for cyanide and ammonia both cross the mouth of the North Fork of Red Dog Creek.

6.013
(cont)

The North Fork is a known migratory route and spawning area for grayling. It is not clear in either ADEC's authorization of the mixing zone in its 401 certification, or in EPA's Fact Sheet on the NPDES Permit, why the mixing zone across the North Fork of Red Dog Creek, which exceeds chronic standards for cyanide and ammonia, would not form an avoidance barrier to migration of grayling into the North Fork.⁴

Recommendation: ADEC and EPA should affirmatively demonstrate that the mixing zone for cyanide and ammonia would not form a barrier to migration to grayling, or the mixing zones should not be authorized.

2) Chukchi Sea Mixing Zone

6.014

If the wastewater and/or concentrate pipeline is utilized, discharge to the Chukchi Sea would require a mixing zone. (DSEIS, p. 3-71) The mixing zone would be required for ammonia, copper, chlorine, cyanide, nickel, and zinc. It is assumed in the DSEIS that a mixing zone (approximately 10 feet in radius) would be granted. There is no discussion of what would be required in the way of additional treatment to achieve water quality standards on discharge to the Chukchi Sea.

Recommendation: An analysis and discussion should take place in the SEIS of the treatment options available, and the costs incurred, for treating discharge water to the Chukchi Sea so that a mixing zone would not be required.

Section 3.17.3 – Socioeconomics

6.015

The DSEIS does not contain any economic calculations or references to the long term savings associated with transport of concentrate via pipeline (which is why pipelines are used over truck transport), and cost estimates for construction of the concentrate pipeline don't appear to be totally defensible.

For example, the estimated cost of the "Berm and Wastewater Pipeline" is \$6 million, but the cost of adding the concentrate pipeline to the port is \$81 million – 13.5 times as great as the cost for the wastewater pipeline (Table 3.17-33). Why the construction of the concentrate pipeline is so much more expensive than construction of the wastewater pipeline is not apparent, especially since the cost for construction of the wastewater pipeline alone, which includes a berm along the DeLong Mountain road, is the same in Alternative D (Table 3.17-34), where it is a stand-alone pipeline, as in Alternative C, where it is one of three pipelines.

It should also be recognized that construction of the wastewater pipeline, to which Teck Cominco has committed as a part of legal settlement with the Village of Kivalina, would in essence subsidize some the costs of construction of a concentrate pipeline since a berm along the DeLong Mountain road will already need to be built, and equipment necessary to construct the pipeline would already be onsite for construction of the wastewater pipeline.

Recommendation: The costs, and benefits, from a concentrate pipeline should be reanalyzed.

⁴ It is noted that in the ADEC 401 Certification that although the Permit also allows a mixing zone for pH from the discharge as high as 10.5. This could conceivably act as a barrier to fish migration. However, the pH at Station 20 (located just upstream of the junction of the Middle and North Forks of Red Dog Creek) is reported to be "... above 6.5 at Station 20, and is approximately 7 at the mouth of the Main Stem (the junction with the North Fork)..." (Fact Sheet, ADEC Draft 401 Certification, 1Dec08, Fact Sheet p. 26). This means that lowering the pH to the water quality limit of 8.5 would only make the pH at the mouth of the North Fork lower, and possibly lower than the water quality limit of 6.5, so the mixing zone for pH appears to be improving, rather than limiting, fish migration. If this is indeed the case, it should be so stated in the Fact Sheet.

Comment ID: 6.014

Response

The high density sludge process represents a proven approach to limiting pollutant loadings. Moreover, as discussed in Section 3.10.3.4 of the final SEIS, the effects of the treated Chukchi Sea discharge on marine organisms would be minor and localized to marine invertebrates in the immediate vicinity of the discharge. It is uncertain whether other technologies (e.g., membrane systems) would reduce loadings to levels that would not require a mixing zone. In addition, such technologies like reverse osmosis present operational challenges and would lead to other impacts (e.g., increased power demands and air emissions). For these reasons, no further treatment options were evaluated.

Comment ID: 6.015

Response

The costs of the pipelines in Section 3.17.3 have been revised in the final SEIS based on more detailed information provided by Teck. The current cost estimates include \$40 million for the wastewater pipeline (high density polyethylene [HDPE]), \$43 million for the concentrate pipeline (HDPE-lined steel) and \$26 million for the berm itself. The estimated cost of the diesel pipeline (steel) would be an additional \$35 million. The costs of the wastewater treatment plant and concentrate filtering/handling equipment are within reason based on current costs of technologies and construction in Alaska.

Section 3.17.3.5 – Socioeconomic Effects of Alternative D – Enhanced Dust Control

6.016 The cost estimate for construction of year-round truck washes is \$69 million, of which \$68 million is for construction of a water treatment plant (Table 3.17-34). The estimated cost of water treatment for the truck wash at the port is the same as for constructing a water treatment plant for concentrate effluent (\$68 million), even though there should be less effluent from the truck wash, and the truck wash effluent would be of significantly different chemical character than the concentrate pipeline effluent.

Recommendation: *Detailed cost justification is needed for the construction of a \$68 million water treatment plant to treat the effluent from one truck wash.*

Thank you for the opportunity to comment on this Draft SEIS.

Sincerely:



David M. Chambers

Response

Comment ID: 6.016

Response

The cost of the water treatment plant was erroneously included under Alternative D. That wastewater treatment plant was intended to treat the wastewater removed from the concentrate slurry. Since concentrate slurry is not a component of Alternative D, the cost has been eliminated in the final SEIS.

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February 3, 2009

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Re: Comment on Draft NPDES Permit and SEIS for Red Dog Mine

Dear Ms. Godsey, Ms. Shaw and Mr. Pilon:

The Center on Race, Poverty & the Environment files these comments and attachments on behalf of Enoch Adams, Jr., Leroy Adams, Andrew Koenig, Jerry Norton, and Joseph Swan, Sr., all residents of the Native Village of Kivalina (collectively referred to here as "Kivalina residents"). This letter comments on the Draft NPDES permit ("permit" or "draft permit"), the Supplemental

Response

Environmental Impact Statement (SEIS) and the State of Alaska’s §401 Certification (“Certification”) issued by the Alaska Department of Environmental Conservation (“ADEC”).

Author: Cole, Luke—Center for Race, Poverty, & the Environment

Comment ID: 7.001

Response

The final SEIS describes each alternative’s impact on the environment. Alternative B includes continuation of the wastewater discharge into Red Dog Creek under a reissued NPDES permit. The final SEIS shows that the reissued permit, which includes updated permit limits, would not have any adverse effects from current conditions. With respect to human health, the TDS limits in the reissued permit will ensure that TDS levels at Kivalina’s drinking water intake are indistinguishable from background levels in the Wulik River and will not impact human health. The commentor request that EPA adopt Alternative D. Alternative D (and C) replace the Red Dog Creek discharge with a wastewater pipeline that would transport the wastewater to an outfall in the Chukchi Sea. The marine discharge under alternatives C and D was developed and analyzed in response to scoping comments about the past, ongoing, and future discharge effects to Red Dog Creek, including those made by the Kivalina residents. EPA believes that the wastewater pipeline and marine discharge is environmentally preferable as compared to the Red Dog Creek outfall since it will allow Teck greater flexibility in managing the amount of wastewater in the tailings impoundment. However, it is not within our NPDES authority to require Teck to construct the pipeline and change the discharge point (see Section 2.7 of the SEIS). According to the schedule attached to the Consent Decree, Teck plans to submit an NPDES permit application for the marine discharge only after the Red Dog Creek NPDES discharge permit is issued, in effect, and no longer subject to appeal. If Teck submits an NPDES permit application for the marine discharge then EPA will work on developing an NPDES permit for the marine discharge. EPA’s rationale for the selected alternative will be provided in the Record of Decision (ROD).

Comment ID: 7.002

Response

Due to the general nature of the comment, the general response is that the draft SEIS is adequate under NEPA for the purposes of EPA and the Corps actions related to the Red Dog Mine and Aqaluk extension. The SEIS analyzes and discloses the effects of the proposed action and alternatives.

7.001

The Kivalina residents experience the operation of the Red Dog mine by Teck Cominco to have reduced the quality of their lives and changed the way they perform basic activities such as subsistence hunting and fishing. The Native Village of Kivalina is an Inupiat village on the Chukchi Sea, at the mouth of the Wulik River, downstream of the mine’s Outfall 001 on Middle Fork Red Dog Creek. The community obtains drinking water from the Wulik River, and hunts and fishes in the marine and terrestrial environment adjacent to the port and mine sites. As a result of Teck Cominco’s repeated violations of its existing NPDES permit, many of the commenters sued Teck Cominco in District Court to stop its illegal discharges, and believe that their drinking water quality has decreased because of the violations. Because of the mine’s discharges, the location and quantity of terrestrial mammals, marine mammals and fish that constitute their basic source of food has changed. Teck Cominco’s violations of the Clean Water Act deprive the commenters of the opportunity to exercise their traditional lifestyle without fear of illness or exposure to dangerous contaminants. Unless the EPA adopts Alternative D, the permit extension sought by Teck Cominco would make the activities that Kivalina residents observe as having a significant impact on their environment – violations of the total dissolved solids (TDS), cadmium, whole effluent toxicity, and cyanide effluent limitations, as well as monitoring and reporting violations – no longer illegal. Rather than forcing Teck Cominco to clean up its illegal discharges, the EPA is simply removing or relaxing many of those effluent limitations that Teck Cominco repeatedly violates. This is not protective of human health or the environment. They object to this dramatic loosening of the permit conditions in this draft permit, and strongly urge EPA to adopt Alternative D and require a wastewater pipeline from the mine to the port site, as envisioned in the Consent Decree in the Adams v. Teck Cominco litigation (a copy of the Consent Decree is separately filed as Exhibit 1; a copy of the Amended Complaint is separately filed as Exhibit 2).

CRPE is submitting under separate cover a number of exhibits to these comments, and those exhibits are incorporated here as if fully set forth. CRPE has also contracted with Robert Moran to provide expert analysis and critique of the SEIS and permit, submitted under separate cover and joined by the commenters here as if they were fully set forth here. To the extent that the other comments do not conflict with these comments, the commenters here also join in the comments made by the Trustees for Alaska on behalf of Becky Norton, and the comments of the Northern Alaska Environmental Center, as if they were fully set forth in this letter.

Please also note that although the comments in this letter are under particular headers making reference the SEIS or permit, all of the comments are directed at the SEIS, the permit and the State’s 401 Certification, where relevant.

I. SUMMARY OF COMMENTS

7.002

These comments cover both the process and the substance of EPA’s actions in reviewing and issuing a permit renewal for Teck Cominco’s Red Dog Mine. They make a series of related points:

Response

7.002 (cont) the NEPA analysis is not yet adequate as it does not yet adequately disclose, analyze and mitigate the impacts of the permit renewal, both specific and cumulative impacts. The permit and state certifications violate state and federal laws against backsliding and anti-degradation. Further, EPA must reject the state's 401 certification as illegal. Finally, Teck Cominco is a well-known environmental scofflaw, with thousands of violations of its permits which have occasioned enforcement actions by the United States, the Kivalina Relocation Planning Committee, and Kivalina residents; it is highly inappropriate to reward this repeated illegal behavior with a new permit which relaxes effluent limitations, in-stream concentrations and monitoring requirements. Instead, EPA should have tighter monitoring and greater enforceability in the new permit. The EPA should adopt Alternative D and require a wastewater pipeline as part of this permitting process.

II. THE SEIS FAILS TO ADEQUATELY DISCUSS THE IMPACTS OF THE RED DOG MINE EXTENSION AQQALUK PROJECT.

7.004 An environmental impact statement should include a discussion of the direct effects of a project and their significance. A mere recital of numbers or complex scientific data on the impacts is not sufficient. The EIS must also describe, in comprehensible terms, the significance of those impacts. This is necessary so that the public can draw reasoned conclusions from the information and effectively participate in the decision-making process.

Specific examples of deficiencies in the discussion of impacts in the SEIS include the following:

7.005 Section 2.3.6: The SEIS asserts that a diversion of Sulfur Creek may be necessary, as the creek currently runs through an area that would potentially be disturbed by the development of the Aqqaluk Deposit. This diversion is never discussed in the Environmental Consequences portion of the EIS. If there are no environmental consequences to such a diversion, that should be explained.

7.006 Section 3.2.2: Air Quality. According to the SEIS, only PM10 has been measured at the mine site, and that study was conducted in 2001 and 2002. Concentrations of other common air pollutants such as sulfur dioxide and nitrogen dioxide have not been measured at the mine site. Similarly, air monitoring was conducted in Noatak and Kivalina villages in 2003 and 2004, but only lead concentrations were measured. Zinc was not measured. Teck Cominco should undergo current air monitoring for all common air pollutants in and around the mine site, in order to establish and discuss the impacts the mine is currently having on ambient air quality. Although the SEIS shows a summary of air pollution sources at the Red Dog Mine (Table 3.2-7), the ambient air quality should be measured, which may uncover either miscalculations of the source emissions, or unanticipated cumulative effects.

7.007 Section 3.2.3.2: The SEIS indicates that 10 additional megawatts of power will need to be generated under Alternative A, requiring additional emissions sources in the permit. The generation of 10 additional megawatts of power will have an impact on air quality, yet that impact is not discussed, despite the ease with which such impacts could be determined and modeled.

Comment ID: 7.003

Response

This comment relates to the draft NPDES Permit and will be responded to in the Response to Comments document for the NPDES Permit.

Comment ID: 7.004

Response

NEPA requires a "full and fair discussion of significant environmental impacts." Where applicable, the final SEIS has identified and discussed potential effects that could be considered significant.

Comment ID: 7.005

Response

Additional text has been added to Section 3.10.3.3 documenting the potential effects to aquatic resources of channel modifications or diversions in Sulfur Creek. There would be no effects on fish because Sulfur Creek occurs above the fish barrier in Red Dog Creek.

Comment ID: 7.006

Response

The Alaska Department of Environmental Conservation (ADEC) has authority for ensuring that air quality standards are met and has established air permitting requirements for industrial sources with air pollutant emissions. ADEC cannot issue an air permit until it is satisfied that operation of the emission source will not cause or contribute to a violation of an air quality standard. An Air Quality Impact Analysis (computer modeling) is used to demonstrate that the air quality standards will be protected. Ambient air monitoring may also be required by ADEC for major sources (as defined in the Prevention of Significant Deterioration [PSD] regulations). Compliance with ambient standards has been demonstrated at the Red Dog Mine through computer modeling for common air pollutants as required by ADEC. In addition, Teck has completed ambient monitoring for PM₁₀ and lead. Ambient monitoring has not been required for other pollutants such as nitrogen dioxide or sulfur dioxide.

Comment ID: 7.007

Response

The method for generating the 10 megawatts of additional power that would be needed under Alternative A has not been determined. Potential air emissions from the electric generating equipment would depend on the equipment type selected, fuel used, and emission control equipment used. Additional text describing estimated emissions levels based on existing equipment has been added to Section 3.2.3.2 of the SEIS. ADEC would require a modeling analysis demonstrating that operation of the new equipment would not adversely impact air quality before issuing an air permit ADEC.

Response

7.008 Section 3.2.3.4 and 3.2.3.5: The SEIS provides no quantitative data on the anticipated increased air emissions from point (or other) sources under Alternatives C or D. In addition to having no discrete baseline air quality conditions upon which to base the impacts of the alternatives, there is no data associated with the alternatives upon which to calculate those impacts. No reasonable air quality analysis is possible given the information provided in the SEIS.

7.009 Section 3.3.2.4: The SEIS states that data on the specific biogeochemical forms of cadmium, lead, zinc, aluminum and iron strongly affects their bioavailability. The biogeochemical forms of those elements in the moss and soil along the DMTS was not studied for this SEIS, despite the fact that the forms affect the USEPA's ability to predict potential impacts associated with weathering in the future. The SEIS recommends that such a study is performed in the future when ADEC issues its waste management permit. However, the study seems imperative for the NPDES permit, since it clearly impacts the environment, and without the study, those impacts cannot be accurately predicted or mitigated.

7.010 Section 3.5: Table 3.5-11 indicates that many metals, such as aluminum, iron, lead, mercury, zinc and TDS, increase in concentration from the discharge point to downstream stations 151 and 160. Further investigation should be done to determine the cause of these increases. It is possible that those waters are naturally higher in metals, but it could also be the case that there are unaccounted-for seepages, or that prior violations of their permits has allowed Teck Cominco to contaminate creek sediments.

7.011 Section 3.5.3.3: The effects of a pipeline rupture under Alternative C are not discussed precisely enough. Vague descriptions of generalized impacts are offered, such as that different pipeline ruptures would have different impacts, different volumes of spillage will have different impacts, and that impacts may be either short-term or long-term. More information is required, such as the likelihood of rupture for the different pipelines, the most likely volume of spillage from the ruptures, the amount of time it would likely take to identify and stop a leak, and the impacts associated with the most likely scenarios for each pipeline.

7.012 Section 3.6.3.1: The SEIS discusses the seepage from subsurface thaw, but some information is missing:

- There is no quantitative data on anticipated flow rate due to the subsurface thaw.
- The SEIS states that a testing program was planned for spring and summer 2008, but there is no information from it, or indication that it was completed. Additional information will supposedly be used to improve the estimate of groundwater seepage into the pit area, but there is no indication of when this information will be used. It should be used prior to the permitting.
- Additional background groundwater and chemistry data will be collected and analyzed, but there is no indication of when.

Comment ID: 7.008

Response

The main differences in air emissions between Alternative B and C are that Alternative C would have reduced vehicle emissions on the DMTS road and some increased emissions from additional power generation needs. Mobile source emissions for each alternative are summarized in Table 3.2-9 of the SEIS. Power demands for the filter plant and diesel pump would be approximately 3 megawatts. The additional power requirements would be supplemented with a 100 kilowatt wind turbine; the other equipment, however, has not yet been determined. Potential air emissions from the electric generating equipment would depend on the equipment type selected, fuel used, and emission control equipment used. A modeling analysis would likely be required demonstrating that operation of the new equipment would not adversely impact air quality before an air permit is issued by ADEC. The analysis in the SEIS is reasonable, based on the information available regarding the alternatives.

Comment ID: 7.009

Response

A study of specific biogeochemical forms of cadmium, lead zinc, and aluminum is not imperative in order to reissue the NPDES permit, since the NPDES permit is related to wastewater discharges. The final SEIS notes that these contaminants have been present for a considerable period of time and have been investigated by ADEC through the risk assessment process which addresses the uncertainties in bioavailability. Based on the risk assessment, impacts have included effects on vegetation density and species composition as well as elevated concentrations in birds and small mammals in the vicinity of the operation (Exponent 2007). As further noted in the text, Teck has characterized metals mobility in soils in the vicinity of the mine and mill. ADEC is in the process of identifying mitigation measures that can be implemented to address the effects of the contaminants within fugitive dust; these measures are beyond EPA's authority and most effectively managed by ADEC.

Comment ID: 7.010

Response

Section 3.5.3.1 of the final SEIS correctly states that the discharge has a slight diluting affect on the water quality of the Middle Fork Red Dog Creek. As is noted in Section 3.5.2.2 and Table 3.5-7, the background water quality at Station 140 upstream of the discharge and the tributaries upstream of the mine's influence have high metal levels that occur naturally.

Comment ID: 7.011

Response

As discussed in section 3.5.3.3, the precise response action(s) used to respond to a pipeline rupture would be specifically developed in spill prevention and emergency response plans. A Spill Prevention Control and Countermeasures Plan would be developed for the pipeline with approval and oversight authority by EPA and ADEC. This section discusses the relative risk probability of a pipeline rupture, indicating that it would be much less than the current trucking method. This comparative analysis is reasonable for the SEIS. The section also identifies the worst-case impacts to water quality that could result from an unimpeded flow to area streams.

Comment ID: 7.012

Response

Flows from subsurface thaw, groundwater, and precipitation combine in the active mine pit and are collected together in the pit sump. Quantitative flow measurements on subsurface thaw waters alone are not available. There is no clear purpose in estimating flows from subsurface thaw alone. Combined flows have been observed and measured for the current pit (SRK, 2007. Spreadsheet, Red Dog Load Balance_EID Version_Tetratex.xls), and have been estimated for the proposed action. See SEIS section 3.5.2.1.

The 2008 data collection to further quantify sub-permafrost ground water flow in the Main Pit area was being considered by Teck independent of any permitting or other regulatory requirement. Teck decided not to complete the additional studies. The referenced text has, therefore, been removed from the final SEIS.

Response

- 7.013
 - If possible, the SEIS states that determination of the volume of water from the various sources will be estimated. There is no explanation for why this would not be possible or the significance of the information it would produce.
- 7.014
 - The SEIS states that the groundwater flow regime could change drastically if global warming occurs to such an extent that the permafrost zone is reduced. It does not provide any data on global warming, the likelihood that the permafrost zone will, in fact, be reduced, or the reasonably anticipated impact of the changed groundwater flow regime.
- 7.015 Section 3.6.3.2: One of the effects of Alternative A is that the absent permafrost area will increase from 400 feet to 1000 feet. In the prior section of the SEIS, it is stated that a reduction in the permafrost zone (due to global warming) could drastically change the groundwater flow regime. The effects of a 600 foot decrease in the permafrost zone are, nonetheless, not discussed. This is because the effects of the alternatives on groundwater are not described in a meaningful manner. The anticipated events are listed, but the impacts of those events and their significance are largely ignored.
- 7.016 Section 3.6.3.2: The SEIS refers to the extensive monitoring of temperatures and water levels in the tailings area under the *Long-Term Permafrost and Groundwater Monitoring Plan for the Tailing Impoundment* (WMCI 2001a) and states that monitoring will be continued. However, the draft NPDES permit does not require the continuation of the monitoring plan, so it is not enforceable by USEPA. Thus, there is no guarantee that impacts on water temperature or levels will be identified or addressed in the future.
- 7.017 Section 3.6.3.3: Unlike when analyzing the effects of Alternative A, the SEIS does not disclose the degree to which Alternative B will reduce the permafrost zone. Instead, it merely states that it will reduce it. This data is critical for public and decisionmaker understanding of the ramifications of choosing that alternative.
- 7.018 Section 3.7.2: The mine area is included in the World Network of Biosphere Reserves under the United Nations Educational, Scientific, and Cultural Organization, which the USEPA believes warrants additional monitoring to determine whether elevated metals concentrations result from activities at the Red Dog Mine. The SEIS states, however, that such monitoring cannot be required under the existing regulatory framework; the commenters disagree with that legal conclusion. It is unclear why the USEPA cannot require this monitoring, as it does with other monitoring programs under the NPDES.
- 7.019 Section 3.7.3.2: The dust deposition at the mine is said to continue at current rates; however, the current rates are not disclosed. All that the reader knows is the amount of dust that was present in the project area as of the most recent study.
- 7.020 Section 3.9.2.1: In the section on ecological risk assessment findings, the SEIS states that hazard quotients (HQs) within the project area were compared to HQs calculated for reference areas,

Comment ID: 7.013

Response

Flows from various sources are collected together in the pit sump (surface runoff, direct precipitation, permafrost thaw, groundwater inflow), thus it is difficult to determine the separate components. Estimating groundwater inflow separately could support the assumptions made in determining the proposed action's impacts on the groundwater system. This would then allow for future refinement of the site-wide water balance and the water volumes requiring management during operations and closure.

Comment ID: 7.014

Response

The final SEIS recognizes that global warming and changes to the permafrost are likely to occur which may impact mining operations. The rate and timing of future global warming will determine when and how much the permafrost zone will be reduced, which will in turn determine the changes to the groundwater flow regime. Although some potential impacts from these changes are described, insufficient data and information are available to conclude which impacts will occur, the magnitude of the impacts, and how they relate to future conditions at the mine. As indicated in the final SEIS, trying to exactly quantify these impacts is speculative at this time and is, therefore, beyond the scope of this NEPA analysis. The final SEIS does however recognize the need to continue to monitor climate and the permafrost zone and consider any observed changes in the mine's future development (see Section 3.6.3 and Table 2.5-2)

Comment ID: 7.015

Response

EPA has added additional discussion to Sections 3.6.3.1 and 3.6.3.2 to clarify how a reduced permafrost zone would impact groundwater hydrology.

Comment ID: 7.016

Response

EPA does not have the authority under the CWA to require temperature and groundwater monitoring below the tailings impoundment and dam in the NPDES permit. However, we have identified a need for continued monitoring and provided this recommendation in the SEIS, so that agencies (ADEC and ADNR) that do have authority to require groundwater monitoring can include the monitoring in their permits as appropriate.

Comment ID: 7.017

Response

Numeric modeling of the permafrost zone reduction under the tailings impoundment was performed for Alternative A, but not for Alternative B. While a larger area could be affected under Alternative B, the additional solids placed in the impoundment may limit the reduction of permafrost. Regardless, even if the affected area is increased, the seepage volumes are very low compared to other flows that are managed at the site. Additional text clarifying this has been added to the final SEIS. Permafrost reduction around the pit is described qualitatively for both alternatives in the final SEIS (Section 3.6.3.3).

Comment ID: 7.018

Response

For clarification purposes, the draft SEIS states that Noatak National Preserve is within the World Network of Biosphere Preserves, not the mine area. While the NPDES permit can establish monitoring requirements related to water quality sampling, EPA cannot tie a requirement for air quality or vegetation monitoring to the NPDES permit. The SEIS does recommend that a monitoring plan be developed and implemented to determine whether dust deposition from the Red Dog Mine is occurring within the Noatak National Preserve (see Section 3.7.2 and Table 2.5-2).

Response

Comment ID: 7.019

Response

Overall dust deposition rates have not been measured; however, several sampling efforts have been completed to document metal deposition occurring around the mine and along the DMTS. Section 3.2.2.2 provides additional detail on these sampling efforts, including sample results.. The reader is provided additional information in other sections (e.g. Section 3.7 – Vegetation) as to the effects of the deposition.

Comment ID: 7.020

Response

This section's intent is to summarize results and conclusions of Teck's risk assessment (Exponent 2007). A complete description of the reference areas and the hazard quotients for those areas are presented in the risk assessment. The document is clearly cited and publicly available for review.

Response

7.020 (cont) and the HQs that fell within the range of the reference area HQs indicated no risk of adverse impacts. The SEIS must disclose what the reference areas were, the similarity between the reference areas and the project area, and what the reference hazard quotients were in order to allow for full analysis. Otherwise, this is merely a conclusory statement.

7.021 Table 3.9-2: The risk assessment for adverse impacts to organisms from exposure to metals did not analyze the three animals found in the area that are considered either threatened or endangered.

7.022 Section 3.12.3.3: The SEIS states that the impacts of Alternative B on subsistence are the same as Alternative A except that they extend in duration until 2031. This is not true, as Alternative B extends the mining operations, necessarily having a greater short and long-term impact on wildlife migration and dust deposition. Additionally, the 20 year time extension will surely have cumulative impacts, and not continue to impact the environment at a flat rate.

7.023 Section 3.15: The section dealing with the impacts of transportation does not mention greenhouse gas emissions, despite the fact that trucks will be used for goods transportation under all alternatives and that vehicles are one of the chief sources of greenhouse gas emissions in the United States in general and Alaska in specific.

7.024 The Proposed Action and Alternatives lacks detail concerning the Alternative C to be able to fully evaluate the impacts of this preferred option on the marine environment. Specifically, there is no detail regarding the location of the proposed outfall, water depth, and construction (e.g., does it include a diffuser?).

7.025 The SEIS says that CORMIX was used to estimate a 10 foot mixing zone. However, the document provides no details regarding the assumptions upon which the model results were obtained.

7.026 Assuming a total suspended solids load and a combined wastewater and concentrate discharge through the outfall of 3800 gpm, approximately 151 tons/yr of mine produced solids will be discharged into the Chukchi Sea. There is no discussion of the fate and/or effects of this loading in the environment. There is no good characterization of these solids. The permit suggests that only about 5-10% of the solids will consist of regulated contaminants; many compounds which could be there will not be regulated under the NPDES permit. Toxicity testing may not capture some of these contaminants because aquatic tests are likely to be required as opposed to sediment toxicity tests where most of the contaminants will likely reside.

7.027 The baseline data for marine resources [fish, marine sediments, benthic invertebrates, etc.] are inadequate to provide a numerical “yardstick” to compare present conditions with any potential future impacts. This must be rectified if expanded marine disposal is to be effectively regulated. Failing that, there must be considerably better characterization and analysis of the discharge itself.

Comment ID: 7.021

Response

As noted in the draft SEIS (p. 3-115), the fugitive dust human health and ecological risk assessment (risk assessment) was completed as a separate process from the SEIS, and therefore the SEIS incorporates information from the risk assessment to the extent that it was available and applicable. Thus, Table 3.9-2 and the associated text do not include additional species, such as the federally listed polar bear, bowhead whale, spectacled eider, and Stellers eider because these species were not included in the risk assessment process.

Comment ID: 7.022

Response

Cumulative effects are addressed in Section 3.19 of the SEIS. The SEIS also states in Section 3.12.3.3, under Land Mammals, that “Residents’ concerns about contamination of caribou would continue and possibly lengthen over the length of mine operations, and continued avoidance of caribou seen near the DMTS could result in decreased harvests over time.” Additional text has been included in the SEIS in Section 3.12.3.3 to further address the cumulative effects of Alternative B on residents’ subsistence uses.

Comment ID: 7.023

Response

Section 3.15 has been revised to note that vehicles generate greenhouse gases. Also, Section 3.2.3.1 has been revised to indicate that diesel consumption from the operation (generators plus transportation) results in approximately 0.0027 percent of annual U.S. emissions and 0.34 percent of annual Alaska emissions of CO₂. Only Alternative A would result in substantially different levels of emissions compared to the other alternatives.

Comment ID: 7.024

Response

Should this alternative be chosen, a draft NPDES permit and Fact Sheet would be prepared that describes specific details of the outfall port and establishes effluent limits and approved mixing zones. The mixing zones that could potentially be authorized are presented in Appendix C. As discussed in Section 3.10.3.4 of the final SEIS, the discharge’s effects on marine organisms would be minor and localized to invertebrates in the immediate vicinity of the discharge.

Comment ID: 7.025

Response

A memorandum summarizing the CORMIX modeling has been added to the Administrative Record and is referenced in the final SEIS.

Comment ID: 7.026

Response

The discharge would consist of treated tailings water and concentrate *filtrate*. While the commentor cites the overall volume of solids, it is important to recognize that the monthly average total suspended solids concentration in the discharge would be limited in the NPDES permit to a maximum of 20 mg/L. Given the diffuser and the volume of water available for dilution in the receiving water, any solids would likely be deposited over a very large area. Moreover, as shown in Table 3.5-7 in the final SEIS, total metal levels in the discharge from Outfall 001 have historically been low and sediment toxicity thresholds for metals are typically much higher than aquatic life water quality standards. Finally, it is important to recognize that no sediment-related toxic effects have been associated with the existing fresh water discharge to Main Stem Red Dog Creek. EPA, therefore, has determined that sediment toxicity is not a concern for the marine discharge under Alternative C.

Response

Comment ID: 7.027

Response

Sections 3.10.1.2 (pre-mining) and 3.10.2.2 (current conditions) describe the marine environment at the port site in the area where the discharge would be located. The data are sufficient to evaluate the impacts of the proposed marine discharge as discussed in Section 3.10.3.4. As discussed in Section 3.5, the proposed marine discharge is expected to be comparable to current discharge to Red Dog Creek. The commentor did not provide specific information to support the comment that the baseline data for marine resources and characterization of the discharge are inadequate.

7.028 There is a major concern that waste water treatment must continue in perpetuity once mining operations cease. Who is going to assume the responsibility and costs for such treatment? Teck Cominco and its parent companies were at the edge of bankruptcy as recently as two months ago due to depressed prices in the metal markets, so any type of financial instruments must be independent of, and not reliant on, Teck Cominco's economic health going forward.

III. THE SEIS FAILS TO PROVIDE A LEGALLY ADEQUATE ANALYSIS OF BOTH ONSITE AND OFFSITE MITIGATION MEASURES.

As the Supreme Court noted in *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 358 (1989), "NEPA and CEQ regulations require detailed analysis of both on-site and off-site mitigation measures, see, e.g. 40 CFR § 1502.16(b)[.]" This requirement is not merely for show. There are substantive ramifications of not analyzing mitigation measures. It is much more difficult for the public to exert its political pressure on a public agency to require appropriate mitigation measures when those measures are not properly presented. It is the EPA's duty, in this instance, to present and offer a detailed analysis of mitigation measures for the very purpose of allowing the public to become involved in the decision-making. In *Robertson*, the Supreme Court instructed,

7.029 The requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of the Act and, more expressly, from CEQ's implementing regulations. Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided should the proposal be implemented," 42 U. S. C. §4332(C)(ii), is an understanding that the EIS will discuss the extent to which adverse effects can be avoided. See D. Mandelker, NEPA Law and Litigation §10:38 (1984). More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects. An adverse effect that can be fully remedied by, for example, an inconsequential public expenditure is certainly not as serious as a similar effect that can only be modestly ameliorated through the commitment of vast public and private resources. Recognizing the importance of such a discussion in guaranteeing that the agency has taken a "hard look" at the environmental consequences of proposed federal action, CEQ regulations require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR §1508.25(b) (1987), in discussing alternatives to the proposed action, §1502.14(f), and consequences of that action, §1502.16(h), and in explaining its ultimate decision, §1505.2(c).

Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989). Mitigation is critical here. The CEQ regulations define mitigation as (a) Avoiding the impact altogether by not taking a certain action or parts of an action; (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) Reducing or eliminating the impact over time by preservation and

Comment ID: 7.028

Response

A discussion of the long-term management of the site and the State agencies responsibilities in this regard is presented in Section 1.6.2.

Comment ID: 7.029

Response

The draft SEIS presented a number of mitigation measures in Chapter 2 with citations to where they are discussed in more detail. EPA met its obligation to take a "hard look" by evaluating a broad range of resources in developing the draft SEIS and included a consideration of potential mitigation measures. Since EPA's authority is limited to reissuance of the NPDES permits, most mitigation measures that were identified are beyond EPA's authority to require or implement. Two specific mitigation measures (using best management practices [BMPs] during construction and development of a TDS management plan) are within EPA's purview. It is difficult to envision that a TDS management plan would not be iterative to some degree, based on the degree of success of different practices. Therefore, EPA would not expect a 'final' TDS management plan to be in effect prior to permit reissuance.

The *Robertson v. Methow Valley Citizen Council* ruling cited by the commenter goes on to state that "There is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted, on the other... Since it is those state and local governmental bodies that have jurisdiction over the area in which the adverse effects need be addressed and since they have the authority to mitigate them, it would be incongruous to conclude that the Forest Service has no power to act until the local agencies have reached a final conclusion on what mitigating measures they consider necessary. Even more significantly, it would be inconsistent with NEPA's reliance on procedural mechanisms—as opposed to substantive, result-based standards—to demand the presence of a fully developed plan that will mitigate environmental harm before an agency can act."

EPA can and will work with the proponent to ensure a viable TDS management plan is implemented and, until the ADEC takes authority for the storm water program, ensure that BMPs are put in place during construction activities to minimize effects to surface water bodies. EPA lacks the authority to take action on other mitigation measures as disclosed in the text of the draft SEIS.

The Corps regulatory responsibilities in terms of this NEPA action are spelled out in Section 1.3. The Corps will be considering the Section 404 permit application submitted by the proponent to impact wetlands in development of the Aqaluk Pit. The draft SEIS considers impacts to wetlands that would result with an increase in the height of the tailings impoundment as well as impacts associated with specific aspects of the other alternatives.

Response

maintenance operations during the life of the action; and (e) Compensating for the impact by replacing or providing substitute resources or environments. 40 CFR § 1508.20.

7.029
(cont)

The SEIS, on numerous occasions, delays the identification, and therefore the analysis, of mitigation measures until after the issuance of the NPDES permit. Under these types of agreements, where the permit is issued prior to plans to identify impacts, and therefore mitigation measures, there is little to no guarantee to the public or to EPA that the final plan will be implemented in a timely manner, or be effective. The public is reliant upon the EPA to take action after-the-fact if the mitigation measures are not satisfactory. This way of doing things is especially grievous considering Teck Cominco's lousy compliance record. It is also particularly galling the Army Corps of Engineers actions are not fully spelled out in the SEIS, although the Corps has been working on this expansion project since at least 2006. CRPE Exhibit 19. Examples of legally deficient discussions or analyses of mitigation measures in the SEIS include the following:

7.030

Section 2.3.6.2: The NPDES permit requires Teck Cominco to develop and implement a plan to permanently ensure compliance with TDS limits while maintaining a positive water balance. "EPA will review and approve the plan prior to implementation." The plan, and alternative mitigation measures, should be reviewed prior to issuance of the NPDES permit. The plan should be available to the public during comment period. Failure to disclose this plan prior to permit approval is a violation of NEPA.

7.031

Section 3.2.3.1: The EPA refers to a memorandum of understanding (MOU) between itself and Teck Cominco, under which Teck has agreed to make efforts to reduce fugitive dust emissions at the mine. The risk management plan that Teck is developing under this agreement is not finalized, thus leading to a situation where, "it is not clear which dust reduction measures will be implemented", or which dust reduction measures are available.

7.032

Section 3.9.3.3 and 3.9.3.4: The SEIS recommends that a detailed post-construction mortality monitoring plan be developed and implemented to assist in developing long-term measures to reduce or eliminate threatened or endangered bird mortalities, if they are reported. This impermissibly leaves analysis of mitigation measures to some future time, and does not satisfy the strict requirements of the Endangered Species Act.

7.033

Section 3.12.2.1: The SEIS states that the effect of decreased harvests on diet is unknown and a dietary survey should be developed and implemented for residents of Kivalina in collaboration with community stakeholders. This survey should have been completed prior to the drafting of the SEIS so that adequate mitigation could be analyzed. At the least, it should be required by the NPDES permit.

7.034

Section 3.12.2.1: The SEIS states that only 3 employees said that employment/lack of time off was responsible for decreased caribou harvest. However, those 3 employees represent 27% of those questioned. Taking their statements seriously may lead the drafters of the SEIS to uncover mitigation measures or alternatives that include giving subsistence workers the freedom to set

Comment ID: 7.030

Response

EPA fully expects the TDS management plan to be an iterative process through which Teck fine-tunes its source management and wastewater treatment systems to demonstrate a positive water balance. The plan is identified as a mitigation measure; however, it is not required to mitigate a specific impact. Rather it is being required as a demonstration that the water management system for TDS is working properly and will continue to do so into the future. The fact that this plan is not available for review at this time is not a violation of NEPA.

Comment ID: 7.031

Response

The commenter misread Section 3.2.3.1, which clearly states that the MOU was between Teck and ADEC. EPA was not a party to the MOU. The SEIS is clear in noting that mitigation measures identified in the draft risk management plan may address some of the issues and concerns identified in the document. The SEIS also discloses that the effectiveness of the measures is dependent on both the extent to which ADEC has authority to require them and the degree to which Teck voluntarily implements those that are not required by ADEC. EPA submitted comments on the draft risk management plan requesting that ADEC implement the mitigation and monitoring measures recommended in the SEIS. Enforcing conditions within the MOU between ADEC and Teck is outside EPA's authority under both the NEPA and NPDES permitting processes.

Comment ID: 7.032

Response

The post-construction mortality monitoring plan is a suggested mitigation measure based on guidelines established by the US Fish and Wildlife Service. EPA lacks the authority to require such a plan within its permitting authority. The SEIS discloses that this measure is beyond EPA's authority to require. Since the wind turbines are not part of the preferred alternative, there is no requirement for the alternative to meet the requirements of the Endangered Species Act.

Comment ID: 7.033

Response

A dietary survey is suggested as a starting point to assess future effects of changes in health related to diet. The lack of pre-mining data would limit the data's value (if it were available for this point) since there is no basis from which to identify a change. If a change could be identified at this point, it would be difficult, if not impossible, to identify and allocate the potential reasons for the change – acculturation, the availability of non-subsistence food sources, a change in the proportion of different subsistence resources, the loss of a nomadic lifestyle, Red Dog Mine operations or the influence of satellite television and the internet. While we have recommended that a dietary survey be conducted, this is not something that EPA has authority to require in an NPDES permit.

Comment ID: 7.034

Response

Apparently the reviewer overlooked the discussion in Section 3.12.2.7 (Subsistence and Employment) that identified a mitigation measure specifically targeted at this issue. While again outside of EPA's authority under the NPDES permitting program, the SEIS suggests that Teck be more effective in communicating how the company's leave policy addresses subsistence activities.

Response

7.034 (cont) schedules that allow them to harvest. As it is, this is not discussed.

7.035 Section 2.3.18: The plan for Alternative C is to remove the pipelines to the Chukchi Sea at closure of the Aqqaqaluk Deposit, and to re-divert water into the Red Dog Creek. However, unlike the other alternatives, Alternative C does not entail improvements to ensure that the water going into the Red Dog Creek will comply with TDS requirements of the current permit. Water should not be re-diverted to Red Dog Creek. The SEIS states that the pipelines will be closed in order to “avoid long-term maintenance issues”. This translates to “saving money for Teck Cominco,” and should not be implemented if it does not ensure compliance with the NPDES permit.

7.036 Section 3.12.3.1: The SEIS states that policies for closing the road in order to reduce the impact on caribou migration are the subject of an agreement between NANA and Teck, and are therefore beyond the authority of the agencies involved in developing the SEIS. The SEIS could and should reasonably analyze all mitigation measures, including road closure. There is no reason why a road closure mitigation measure could not be implemented under the NPDES permit (it is discussed under Alternative D), so road closure should not be ignored in the SEIS.

7.037 Section 3.13.3.1: The SEIS states that the potential effects of large-scale mining operations on general health are complex, and for Red Dog Mine, have not been directly investigated. Nonetheless, the SEIS claims to analyze mitigation measures by proposing the formation of a Stakeholder Participatory Monitoring and Review Committee to discover and treat health effects. Mitigation measures should be discussed in the SEIS, and not postponed until a later date, when another group discovers the impacts.

7.038 Section 3.14.3.1: The *Integrated Plan for the management of Cultural Resources in the Red Dog Project Area* is presented as the only mitigation measure to ensure that cultural resources are not affected by the mine or its expansion. This Plan, however, is not mentioned in the NPDES permit, nor are the requirements of the plan included in the NPDES permit. According to NHPA and NEPA, USEPA must continue to consult to resolve anticipated adverse effects on historic properties. Instead of that, USEPA is handing the responsibility to Teck Cominco itself, which drafted the integrated plan. The draft NPDES permit itself contains no reference to the preservation of cultural resources. This makes the plan unenforceable and meaningless to Kivalina residents.

7.039 The mitigation measures in Alternative D, including the wastewater pipeline, the subsistence protection afforded by stopping shipping during beluga migration, and the stopping of truck traffic during caribou migration, are similarly meaningless unless they are actually required by EPA in the permit.

7.040 The alternatives chosen seem expressly designed to let Teck Cominco expand as it sees fit. EPA claims no legal authority to require the alternatives it proposes that would actually remedy the real impacts the SEIS discloses, like significant impacts to subsistence resources; EPA’s protestations to the contrary, EPA could condition renewal of the permit on Teck Cominco’s acceptance of such permit conditions.

Comment ID: 7.035

Response

The discharges under all alternatives, whether to Red Dog Creek or the Chukchi Sea, would need to meet NPDES permit requirements. This has been clarified in the Section 2.3.18. Further, the pipeline would be removed to minimize long-term impacts on wetlands.

Comment ID: 7.036

Response

Road closure as a mitigation measure is not ignored in the SEIS. Closure during the fall caribou migration is a component of Alternative D (see Section 2.2.4) and is analyzed in the SEIS. EPA lacks the authority to require road closures as an NPDES permit condition. EPA would point out that the Subsistence Committee’s mission is to ensure that the mining operations do not adversely affect subsistence activities. The committee is made up of local representatives who are intimately familiar with both the resources and activities at the mine. Based on some of the comments regarding the need to have local input on traffic issues, the Subsistence Committee should be the appropriate venue through which to voice the concerns of the subsistence hunters and gatherers. The SEIS included a recommendation that the Subsistence Committee should examine its procedures and the way the committee interacts with the local communities to find ways to more effectively respond to concerns about mine-related effects on subsistence.

Comment ID: 7.037

Response

As noted in the response to Comment ID 7.033, the absence of baseline data precludes an assessment of the mine’s effect on health. The health analysis makes use of the best data available and points to the need to establish a baseline against which future changes can be measured. The suggestion regarding formation of the Stakeholder Participatory Monitoring and Review Committee, as discussed in the SEIS, provide a forum to investigate and address all types of regional health concerns, not only those attributed to mining operations.

Comment ID: 7.038

Response

Under 40 Code of Federal Regulations (CFR) Part 122.49(b), EPA is required to ensure compliance with the National Historic Preservation Act (NHPA) as it relates to the permitted activity. As a result, since the discharge itself will not affect cultural resources, the integrated plan or other mitigation measures are not included in the final permit. Regulating impacts to cultural resources from other activities associated with the Red Dog Mine is beyond EPA’s regulatory authority.

EPA’s compliance with the NHPA included development of a Memorandum of Agreement (MOA), which is included in the final SEIS.

Comment ID: 7.039

Response

NEPA requires that effects be disclosed and that mitigation measures be identified. It recognizes the limits to authority of the lead agency and does not require that mitigation measures be implemented or successful. EPA has worked with the cooperating agencies to develop the mitigation measures and we are encouraging cooperating agencies that have authority to require the mitigation measures. However, for the mitigation measures that cannot be enforced, their degree of effectiveness would be limited to the extent that the proponent is willing to implement them. The SEIS analysis discloses this issue.

Comment ID: 7.040

Response

Alternatives were selected to address the significant issues identified during scoping. NEPA is a procedural requirement in which the bounds of the lead agency’s authority are limited. The extent to which EPA can require implementation of different alternatives or mitigation measures through the NPDES permitting process is disclosed throughout the SEIS. EPA developed alternatives and mitigation measures that were outside our authority in order to fulfill NEPA obligations to evaluate a full range of alternatives. It is hoped that other agencies and Teck will use the information in the SEIS and implement the environmentally preferable alternative and mitigation and monitoring measures recommended in the SEIS. Where a mitigation or monitoring measure was identified as being within our authority, we included it in the draft NPDES permit.

Response

IV. THE SEIS DEMONSTRATES EPA’S FAILURE TO MEANINGFULLY REGULATE TECK COMINCO’S DISCHARGES OR ENFORCE THE DISCHARGE LIMITATIONS IMPOSED ON THE MINE.

7.041 The SEIS demonstrates EPA’s disingenuous attempts at regulating Teck Cominco, indicating a continued collusion with Teck Cominco. This is repeatedly demonstrated throughout the SEIS, and renders the SEIS legally inadequate, as demonstrated by the following sections:

7.042 Section 2.7: EPA’s preferred alternative is Alternative B, the choice of which the EPA attributes to its inability to require the construction of the concentrate pipeline or wastewater discharge pipeline to the Chukchi Sea (Alternative C, the environmentally preferable alternative). This is false. While the EPA cannot enforce the terms of the consent decree (which would involve building the pipeline in Alternative D), the NPDES permit could limit the right of the Red Dog Mine to expand to a scenario that involves discharging treated effluent into the Chukchi Sea, instead of through Outfall 001. Alternatively, it could make discharging into the Chukchi Sea the easier alternative to implement. The SEIS’s conclusory statement is especially egregious because Teck Cominco has already agreed to build the effluent pipeline under the terms of the consent decree. EPA is essentially creating an easy means for Teck Cominco to escape its undertaking under that agreement.

7.043 Section 3.5: The section on water resources is quite convoluted and it is difficult to believe that this is not intentional, making it as difficult as possible for the public to evaluate baseline conditions and anticipated water quality impacts. The quality of the water, and the effect that it has on the health of aquatic life, wildlife and humans is one of the most controversial issues related to the mine expansion, which may be the reason that EPA is reluctant to address it directly. In particular, Tables 3.5-6 and 3.5-7 are extremely difficult to understand, and understanding them is critical to gaining a clear understanding of the water quality at the mine. Additionally, on p. 3-62, the SEIS describes all median values of the Wulik River water quality as falling below the applicable WQS for the growth and propagation of fish, and other animals, but notes that at certain times water quality values exceed the lowest WQS, both upstream and downstream. First, whether the values are exceeded upstream is irrelevant, unless it can be shown that the values that exceed the WQS downstream are a direct result of the excesses upstream, and not a result of mining activities. 7.045 Second, the SEIS does not discuss the situation where water quality values exceed the lowest WQS in any more detail, creating the impression that water quality is better than it actually is. The public should be provided with information on which metals exceed the WQS, by how much, how often, for how long, and where. This information is especially important since it may affect the health and propagation of aquatic and wildlife, as well as the health of the local residents who subsist on those animals.

7.046 Section 3.5: Table 3.5-11 presents data on the projected discharge quality and instream water quality for Alternative A. The Table shows the projected discharge from Stations 151 and 150, but not from Station 160, which has the most stringent TDS standard (500 mg/L as opposed to 1000mg/L and 1500 mg/L).

Comment ID: 7.041

Response

The SEIS is not legally inadequate as demonstrated in the responses to the individual issues provided below.

Comment ID: 7.042

Response

The commenter is correct that EPA cannot enforce the terms of the Consent Decree. Teck Cominco applied for reissuance of its NPDES permit for continued discharge to Red Dog Creek. This would include proposed discharges associated with the Aqaluk Extension. EPA’s authority is limited to reissuing the permit or denying the application for reissuance. Since the SEIS analysis demonstrates that Teck can meet the limits in the reissued permit, we have no reason to deny reissuance of the Red Dog Creek discharge permit. The ROD will present the rationale for EPA’s decision to reissue the NPDES permit for the discharge to Red Dog Creek. There is nothing, however, in this decision that would preclude construction of the pipeline as envisioned in the Consent Decree. EPA does not have the authority alone to require construction of a pipeline and the marine discharge. This would necessitate permits and approvals from other government agencies including the National Park Service, Corps of Engineers, State of Alaska, and the Northwest Arctic Borough. If Teck had submitted to EPA a NPDES permit application or request for modification to replace the Red Dog Creek discharge with the Chukchi Sea discharge, EPA would have identified the marine discharge as the proposed action in the SEIS and issued a draft permit for public notice. However, Teck has not yet submitted such a permit application. EPA is in no way creating a means for Teck to escape its Consent Decree obligations. Rather EPA has evaluated the marine discharge in the SEIS and identified it as a component of the environmentally preferable alternative. In addition EPA encouraged Teck to apply for a marine discharge so that it could be identified as the proposed action in this SEIS. Teck instead decided to hold to the terms of the Consent Decree schedule under which they would apply for the marine discharge only after the NPDES permit for Red Dog Creek is issued and effective (i.e., not appealed or appeals resolved).

Comment ID: 7.043

Response

EPA believes the potential effects are clearly defined, including in the Water Quality Summary (Section 3.5.4). This includes a discussion of compliance with drinking water and aquatic life WQS. Effects on wildlife, aquatic life, and human health are specifically discussed in Sections 3.9, 3.10, and 3.13 respectively. EPA has made no attempt to avoid describing any of the potential impacts of the proposed action or alternatives.

Comment ID: 7.044

Response

Table 3.5-6 shows applicable WQS and Table 3.5-7 shows results of historic sampling programs carried out for various area streams and important mine outfalls. Sampling stations are depicted on Figures 3.15 and 3.16. Data in Table 3.5-7 can be compared to the data in Table 3.5-6 to evaluate relative degrees of water quality at specific stations and locations both associated with the mine, as well as stations away from the mine’s influence with respect to WQS. Important highlights of these comparisons are presented in the text and these tables are used to illustrate specific points. The comment did not specifically state what was unclear about these tables.

Comment ID: 7.045

Response

The text appropriately describes the data observed from the nine creeks that are crossed by the DMTS road. A majority of samples for all stations are below the most stringent WQS (i.e. for aquatic life) with some samples showing elevated levels that exceed WQS. As discussed in the text, data showing exceedances do not show any discernible trends, either spatially (i.e. above versus below the road) or temporally (over time). EPA is recommending continued monitoring of the creeks to determine if there are exceedances of WQS in the future that may be due to the DMTS.

Comment ID: 7.046

Response

Tables 3.5-11, 3.5-12, and 3.5-14 are used to illustrate relative differences in expected water quality at various stations immediately below the discharge. For all alternatives the projected TDS concentrations at Station 150 on Ikalukrok Creek are well below 500 milligrams per liter. Station 160 is well down stream of Station 150 on Ikalukrok Creek. As a worst-case scenario, the TDS concentration at Station 160 would be expected to be the same or lower than the TDS concentration at Station 150.

Response

7.047 Section 3.7.3.1: This section discusses the effects of all alternatives on vegetation in the project area, and provides a good example of poor drafting, most likely caused by a desire to promote the expansion, instead of act as a neutral third party. The format of the section is designed in such a way as to completely avoid the relevant topics: First, the impact is stated in one sentence (an additional 27 acres of land would be disturbed). Next, many paragraphs are devoted to explaining the mining process, in more detail than is necessary. There is no information provided on the significance of the impacts. Next, the SEIS provides generalized mitigation goals, and avoid discussing concrete, enforceable mitigation options (Teck is working with ADNR to develop site-specific performance standards... few data are yet available making it difficult to develop performance standards that are meaningful and achievable at this time). The section read in its entirety reads more like an advertisement for the good efforts of Teck Cominco than an environmental impact report completed by a neutral public agency.

7.048 Section 3.8.3.3: The USEPA is encouraging Teck Cominco to piecemeal its permit applications. The SEIS states that Teck will require Section 404 permits to raise the tailings impoundment to develop the Aqqaluk Deposit. It plans to submit an application for a Section 404 permit to develop the Aqqaluk deposit before the Final SEIS is completed. Then, at some point in the future, it will seek another permit to address wetlands that would be affected by the increases in the height of the tailings impoundment, as well as levels of water and tailings within the impoundment. It seems that the only reason that Teck would seek two separate permits is to minimize the impacts associated with each permitted action, and the SEIS encourages that way of operating.

7.049 Section 3.8: The SEIS recalls that the law related to wetlands is that agencies should avoid undertaking or funding new construction in wetlands unless there are no practicable alternatives and all practical measures to minimize impacts to wetlands have been included in the proposal. Instead of focusing on the efforts that Teck Cominco can undertake to minimize impacts on wetlands, the SEIS refers on numerous occasions to the relatively small percentage of overall wetlands that is being affected, which is a different, incorrect standard.

7.050 Section 3.9.3.3: When discussing the impacts of Alternative B on wildlife, the SEIS indicates that there will be little difference between Alternatives A and B – other than durational – because the Aqqaluk Deposit has already been heavily disturbed by exploration, and small mammals in that area would “likely” have already been displaced during exploring activities. The extent of this exploration is not discussed anywhere in the SEIS, but it can be assumed that the complete emptying of the area for mining would have significantly more impact than past exploration activities. Additionally, while the exploration may have had short-term impacts, it most likely will have lesser long-term impacts. Mining, on the other hand, will have profound and destructive long-term impacts. This appears to be another attempt by USEPA to minimize the impacts of the preferred alternative. This is especially likely given the controversial nature of the impacts that the mine already has on wildlife, notably caribou and beluga whales.

7.051 Section 3.13.3.3: According to the SEIS, one of the effects of Alternative C on subsistence is

Comment ID: 7.047

Response

The CEQ regulations implementing NEPA state that “impacts shall be discussed in proportion to their significance (Section 1502.2[b]). In this case, the direct affect to 27 acres is not significant considering the overall footprint of mining activity. This has been clarified in the text. The draft SEIS describes the reclamation process that is under the purview of ADNR. Since much of the mine facilities, including Main and Aqqaluk pits, waste dump, and tailings impoundment land are on NANA (i.e., private) land, EPA has no authority to establish enforceable mitigation options. NEPA analyses typically rely on the framework of existing regulations. In this case, the closure plan required by ADNR, is currently under review. The discussion in Section 3.7.3.1 reflects information presented in the closure plan in terms of what would be anticipated to happen at the end of mining operations.

Comment ID: 7.048

Response

The SEIS considers the effects of both activities planned to be permitted through the Corps under Section 404 regardless of the status of the permit application(s). Teck estimates that raising the dam to the 986-foot level would not be necessary until approximately 2016 so Teck has decided to apply for this permit at some point in the future. EPA cannot require Teck to apply for 404 permits at certain times, nor has the SEIS encouraged this. The SEIS is simply disclosing what is known about Teck’s plans to apply for 404 permits related to Aqqaluk.

Comment ID: 7.049

Response

Under the proposed action, the vast majority of wetland impacts would come from pit development and tailings disposal. Potential alternatives methods for developing the Aqqaluk Pit are discussed in Section 2.4.1 although there are no alternatives or measures that could be put in place to minimize the physical removal of wetlands in developing the pit. Because of the prevalence of wetlands throughout the area, any method of tailings disposal would result in wetland losses. In terms of function and value, wetlands in the vicinity of the tailings impoundment demonstrate a relatively low value because of their proximity to the impoundment. The commenter fails to provide specific suggestions on measures that may be taken to overcome these limitations in avoiding or minimizing wetland impacts. The SEIS discloses that a mitigation plan would need to be developed under the 404 permits.

Comment ID: 7.050

Response

Exploration activities at the Aqqaluk Deposit have included road and drill pad construction, exploration drilling, and bulk sampling. Exploration also involves the use of helicopters for moving drilling equipment, delivering supplies to the rigs, and transporting drill crews. The extent of this exploration is described in the draft SEIS on pages 3-102 (Wetlands) and 3-276 (Transportation) and is shown in Figure 1.2. It is true that these activities have had less of an impact on the wildlife and would have fewer long-term consequences than the actual mining of the deposit, which would involve a conventional blast-shovel-truck operation similar to that in the Main Pit. Text has been added to Section 3.9.2 of the final SEIS to clarify this point. However, it is also true, as stated in the draft SEIS (p. 3-133) that the habitat removal and disturbance associated with mining the Aqqaluk Deposit would be most likely to affect smaller, less mobile species, either through direct mortality or displacement from the area, than large, wider-ranging species.

Response

7.051 (cont) that it will reduce water flow into Red Dog Creek, thereby reducing the dilution of naturally occurring metal concentrations. However, the draft NPDES permit requires Teck Cominco to develop and implement a plan to permanently ensure compliance with TDS limits while maintaining a positive water balance. The SEIS relies on this requirement in its other findings, and should not ignore it when it weakens their arguments against Alternative C.

7.052 Section 3.13.2.1: The SEIS lists three common explanations for the high suicide rates in Inuit communities, which are: rapid cultural change, multi-generational cultural strain, and economic depression. It then goes on to state that recent comparison data support the assertion that economic depression leads to suicide. The comparison data is not scientific, but rather a correlation observed between unemployment levels and suicide rate. This cause of suicide was clearly emphasized by the drafters, perhaps because it is the one cause that favors expansion, whereas the other two disfavor expansion.

V. THE SEIS FAILS TO ADDRESS ISSUES RAISED BY THE KIVALINA RESIDENTS IN EARLIER NEPA PROCESSES.

7.053 In an earlier NEPA process around the renewal of a similar permit, the Kivalina residents pointed out that there were significant new circumstances and information relevant to environmental concerns and bearing on the proposed permit and its environmental impacts that meant that an SEIS must be performed. It is dismaying, then, when now that an SEIS has finally been performed, it fails to address the actual impacts identified years ago by the Kivalina residents.

7.054 The last comprehensive environmental review took place in 1984. Since that time, there have been a number of developments in the region and at the mine that call into question the conditions described in the 1984 document – developments that have not been examined by any of the subsequent environmental review documents. These developments include climate change; the more rapid filling of the tailings pond than anticipated, necessitating greater volumes of discharge; Teck Cominco’s repeated permit violations; the cumulative impact of Teck Cominco’s repeated permit violations; the cumulative impact of Teck Cominco’s development of other mining in the surrounding area; and the significant new information about the impact of TDS on salmonids and other fish species from the Steckoll and Brix studies. Despite these issues – all raised in public comment by Kivalina residents years ago – this new SEIS either fails entirely to analyze the new developments, or only cursorily addresses them.

7.055 Climate change is a significant new circumstance since 1984. In the past 25 years, there has been a significant warming of the planet with demonstrable and dramatic effects in the arctic environment around the Red Dog mine. This climate change means there is more snowmelt, earlier, than anticipated by any environmental review in the 1980s. It also means the discharge season may be longer than anticipated by earlier review, and that the facility may begin discharging during months such as April or November, leading to even greater pollution loads. Climate change is not adequately or fully addressed in the SEIS.

Comment ID: 7.051

Response

Section 3.13.3.3 addresses public health for Alternative B. Section 3.12.3.4 addresses subsistence for Alternative C but the point the commenter is trying to make is unclear. The requirement for Teck to develop a TDS management plan would have no bearing on the water quality in Red Dog Creek once the discharge was relocated to the Chukchi Sea as assessed under Alternative C. Relocation of the outfall to the Chukchi Sea would result in a loss of dilution and higher metals concentrations in Red Dog Creek.

Comment ID: 7.052

Response

The reason for inter-regional variation in suicide rates has not been directly investigated. There are few data available with which to analyze inter-regional variation between “rapid cultural change” and “multi-generational cultural strain,” which are clearly identified in the SEIS as important contributing factors. There are, however, economic indicator data readily available, which is why these data are presented in this section. The text has been modified to clarify the intent and meaning of this section.

Comment ID: 7.053

Response

The SEIS addresses the issues that were brought up during the scoping process for this action. The NEPA process for this project began with public notices indicating that public comments were being sought to define the scope of the SEIS. Maniilaq facilitated delivery of a scoping summary document door to door to homes in Kivalina, providing information about the project and soliciting input. EPA hosted a well-attended public meeting in Kivalina and conducted a government to government consultation with the Kivalina IRA board members. NEPA requires that the impact analysis address issues identified during the scoping process, which was done. In addition, Kivalina IRA Council is a cooperating agency, through the Maniilaq Association, in developing the SEIS and input from Maniilaq has been considered in the NEPA process.

Comment ID: 7.054

Response

The impact analysis addresses each identified issue. NEPA does not require that the SEIS include a treatise on the effects of global climate change on Arctic residents; the issue is included as it pertains to cumulative impacts only. The water balance issue has been considered in detail in the analysis. Water quality and aquatic resource discussions are based on the available data on the waters within Red Dog Creek and downstream, as well as current literature. Those analyses include the presence of the discharge in exceedance of NPDES permit limits. An exceedance of NPDES permit limits (violation) does not necessarily equate to environmental impacts in stream. Teck has not developed other mining in the surrounding area; exploration activities in the area are described and analyzed in the cumulative effects section.

Comment ID: 7.055

Response

The NPDES permit establishes a maximum discharge volume regardless of the length of the discharge season; any changes in the discharge season as a result of climate change (or simply a warm year) would not affect pollutant loading. Additional text has been added to 3.19.3 describing climate change’s potential effects on water resources. While climate change could affect water volumes requiring management at the Red Dog Mine, the discharges would still be required to meet the same permit limits on flow, metals, and other pollutants. As a result, the downstream effects on surface water resources do not change.

Response

7.056 Perhaps as result of climate change, the tailings pond at the mine site has filled significantly faster than anticipated, necessitating greater volumes of discharge. Although the pond was to be filled over the 30-year life of the mine, it had already filled up by the late 1990s. This is significant new information about an effect that has the potential to have a dramatically significant environmental impact, one which has never been reviewed in any of EPA’s evaluations over the years. This impact is not adequately or fully addressed in the SEIS, particularly as it relates to potential climate change issues.

7.057 Teck Cominco’s inability or unwillingness to abide by the permit limitations imposed in the 1985 and 1998 permits is significant new information since the 1984 EIS. The EIS did not anticipate wholesale and widespread violation of permits conditions, nor did any subsequent environmental review including the EA and FONSI done in several years ago. Because Teck Cominco is a habitual permit violator, it is critical that any environmental review examine the impact of those permit violations and examine the impact of projected future violations. Teck Cominco’s abysmal compliance record is examined in more detail below. This issue is not addressed in the SEIS at all, although compliance with the permits is assumed.

7.058 The cumulative impact of Teck Cominco’s repeated permit violations should also be studied, and is also a significant new impact that has thus far not been studied by any EPA environmental review. This issue is not addressed in the SEIS at all.

7.059 There is significant new information about the impact of TDS on salmonids and other fish species from the Steckoll and Brix studies. These studies are not adequately or fully addressed in the SEIS.

7.060 This SEIS is a missed opportunity to actually address and analyze the issues Kivalina residents have brought to EPA, NANA, Teck Cominco, ADEC and other regulators over the years. It is also a failure to comply with NEPA.

VI. THE DISCUSSION OF ENVIRONMENTAL JUSTICE IMPACTS IS DISINGENUOUS AND LEGALLY INADEQUATE.

The discussion of environmental justice is disingenuous and legally inadequate, as demonstrated by the following sections:

7.061 Figure 3.51: This table, as well as occasional statements in the SEIS, demonstrates that more than half of the jobs that are produced by the Red Dog Mine go to non-Northwest Arctic Borough residents, new residents of the Northwest Arctic and other urban Alaska residents. According to Table 3.17-20, only 100 current employees at Red Dog reside within the NWAB, and those employees earned \$9 million in 2007. Teck employs a total of 370 employees. This means that only 27% of Teck jobs go to NWAB residents, and 21% of the gross payroll goes to NWAB residents. This is despite the fact that nearly all environmental impacts, including health, subsistence, water quality, and air quality negatively impact only NWAB residents. Because the entire NWAB is

Comment ID: 7.056

Response
The water levels in the impoundment have not risen significantly from climate change, but rather because of a gaining water balance. Specifically, during some years, Teck has been unable to discharge all of the natural inflows to the impoundment because of difficulties associated with complying with the instream TDS limitations specified by the NPDES permit. That is, there has not been sufficient dilution provided by Middle Fork Red Dog Creek. These compliance issues were not anticipated in the 1984 final EIS. An analysis of the current water balance conditions and related effects is presented in Appendix B. As discussed in Section 3.5.3.2 and in Appendix B, use of barium hydroxide as a part of water treatment under Alternative B will ensure that water levels can be maintained at constant levels in the impoundment in the future. The water balance issues would also be eliminated under Alternatives C and D where the NPDES permit would not include TDS limits for the marine discharge.

Comment ID: 7.057

Response
The purpose of the 1984 EIS and this SEIS is to evaluate baseline conditions and impacts of the proposed action and alternatives. The impact analysis is based on the water quality and biological conditions of Red Dog Creek and downstream waters. The section on water resources (3.5) discusses the system’s chemistry while the section on aquatic resources (3.10) discusses impacts to aquatic life. The monitoring that is the basis for these sections of the SEIS would have captured effects of permit violations. EPA acknowledges that Teck has exceed NPDES permit limits and we have taken enforcement actions where we deem it appropriate. We do not believe that a discussion of the permit violations would add to the current analysis of water quality and aquatic resources.

Comment ID: 7.058

Response
Please see the response to Comment ID 7.057.

Comment ID: 7.059

Response
It is unclear to which new studies the commenter is referring. Section 3.10.3.3 of the draft and final SEIS describe in detail the studies performed on arctic grayling and Dolly Varden char by Brix and Grosell (2005) and on salmonids by Steckoll et al. (2003) to evaluate the potential TDS-related effects on aquatic resources.

Comment ID: 7.060

Response
The SEIS addresses the issues identified during the scoping process, as required by NEPA. The SEIS does not violate NEPA as the impact assessment considered the pre-mine, current ,and predicted water quality of Red Dog Creek and the effects on resources downstream under each scenario.

Comment ID: 7.061

Response
In negotiating its agreement with Cominco (now Teck), NANA was concerned about effects to its shareholders (locals in the region) and included a stipulation for local hiring preferences. Both companies recognized the importance of education and experience in order for shareholders to qualify for engineering, environmental and management positions. Section 1.4.4 of Appendix G discusses the measures Teck and NANA are undertaking to increase employment opportunities for NANA shareholders. Due to their proximity to the operation, residents from Kivalina and Noatak are given preferential treatment over other NANA shareholders for jobs at the mine. EPA has no control over Teck’s hiring practices. Additional language has been added to Environmental Justice sections 3.18.2 and 3.18.3 regarding economic discrepancies.

Response

7.061 (cont) characterized as an environmental justice community, this has environmental justice implications. These implications are even more profound for Kivalina, which has a handful Teck Cominco employees but bears 100% of the brunt of the mines impacts to air, water and subsistence practices, clearly an environmental justice impact and an impact that the SEIS does not examine.

7.062 Section 3.17.2.4: The SEIS attempts to improve the image of the Red Dog Mine by discussing the multiplier effect. It mentions that Teck Cominco spent \$321 million in Alaska in support of its operations, which gets circulated through regional and statewide economies, creating additional jobs and income. However, it states a few paragraphs down that the economic impact of the mine on the regional economy is relatively small because most of the goods and services purchased, by both the mine and the residents of the region, come from outside the region. Because the entire NWAB is characterized as an environmental justice community, this has environmental justice implications.

7.063 Section 3.18: The SEIS claims to have satisfied the EPA guidelines on incorporating environmental justice into NEPA because, throughout preparation of the SEIS, it afforded residents of the NWAB an opportunity to provide input into and participate in the NEPA process. This is an opportunity that is afforded to all public populations, regardless of their status as environmental justice communities. This section is particularly insulting given EPA’s failure to hold a public hearing in Kivalina that actually included the public; see Section IX, below.

7.064 Section 3.18: The SEIS claims to have satisfied the EPA guidelines on incorporating environmental justice into NEPA because it describes the socioeconomic and public health effects of the project on local residents. In fact, the EPA guidelines note that “fair treatment” calls for identifying disproportionately high and adverse effects and identifying alternatives that could mitigate those impacts. Determining whether an effect is disproportionate requires a level of involvement greater than merely listing the socioeconomic and public health effects, as the word “disproportionate” indicates that a relative assessment should take place. Additionally, mitigation measures specifically related to environmental justice were not identified. Indeed, as noted in the section on mitigation, few mitigation measures at all were identified and required.

7.065 Section 3.18: The SEIS claims that because most of the borough residents can be considered an environmental justice population, an analysis of potentially disproportionate impacts could not be performed. This is ludicrous. Many environmental justice concerns arise around communities that are considered as a whole to be environmental justice communities. The purpose of the consideration of this issue is to compare the impacts that they experience to the impacts of non-environmental justice communities that are the sites similar operations. Disproportionate impacts could also be addressed by fleshing out the huge inequality between those who most enjoy the benefits of the mine and those who bear the brunt of the impacts. Finally, the SEIS should discuss the long-term environmental justice impacts of the mine. For instance, according to the SEIS, although living standards have improved in the NWAB since the opening of the mine, property values have gone down. As the mine continues to operate, presumably property values will continue to fall, discouraging new migration to the area, which compounds falling property values, and the

7.066

Comment ID: 7.062

Response
The SEIS presented a fair analysis of the economic impacts within and outside the region. A discussion referencing Section 3.17.2.4 and the smaller economic multiplier has been added to sections 3.18.2 and 3.18.3.

Comment ID: 7.063

Response
EPA participated in two government-to-government consultation meetings at the request of the Kivalina IRA Council. In addition to the public notices, Maniilaq delivered scoping summary documents door to door to residents of Kivalina and Noatak for the purpose of (1) providing additional detail on the project and (2) reminding people of the dates and process for public participation. In addition, Kivalina is a cooperating agency in developing the SEIS and EPA worked with Maniilaq (who represented Kivalina’s cooperating agency responsibilities) to ensure that they represented local Alaska Native communities that wanted a seat at the table during the development of the draft SEIS. Maniilaq reviewed the draft preliminary chapters of the SEIS and the preliminary draft SEIS before the public comment period. These measures are in addition to the “normal” public participation process. The public meetings in Kivalina and Noatak for the draft SEIS and draft NPDES permit are standard practice and used the standard approach where information was provided and public comments sought. The meeting format was clearly explained to attendees several times and at no time did anyone ask for a change in the meeting format. Meeting attendees were given the opportunity to ask questions, provide their comments orally, or provide written comments.

Comment ID: 7.064

Response
In relation to the NWAB as a whole, the mine’s effects are not disproportionate to environmental justice communities. The majority of residents experience economic benefits from the operation without environmental effect, although some disproportionate effects (compared to the rest of the NWAB) have been identified for Kivalina. For example, air and water quality near the village meet all applicable standards and are not considered impacts, disproportionate or otherwise, but fugitive dust deposition disproportionately affects the village. This impact is disclosed and addressed through alternatives that would reduce future deposition levels. Disproportionate impacts to subsistence resources are also disclosed and addressed through alternatives that could reduce effects on local caribou and beluga movements. Even as it pertains to environmental justice, NEPA requires that reasonable mitigation measures that could improve the project be identified but it does not require the agency to implement mitigation measures beyond its authority.

Comment ID: 7.065

Response
As noted above, neither existing nor proposed future operations at the Red Dog Mine have a disproportionate adverse effect on NWAB as a whole. Kivalina is a portion of the environmental justice community that is experiencing effects, although it is not clear that they are disproportionate relative to the entire NWAB environmental justice community. We respectfully disagree with your interpretation that the comparison needs to extend to “non-environmental justice communities that are the sites [of] similar operations.”
The goal of the environmental justice analysis is to determine whether the proposed action’s impacts disproportionately affect an environmental justice community compared to non-environmental justice communities. In this case, however, such comparisons are complicated because there are no relevant non-environmental justice communities that can provide the basis for comparison. Thus, the analysis is limited to discussing the proposed action’s disproportionate effects, if any, on one portion of the same environmental justice community versus another.
Any attempt to quantify the extent to which the mine’s benefits are enjoyed would be difficult since those benefits are very diffuse. We could discuss the benefits in terms of consumption of products containing zinc and lead, however, many mines on a worldwide basis contribute to global lead and zinc production. Similarly, we could discuss the benefits of Teck shareholders. While shareholders in Teck stock benefit from the full range of the company’s holdings, only a fraction comes from the Red Dog Mine – and an even smaller fraction when considering the number of years the mine operated at a loss. The analysis acknowledges the effects on Kivalina and identifies mitigation measures to address the effects.

Response

Contrary to the commenter's assertion, EPA's authority is limited in the extent to which mitigation measures may be implemented in this case.

Comment ID: 7.066

Response

The commenter provides no documentation that property values have decreased. The assumption that property values will continue to fall during operations is unfounded and speculative. Appendix G describes the social setting within the NWAB and discusses the associated challenges.

Comment ID: 7.067

Response

The commenter may have missed the majority of the SEIS's content while focusing on the cumulative effects discussion. The effects of existing operations (past and present activities) are addressed throughout the SEIS. For example, under all alternatives, fugitive dust effects – clearly a product of past and current activities – are discussed across a range of resources including air, vegetation, wildlife, subsistence, and health. Existing traffic on the DMTS road is another past and present activity that has been evaluated in detail for numerous resources in the document's main body. These analyses are not repeated in the cumulative effects discussion because the level of detail in which they are already presented is sufficient. The cumulative effects analysis considers other past, present, and reasonably foreseeable projects in addition to the effects that the mine has already produced, plus the effects of the proposed action and alternatives. Additional discussion has been added to the cumulative effects section to clarify this point.

Comment ID: 7.068

Response

The cumulative effects discussion describes why particular mining projects have been identified and how they are considered in the analysis. Without a specific reference to the "already proposed mining activity," EPA cannot provide a more specific response.

7.066
(cont)

loss of important services/jobs. As it is, emigration already outnumbers the combined increase in population from births and incoming migration. As property values continue to decline, populations decrease, and no services or other job opportunities are created in the area, the NWAB communities will become more reliant on jobs from projects such as mines, which have been demonstrated to have a negative effect on the environment and subsistence resources. In effect, the longer the mine operates in the area, the greater the likelihood becomes that the community will be forced to accept any new job source that comes in to the area after the mine closes, giving future polluters an unfair bargaining advantage.

VII. THE DISCUSSION OF CUMULATIVE IMPACTS IS LEGALLY INADEQUATE.

In *City of Carmel-by-the-Sea v. U.S. Dep't. of Trans.*, 123 F.3d 1142 (9th Cir. 1997), the Supreme Court noted that an EIS must include a "useful analysis of the cumulative impacts of past, present and future projects." *Id.* at 1160. This requires "discussion of how [future] projects together with the proposed . . . project will affect [the environment]." *Id.* The EIS must analyze the combined effects of the actions in sufficient detail to be "useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts." *Id.* at 1160 (internal citations omitted). Under NEPA, EPA is required to describe in detail the cumulative effects of the renewed mining permit with other proposed actions. *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 809 (1999); *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir. 1998). The regulations implementing NEPA require that a federal agency consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement. 40 C.F.R. §1508.25(a)(2).

7.067

Throughout the SEIS, it is stated that the effects of implementing Alternative A will not be greater than the effects of the mine as it is currently operating. This fails to take into account cumulative effects, which the SEIS defines as impacts on the environment "resulting from the incremental impact of a proposed action when added to other past, present and reasonably foreseeable future actions in that area." There are certainly past actions which will compound the effects of Alternative A, and there are most likely also present and reasonably foreseeable future actions, including the failure of Teck Cominco to abide by permit requirements, development of the Qanaiyaq and Paalaaq deposit, and continued natural gas exploration, which will compound the effects of Alternative A.

7.068

Among the new impacts are cumulative impacts from other, already-announced mining activity in the near vicinity. For example, there is already proposed mining activity that the EPA knows about in the near vicinity of the Red Dog mine.¹ EPA cannot piecemeal the examination of the impacts of only this permit, separating it out from other, currently proposed, mining in the vicinity. These cumulative impacts are not adequately or fully addressed in the SEIS.

¹See, e.g., the Public Notice at <http://www.poa.usace.army.mil/reg/PNNNew.htm>.

Response

7.069 There are other areas where cumulative impacts should have been considered, analyzed and mitigated. For example, in Section 2.3.14, the SEIS states that because borrow areas in the vicinity were considered in the 1984 EIS, they will not be discussed in the current SEIS. The borrow areas will not be expanded beyond the boundaries initially covered in the permits, but additional material will need to be removed. A discussion of the impacts caused by increased extraction from the borrow areas is necessary, given the fact that additional material, beyond what was considered in the 1984 EIS, will be removed. It should be considered as a cumulative impact. Other cumulative impacts that have not been adequately considered include the following.

7.070 The scofflaw status of the Red Dog Mine should be considered as a cumulative impact, under past, present and reasonably foreseeable future actions; see also the comments below on Teck Cominco's inability or unwillingness to abide by its permit limitations.

7.071 Section 3.19: Global climate change is only discussed under the sections dealing with geotechnical stability and subsistence, and then only briefly. In those sections, the impacts of global climate change are not discussed or analyzed in any meaningful way. Global climate change is an especially important cumulative impact in Arctic regions, and merits a more in depth discussion.

7.072 Section 3.19: Assumptions, such as that the DMTS will not be lengthened, permeate the cumulative effects analysis. Given that two separate deposits are being considered for mining, and further exploration is anticipated, and that there is public discussion of a coal haul road from Pt. Lay to the DMTS, there is no reasonable basis for the SEIS to state that the DMTS will not be lengthened, and its impacts compounded.

7.073 The cumulative effects analysis follows a basic pattern: (1) The cumulative effects are minor. (2) Why the cumulative effects are minor. (3) The minor nature of the cumulative effects. This presentation of information is concusory. The analysis should include facts about what the cumulative impacts actually *are* before explaining why they are only minor. (See Land Use and Recreation on p. 3-339 for an example of the SEIS's flawed methodology.)

7.074 There is no discussion of cumulative environmental justice effects. The reasonable foreseeable future relocation of Kivalina is a cumulative environmental justice effect. Additionally, the existence of the mine in the past, present and reasonably foreseeable future has compounded unjust negative effects. The longer the mine stays in the NWAB, the more reliant the community becomes on harmful future enterprises for its continued existence.

VIII. THE SEIS IS POORLY DRAFTED, CONCLUSORY, VAGUE AND AMBIGUOUS, AND PRESENT INCONSISTENT AND IRRECONCILABLE STATEMENTS TO THE PUBLIC.

The failure of the SEIS to serve as a legally adequate informational document for the public is shown in the following examples.

Comment ID: 7.069

Response

The effects of the borrow areas, as they currently exist, have not been revisited. The disturbances associated with the borrow areas are considered in describing the extent of existing (i.e. past and present) effects, and therefore are included in terms of cumulative effects. The effects of expanding the borrow areas was considered in the analysis of Alternatives C and D because they would involve additional blasting, traffic, and noise associated with the borrow areas. The last part of the sentence in question in Section 2.3.14 was deleted.

Comment ID: 7.070

Response

Please see the response to Comment ID 7.057. As presented in the analysis, the discharge is predicted to meet the new discharge limits established in the NPDES permit.

Comment ID: 7.071

Response

We agree that global climate change is an important cumulative impact. Additional text has been added to the Section 3.19 resource area discussions as appropriate including air, water resources, vegetation, wetlands, wildlife and subsistence. With global climate change, the degree of uncertainty as to cause and effect necessitates a qualitative rather than quantitative discussion.

Comment ID: 7.072

Response

The public discussion of a particular project does not document its feasibility. Mineral (or coal) exploration is a much more common activity than mineral development projects; simply because a property is explored does not mean a project will ultimately be developed. The uncertainty surrounding the projects identified in the cumulative effects analysis warrants consideration of continued exploration as reasonably foreseeable. With the exception of the Qanaiyaq Deposit, which is likely to be developed, none of the other projects at this time are considered reasonably foreseeable for development.

Comment ID: 7.073

Response

Each of the resource area subsections have been revised in the final SEIS with additional language discussing the types of cumulative effects anticipated for each resource area. Conclusions as to whether or not cumulative effects are significant have also been added.

Comment ID: 7.074

Response

A discussion of environmental justice has been included as part of cumulative effects. As discussed in Section 3.17.3.2, the PILT paid by Teck accounted for two thirds of the NWAB general fund in 2007, the loss of which could cause dramatic consequences to the Borough.

Response

7.075 The fact that the mine site must discharge forever is glossed over throughout the SEIS in discussing impacts, particularly the impacts to Red Dog Creek. Alternative D would remove those impacts in perpetuity, and should be required at this stage rather than waiting for a new permit process for Teck Cominco for a pipeline.

7.076 The Air Quality analysis in Section 3.2 is complicated and confusing. Nowhere in the SEIS does it state the baseline ambient air quality, or the total emissions being released into the environment. Instead, the SEIS discusses various tests at length, with long-winded relative statements and little data. The data that is available is not put into context so that it can be easily understood. In the absence of this data, it is not possible to determine either the current conditions, or the anticipated impacts on air quality.

7.077 Section 3.2.3.3: In a classic example of EPA's relativistic, conclusory and inexact analysis, the SEIS states that, "the nature of the effects on air quality from Alternative B is expected to be similar to those of Alternative A. However, operations at the Red Dog Mine would extend through 2031, or 20 years beyond the mine life under Alternative A." This conclusion is demonstrably inaccurate, given that Alternative B will entail 413 additional acreage disturbances, one new drill, two loaders, and two additional trucks in the initial operations at the Aqqaluk Pit. It will also have both short-term and long-term impacts on ambient air quality from the construction of the Aqqaluk Pit. Making statements that intimate that the only difference between the air quality impacts of Alternatives A and B is durational is conclusory and demonstrably false (nor is it supported by any evidence or analysis in this record). The analysis continues to state that NAAQS will continue to be met under Alternative B based on historical monitoring results and the fact that future emissions are not predicted to increase substantially. The SEIS should contain data and analyses that explain to the public the basis on which such an optimistic conclusion is reached.

7.078 Section 3.3.2.1: The geochemical baseline conditions for the Mine Rock Stockpiles refers to Figure 3.4. There is no Figure 3.4 in the SEIS.

7.079 Section 3.3.2.2: Figure 3.5 is incomprehensible. The data presented in it is not analyzed in a meaningful way to make it accessible to the public. The Pre-Mining environment is described by reference to concentration levels in the surface water surrounding the mine. Why is that not done for the current baseline conditions? That is information that could be understood by the lay public.

7.080 Section 3.3.2.3: Although the SEIS is oftentimes overly verbose and employs relativistic analyses, it also sometimes does the opposite. The description of the baseline geochemical condition in the tailings is one example of this opposite, but equally flawed approach. The description uses confusing technical language, and employs tables and figures that are difficult, if not impossible, for a lay member of the public to understand, to provide data that means absolutely nothing without a further description of the significance of the data. As shown above, not only must the impacts be discussed in the SEIS, but the significance of those impacts must also be explained to the reader.

7.081 Figures 3.5 and 3.6 seem to relate equivalent data on the geochemical composition of the

Comment ID: 7.075

Response

Please see the response to Comment ID 7.057. As described in the impact analysis, the water quality in Red Dog Creek is expected to worsen by moving the discharge to the Chukchi Sea. See response to Comment ID 7.042 regarding EPA's lack of authority to require the wastewater pipeline.

Comment ID: 7.076

Response

The baseline air quality conditions have been described in Section 3.2.2. Several monitoring programs and dispersion modeling analyses have been completed that describe the current conditions at the mine. Section 3.2.2 summarizes the results of these studies and compares the results with regulatory standards. Table 3.2-4 summarizes baseline PM₁₀ monitoring conducted in 2001 and 2002 and compares the results with the National Ambient Air Quality Standards. Dispersion modeling identifies baseline conditions for criteria pollutants and compares results to ambient standards. The results of the dispersion modeling studies conducted at the mine are given in Tables 3.2-5 and 3.2-6. A summary of air emission sources at the mine are provided in Table 3.2-7, and various metals deposition studies are summarized in Section 3.2.2.2. All of these data were provided in the SEIS to characterize the baseline air quality conditions at the mine.

Comment ID: 7.077

Response

The intent of the text quoted in the comment is that the effects on air quality between Alternatives A and B would be similar, not that the air emission sources and emissions would be identical. Under Alternative B, dust generated from mining operations in the pit would transition from the Main Pit to the Aqqaluk Pit. The air emissions from pit operations would still be located within the current ambient air boundary and adjacent to the Main Pit. Both the Main Pit and the Aqqaluk Pit are near the center of the ambient air permit boundary and thus air quality impacts from the Aqqaluk Pit outside the air permit boundary are expected to be similar to those of the Main Pit. The SEIS identifies some additional equipment that would be needed under Alternative B, including one new drill, one loader, and two additional trucks. These mobile sources would be required on a temporary basis and would not significantly affect the nature of emissions or air quality surrounding the mine. Existing air quality monitoring for particulate matter at the mine boundary shows levels of approximately one-half of the National Ambient Air Quality Standards. Based on the proposed changes associated with Alternative B and the existing air monitoring data, it is unlikely that particulate matter concentrations associated with Alternative B would approach the National Ambient Air Quality Standards.

Comment ID: 7.078

Response

The reference was to an incorrect figure (there was a Figure 3.4 in the draft SEIS). The reference to Figure 3.4 in Section 3.3.2.1 has been changed to Figure 3.5.

Comment ID: 7.079

Response

Figure 3.5 allows the reader to observe the long-term changes in monitoring wells used to monitor seepage from the waste rock dump. At a broad level, the figure shows that seepage quality has worsened since 1998. Section 3.3.2.1 of the draft SEIS includes a corresponding discussion of the waste rock seepage data, including the results presented in the figure. Unfortunately, Figure 3.5 was misidentified as Figure 3.4 in this section; this has been corrected in the final SEIS. The pre-mining surface water conditions reflect the naturally occurring mineralization in the mine area. It is not appropriate to describe the current surface water quality as representative of the natural geochemical conditions since it reflects man-made changes to the site, including water treatment prior to discharge. Note that Section 3.5 includes broad discussion of surface water quality in the pre-mining, current, and future conditions.

Response

Comment ID: 7.080

Response

The material in Section 3.3.2.3

- reports the specific results of testing of Red Dog tailings,
- demonstrates that the test results are consistent with current scientific understanding of the sulfide mineral weathering, and
- provides summary conclusions of the implication of testing results on potential future reactivity and potential impacts to water resources.

Only one table is used (Table 3.3-2), and that table presents the results of acid-base characterization of the tailings. The terminology that is used for such testing is described in earlier portions of Chapter 3 (specifically Section 3.3.2). The significance of the data presented in this one table, and in the figures displaying the results of kinetic testing are very directly pointed out in several specific sentences. For example, referring to the testing results reported in Table 3.3-2, the text clearly states “Thus, the test results indicate a high likelihood of acid production from this material unless placed in unreactive settings (e.g., under a water cover, see below).” Similarly, the last paragraph of Section 3.3.2.3 conclusively summarizes the role tailings currently have in impacting the water quality of the tailings impoundment currently and the likely impacts in the future assuming that subaqueous conditions are preserved.

Comment ID: 7.081

Response

References to the figures in this section of the draft SEIS were off by one (e.g. the reference to Figure 3.4 should have been to Figure 3.5) which may have led to some confusion to some readers. The references have been corrected in the final SEIS. Figures 3.5 and 3.6 do indeed present very similar data, but not, as suggested, equivalent. Both figures present the concentration of sulfate (SO_4), total dissolved solids (TDS), zinc (Zn) and iron (Fe) over time for two different waters present at the mine. As clearly labeled, Figure 3.5 presents data for seepage from waste rock. Figure 3.6 shows data for water collected in the mine pit sump. They are not equivalent data sets as suggested by the comment. Each figure clearly illustrates the concentration of the above chemical constituents, on graphs with clearly labeled axes: concentration and date. Thus, the method of presenting the data is quite uniform. The identical labeling of graphs provides, in contrast to the comments suggestion, an opportunity for easy, direct comparison of the data for each of the waters represented.

The data presented in Table 3.3-3 are for soils and mosses along the DMTS and, thus, is not intended for any comparison to data for waters at the mine site as illustrated in Figures 3.5 and 3.6. Thus, there is no inconsistency in presentation of data.

Response

7.081 (cont) waste rock dump seepage and the water collected in the mine pit sump, respectively, yet they are presented in two entirely different manners, making a holistic understanding of the baseline geochemical conditions more difficult. A uniform method of presenting similar data taken at separate locations should be utilized. Table 3.3-3 seems to be a third means of presenting geochemical data (although instead of measuring TDS, it appears to have broken it up into its main metallic components). Such inconsistent tables and graphs make a holistic understanding of the SEIS nearly impossible.

7.082 Section 3.4.2: The section on baseline geotechnical stability conditions is an entirely descriptive section. There is no presentation or analysis of the data associated with the mine's geotechnical stability, or the anticipated effects of the different alternatives on the stability of the mine area. There is no probability analysis or modeling data to justify the SEIS's vague conclusions. Additionally, what little discussion there is of stability is inconsistent and misleading. The SEIS claims, under the section dealing with the effects of Alternative A (the no action alternative), that the long term stability of the tailings impoundment is a matter of concern due to the rise in the phreatic surface within the dam and a lower than acceptable safety factor. Under Alternative B, the long term stability of the tailings impoundment is not discussed as a matter of concern, despite the fact that the mining will continue until 2031 instead of until 2012, seemingly decreasing the stability of the structure. There is no explanation why a shorter duration of mining would have worse impacts on the stability of the mining environment. Additionally, both the Alternative A and the Alternative B discussions refer back to section 3.4.2.5 (the baseline stability of the tailings impoundment) for further explanation, but section 3.4.2.5 gives no reason for the discrepancy in the analyses of the effects of the different alternatives.

7.083 P. 3-68: There is a reference to Section 3.5.5, which does not exist.

7.084 Tables 3.5-11, 3.5-12: The tables list the water quality projections for Alternatives A and B. There is hardly any difference at all between the discharge levels, with many of them estimated to be exactly the same. The only difference is that cadmium and zinc will increase slightly and TDS levels will increase drastically under Alternative B. How is this possible given that Alternative B uses a different form of water treatment to reduce metal concentrations? The same is true for many of the metals in Alternative C's projected discharges in Table 3.5-13.

7.085 Section 3.7.2: The SEIS states that monitoring is necessary to determine whether elevated metals concentrations result from activities at the Red Dog Mine, indicating that it is unclear whether elevated metal concentrations result from mining activities. However, a couple of pages later, the SEIS states that the DMTS and mining facilities have had an effect on the levels and distribution of fugitive dust, including metals, around the project area, though the contribution that these metals have had on observed changes to vegetation are uncertain. In that same paragraph, the SEIS refers to study in which it was concluded that road dust resulted in substantially lower lichen and moss cover, and stressed ericaceous shrubs near the Dalton Highway, indicating a clear effect on vegetation. Furthermore, a few paragraphs down, the SEIS states that high levels of aluminum, cadmium, and lead can reduce plant growth and reproduction. The drafting should be clearer, which it would be if

Comment ID: 7.082

Response

In preparing in the draft and final SEIS, EPA reviewed a range of engineering reports that have been prepared on the stability of the mine facilities, including the tailings impoundment. Section 3.4 summarizes the results of this review at a level appropriate for the public in a NEPA analysis. The supporting materials are referenced in the draft and final SEIS and included in the Administrative Record. EPA disagrees that all of the discussion is descriptive. For example, Table 3.4-2 presents the results of ongoing water level monitoring in the dam, which is used by Teck and the State as an indicator of potential instability.

The issues identified in Section 3.4.2.5 represent areas of concern related to potential future instability under all alternatives. As discussed in this Section, they are being addressed through ADNR's Dam's Certification Program.

EPA disagrees with the commenter regarding Alternative B. Section 3.4.3.2 indicates that the same geotechnical concerns identified for Alternative A also apply to Alternative B (see reference to Section 3.4.2.5).

Comment ID: 7.083

Response

The reference should have been to Table 3.5-9.

Comment ID: 7.084

Response

Alternative A includes wastewater treatment via aluminum or barium hydroxide pretreatment followed by reverse osmosis. Alternative B includes the existing high density sludge/lime precipitation treatment for metals and use of barium hydroxide, as needed to reduce TDS levels. For all constituents except TDS, the discharge quality under Alternatives A and B is projected to be essentially the same. Treated water quality under Alternative B, for metals, cyanide, and ammonia are consistent with existing conditions. Based on continued use of current treatment system, barium hydroxide addition only affects TDS levels under Alternative B. Treated water quality under Alternative A for metals was assumed to be the same as Alternative B since reverse osmosis generally ensures low levels of metals and other pollutants.

Comment ID: 7.085

Response

Section 3.7.2 presents a comprehensive discussion of the effects that have been observed on vegetation at the mine and port and along the DMTS. It fully acknowledges that the elevated metals levels can affect vegetation, although effects in some areas (i.e. closer to the road) may also have been caused by the deposition of road dust alone (regardless of metals levels) as shown in the studies conducted along the Dalton Highway. The suggestions for additional monitoring are in no way intended to downplay the observed impacts but rather to better understand the extent and specific causes of the current effects and provide a baseline against which future changes can be measured.

Response

7.085 (cont) the USEPA were not clearly trying to avoid the inevitable conclusion that 1) mining causes elevated concentrations of metal in the project areas and 2) those elevated concentrations of metal contribute to observed changes in nearby vegetation.

7.086 Section 3.7.3.3: The SEIS states that because a large portion of the fugitive dust that would be generated by the development of the Aqqaluk Deposit would fall within areas already affected by dust deposition, the primary difference between Alternatives A and B is the period of time during which dust deposition continues. This is an overly simplified analysis of the two different alternatives: First, under Alternative B, there are periods of overlap, where both the Red Dog pit and the Aqqaluk pit will be active. Second, there is nothing to indicate what a “large portion” means, and no discussion of where the rest of the fugitive dust that is not included in the “large portion” will go, and the impacts associated with the rest of the fugitive dust. Third, there is no explanation for the assumption that the dust content and the distance of disturbance from the Aqqaluk pit should be the same as for the Red Dog pit. Under Alternative B, the Red Dog pit will be used for a different purpose than it will be used under Alternative A. This analysis assumes that the use that will be made of the Red Dog pit under Alternative B will create no fugitive dust, and that, instead, all fugitive dust creation will be transferred to the Aqqaluk pit.

7.087 Section 3.13.2: After repeatedly emphasizing the safe levels of water and air contamination, as well as the misapprehension by villagers that their food supply has been tainted by the running of the mill, the USEPA, in the health section, admits that it believes that health risks from caribou consumption were underestimated by an order of magnitude in the HHRA findings, upon which the SEIS heavily relies. It recommends additional sampling of caribou in order to reduce uncertainty in the risk associated with caribou consumption. This clearly undermines the repeated claims that contamination levels are safe. It is also an illegal deferral of necessary fact gathering and analysis that must be done *before* EPA can make a permit decision.

IX. ALL PUBLIC INPUT FROM KIVALINA SHOULD BE INCLUDED AS PUBLIC COMMENT AND FORMALLY RESPONDED TO.

7.088 The EPA chose an awkward and bizarre method of soliciting formal “public comment” at the public meeting in Kivalina, choosing to hold a meeting for several hours that attendees believed to be the “public hearing” noticed by EPA, and then at the conclusion of that robust discussion, suddenly announcing that the public hearing was just then beginning. This odd procedure ensured that there was no “official” public comment on the SEIS and draft permit, although as the EPA staff present (Patty Murray and Cindy Godsey) knew, there was considerable actual public comment on both. We demand that EPA treat all the public comment at the EPA meeting as formal public comment, and have a more user-friendly “public comment” process at future meetings in Kivalina. We also demand that all Kivalina residents who commented at the meeting be included in the list of those commenting for purposes of having exhausted administrative remedies for any appeal of the SEIS or permit. The comments that should be recorded as official comments by Kivalina residents from this meeting, and formally responded to by EPA, would include comments such as:

Comment ID: 7.086

Response

While it is true that a transition period would include operations in both pits, the level of activity in the Main Pit would change as the activity in the Aqqaluk Pit increased. The Main Pit will become the center of waste rock storage, shifting effects from the main waste rock dump. This aspect would reduce the level of fugitive dust currently associated with waste rock dump since the initial phases of waste rock disposal would occur within the pit which is sheltered from prevailing winds compared to the waste rock dump. In the later years of operation, when the elevation of waste material in the backfilled it would be exposed to wind erosion to a similar degree as the waste rock dump. Fugitive dust generated in open pits during mining operations tends to settle out of the air near the source because of the relatively large size of the particles and the low level of release. Small amounts of fine particulate will travel further from the pit. Because the Main Pit and the Aqqaluk Pit are adjacent to each other within the mine boundary, the dust deposition patterns would be similar between the two pits. Of course, because the Aqqaluk Pit is located north of the Main Pit, the dust depositional pattern would be shifted slightly north of the pattern for the Main Pit.

Comment ID: 7.087

Response

EPA disagrees with the commenter that Section 3.13.2 is inconsistent with the remainder of the SEIS. Both this section and Section 3.12 acknowledge that there are uncertainties related to the human health effects of caribou consumption. This is not contradicted anywhere else in the document. As a result, EPA has recommended additional data collection to further define the contaminant levels, their sources, and consumption by subsistence users. EPA does not have the authority under the NPDES permit to require the suggested monitoring and, therefore, can only recommend that it be undertaken through the risk management plan.

Comment ID: 7.088

Response

The format of the public meeting in Kivalina was standard – a presentation of the project, including questions, followed by a formal comment period. The concept is simple and regularly employed by various agencies on numerous projects. The format allows those people with interest in the project to get an overview and ask questions. That way people who have questions can get them answered without having to wait through the entire formal comment period. Ms. McGrath clearly stated, numerous times, that formal public comments would be accepted and recorded by a court reporter AFTER the presentation. At no time did anyone object to this format or ask for a different format. The presentation and question and answer period were not recorded. While incorporating the questions raised during that period into the formal record is neither possible nor appropriate, the issues are included in the formal record through your comment letter and are addressed individually below. The formal commenters from the Kivalina meetings are only those individuals that spoke during the clearly-identified formal comment period. EPA considers the following list of comments as solely being from Mr. Cole, Ms. Giddings, and the individuals specifically identified in the letter as “Kivalina residents.” There is no documentation to indicate that this comment letter represents the views of anyone else.

Response

7.089 [• Local residents prefer Alternative D as opposed to EPA’s choice of Alternative C because Red Dog has committed to doing the wastewater pipeline as part of the settlement of Kivalina residents’ Clean Water Act lawsuit.

7.090 [• Residents commented on the proposed road from the North Slope coal fields near Pt. Lay, tying in to the port site, and raised concerns about how it could block Kivalina in. This cumulative impact was not addressed in the SEIS.

7.091 [• Residents raised concerns about health problems in the community that are increasing and named several of those, including cancer and liver problems.

7.092 [• Residents commented on how the mine has affected the migration of caribou and that this impact must be considered and mitigated in the new permit.

7.093 [• Residents asked what studies of permafrost Teck Cominco had undertaken; all of these studies should be made public as part of the SEIS process.

7.094 [• Residents raised issues of increased permafrost thawing at the tailings lake, causing possible subsidence at the tailing lake, and its impact on the environment; this impact is not sufficiently addressed or mitigated in the SEIS.

7.095 [• Residents noted that under Alternative C, after 30 years the ground may shift and the underground pipes may break or leak. This has not been sufficiently analyzed in the SEIS.

7.096 [• Residents asked about the cost of developing the Aqqaluk deposit as compared to the cost of developing the existing deposit.

7.097 [• Residents wanted to know what specific studies were conducted in preparing this SEIS.

7.098 [• Residents raised concerns that the State of Alaska has been delegated the NPDES process even though the State programs are historically underfunded and understaffed.

7.099 [• Residents raised concerns that Alaska was not spending the same amount per capita that other state programs were, meaning that the NPDES permits would not be adequately enforced.

X. THE PERMIT MUST HAVE EASIER, BETTER ENFORCEMENT MECHANISMS BECAUSE TECK COMINCO IS A CHRONIC RECIDIVIST WHICH CANNOT BE TRUSTED TO ABIDE BY ITS PERMIT LIMITS.

NPDES [Teck Cominco cannot be trusted to abide by its permit limitations. This is particularly troubling given EPA’s recent decision to delegate NPDES responsibilities to the State of Alaska, given Alaska laws’ significant hurdle to private environmental suits. EPA should maintain jurisdiction over the Red Dog mine’s permits and not delegate those permits to Alaska.

Comment ID: 7.089

Response
EPA notes that Mr. Cole and the “Kivalina residents” prefer Alternative D, including the wastewater pipeline. It should be noted that the wastewater pipeline is also included in the environmentally preferable alternative, Alternative C.

Comment ID: 7.090

Response
The Western Arctic Coal Reserve project is described and considered in the cumulative effects analysis. The project itself is in the exploration phase and multiple access points are under evaluation as part of the preliminary analyses. A tie to the DMTS port is speculative at this point and not considered reasonably foreseeable in terms of the cumulative impact analysis.

Comment ID: 7.091

Response
Section 3.13.2.1 confirms that cancer rates increased between 1969 and 2003. The text also notes that smoking and diet are significant risk factors for the increase in cancer rates and make it difficult to evaluate other factors, including environmental risks. Based on the data available, there is no indication of linkage between cancer rates and operations at the Red Dog Mine. There are no data to indicate that the occurrence of kidney disease (or cancer) in Kivalina is elevated compared to other populations in the state.

Comment ID: 7.092

Response
Caribou are wild animals whose migration patterns change over short and long time frames as documented in a number of studies in the region. Natural variation, mining operations, and the process of subsistence hunting itself will have an effect on migration patterns, especially over the short term and over small areas. Isolating the degree of impact from mine-related activities from other sources is difficult. The subsistence section of the SEIS (section 3.12) concludes that the DMTS road has had an effect on caribou movement and associated harvest by Kivalina. Components of two alternatives were focussed on reducing impacts to caribou movement. Alternative C includes replacing concentrate haul trucks with a concentrate pipeline and Alternative D includes closure of the road during the fall caribou migration. In addition, the draft SEIS notes that the Subsistence Committee, made up of elders from Kivalina and Noatak was established to address local concerns about the effects of mining operations and subsistence. However, EPA has no authority by which to require implementation of the concentrate pipeline or road closure or influence the function of the Subsistence Committee. NEPA requires that mitigation measures be identified and considered in the analysis. It does not require that mitigation measures be implemented. The document discloses that EPA lacks the authority to require mitigation measures related to traffic and that as a result, local, mine-related effects are expected to occur.

Comment ID: 7.093

Response
All available groundwater and permafrost studies were identified in Section 3.6. Referenced studies, including Water Management Consultants 1997, 1999, 2001, and Geomatrix 2003 through 2007, have been included in the Administrative Record for the draft and final SEIS.

Comment ID: 7.094

Response
The permafrost immediately below the tailings lake is currently melted. The designs for the tailing dam and impoundment take into account additional melting of the permafrost should it continue. Therefore, this was not identified in the SEIS as a potential issue affecting future stability.

Response

Over the period 1998 through at least 2007 (we have not yet analyzed 2008 data), Teck Cominco committed thousands of permit violations of its NPDES mine permit. These permit violations are documented in Teck Cominco's DMRs from the period, which are filed monthly with EPA and are incorporated here by reference.

Some of these violations were the subject of the recently settled lawsuit by residents of Kivalina against Teck Cominco, *Adams v. Teck Cominco*, in the federal District Court of Alaska; see Exhibits 1 and 2. Many more are violations that took place wholly in the past, and thus are not enforceable by the public and thus were not included in the *Adams* law suit or an earlier suit by the Kivalina Relocation Planning Committee. EPA's demonstrated lack of commitment to enforcing the permit conditions it imposes should be factored in to the new permit, and this is a central reason why the bio-monitoring and ambient monitoring provisions should be retained in the federal NPDES permit so that they can be enforced in federal court by members of the affected public like residents of Kivalina.

The District Court entered liability against Teck Cominco for hundreds of Clean Water Act violations in the *Adams v. Teck Cominco* case. In 2006, Judge Sedwick granted summary judgment to the plaintiffs on 621 violations, establishing liability against Teck Cominco for illegal discharges of total dissolved solids (TDS) (618 violations) and total suspended solids (1 violation), and two illegal discharges to the tundra. See Exhibit 20. On May 6, 2008, Judge Sedwick entered liability against Teck Cominco on 161 further TDS violations; 34 illegal discharges of cyanide in excess of permit limits; and 11 whole effluent toxicity (WET) violations; see Exhibit 21. Thus, before the case was settled, the Court in *Adams v. Teck Cominco* entered liability against Teck Cominco for 824 violations of its federal Clean Water Act permits, including 776 daily total dissolved solids violations, 34 daily cyanide violations, 11 daily whole effluent toxicity violations at the Red Dog Mine, and two violations for unpermitted discharges to the tundra and one total suspended solids violation at the Port Site. The EPA did nothing to enforce these permit conditions, and in fact actively impeded the plaintiffs in the suit by relaxing Teck Cominco's permit conditions during the pendency of the suit. The current permit must include an easier enforcement mechanism, and EPA must also enforce its own permit.

The violations documented in the *Adams v. Teck Cominco* suit are in addition to the many violations admitted by Teck Cominco in the regular Compliance Orders by Consent it entered into with the EPA from 1998 on, and in the case *U.S. v. Cominco Alaska*; see CRPE Exhibit 26.

Although EPA has all of Teck Cominco's DMRs filed under the 1998 permit, and we incorporate them by reference here to document the repeat violations, those DMRs only paint part of the picture of Teck Cominco's refusal to abide by federal law and its permit conditions – and, sadly, of EPA's complete refusal to enforce any of the federal laws or permit conditions applicable to the facility. This picture is more fully found in Teck Cominco's own internal compilations of its violations of various permits, which are attached as CRPE Exhibits 3 through 13. These internal Teck Cominco reports – Quarterly Reports from 1998-2005, Property Summaries from 1998-2001, Monthly Operating Reports for 2002, and Compliance Reports from 2003-2005 – show, in one place,

Comment ID: 7.095

Response

The pipelines would be designed with leak detection systems. These systems work well with larger leaks and failures and can automatically shut the pipelines down in the event of a problem. Smaller leaks are typically detected visually and a visual monitoring program for the length of the pipelines would need to be conducted daily. The pipeline bench (berm) would be built to minimize the amount of movement (i.e., settling) that would be expected to occur. Each of the pipelines would be exposed to high pressures and would be built mostly (the wastewater pipeline) or entirely (concentrate and diesel pipelines) of steel. As noted in Section 3.4.3.3 in the final SEIS, an engineering study would need to be used to identify the amount of movement the pipelines may experience that could be combined with the internal pressures that they would need to withstand to ultimately specify the details of each individual pipeline. This engineering study is included as a mitigation measure in Table 2.5-1. While the occurrence of a break or leak is not impossible, a properly-designed pipeline would likely withstand any ground movement would be noticed and corrective actions taken before a break or leak would occur.

Comment ID: 7.096

Response

The socioeconomic aspects of developing the Aqqaq Deposit are presented in Section 3.17. Individual project costs are unnecessary to undertake the analysis and generally considered confidential business information.

Comment ID: 7.097

Response

The data and analysis in the SEIS incorporates much of the monitoring and analysis of the Red Dog Mine performed by Teck, State of Alaska agencies, and EPA over the years. During SEIS development, EPA noted that additional information needed to be collected. This information includes more detailed wetlands delineation and information on subsistence. The household harvest survey and the subsistence survey in Kivalina and Noatak were studies conducted in the field in support of the SEIS. The health impact assessment was developed specifically for the project by Maniilaq.

Comment ID: 7.098

Response

Comment noted. The NPDES permitting process for this project is being completed by EPA. Delegation of the mining NPDES permits to the state will occur in November 2010. The NPDES program delegation is beyond the scope of the SEIS.

Comment ID: 7.099

Response

Delegation of the NPDES program to the state is beyond the scope of the SEIS.

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the scope of Teck Cominco’s self-admitted illegal behavior. Interestingly, these internal reports do not include most of the thousands of violations documented in Teck Cominco’s own DMRs filed under penalty of law with EPA; this is perhaps a subject for shareholder inquiry. We attach these memoranda as CRPE Exhibits 3 through 13, filed separately, and incorporate them here. This is further evidence that the permit must be easily enforceable and that EPA must have a commitment to such enforcement.

XI. THE DRAFT PERMIT IS INADEQUATE.

The draft permit is legally inadequate under the Clean Water Act and EPA’s regulations. It also bears the unmistakable imprint of Teck Cominco’s undue influence in the permitting process, both with EPA and with Alaska regulators.

A. The permit is not legal under the Clean Water Act.

The permit is being proposed on the basis of the SEIS that found no significant impacts from increasing the discharge limits for TDS. In doing this analysis, the SEIS stated that no additional impacts were expected on aquatic invertebrate community. This is in spite of the fact that Teck Cominco’s WET analyses and subsequent testing have attributed at least 50% of the toxicity in their effluent to TDS. The other half of the cause of toxicity has never been demonstrated. This testing has shown that the discharge has the potential to affect aquatic communities in the receiving stream. To allow increased TDS limits is in conflict with the findings of previous WET testing. The permit is proposing to allow discharges with a pH up to 10.5. The Gold Book, which recommends national water quality standard has a level for pH of from 6.5 - 9. There is no basis for allowing such a high pH discharge especially given the corresponding high permit levels for ammonia.

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The permit is proposing an ammonia standard up to 8.8 mg/l. Fish are sensitive to ammonia and, at a pH of 10.5, the unionized ammonia concentration in the discharge will result in a discharge which is likely to be fairly toxic to fish. The SEIS for the permit renewal fails to address this issue and its potential impacts on the aquatic environment.

The permit proposes mixing zones without establishing the basis of the mixing zone, particularly given their lengths. The fact that such mixing zone lengths were chosen seems to suggest that it was done just to be able to meet a permit limit. Teck Cominco’s previous work has shown that TDS accounts for 50% of the toxicity demonstrated in its effluent. Another 50% was attributed to as yet, unidentified toxicants. The extensive mixing zones being proposed are an indication of the chemical loading being input into the receiving waters below the Red Dog Mine. This loading has to be accounted for when considering the impacts of this discharge on the environment. This was not discussed in the SEIS for this permit. This goes against EPA long-standing policy that dilution is not the solution to pollution.

The permit removes current end-of-pipe permit limitations or monitoring requirements for

nickel, silver, TDS, total cyanide, and hardness. No support or analysis is offered in any of the environmental review documents for the removal of most of these analytes. The existing (1998) permit is woefully inadequate in that it does not require testing for a number of known, potentially-toxic constituents in the Red Dog effluent. To compound this inadequacy by now removing the effluent limitations for more than 20% of the substances the 1998 permit required testing for – five of the 24 parameters listed in the 1998 permit – is neither supported by the environmental review documents nor protective of the environment. The new permit should both retain the existing permit’s effluent limitations for nickel, silver, TDS, total cyanide and hardness, and also add monitoring and reporting requirements for the various reagents that Teck Cominco uses at the mine site.

The proposed permit radically scales back the amount of bioassessment monitoring that will be required, including dropping all requirements for biomonitoring in Middle Fork Red Dog Creek, stations on Ikalukrok Creek, the Wulik River, Anxiety Ridge, Evaingiknuk Creek and Buddy Creek. This scaling back (or more appropriately backsliding) is neither explained or justified in any of the environmental review documents. It represents a disappointing capitulation to Teck Cominco and a complete failure by EPA to require permit limitations that are protective of the environment. It is not “duplicative” to require reporting the monitoring results in both the monthly DMRs under the federal permit and the annual waste permit report under Alaska regulations – having the reporting in the monthly DMRs not only gives a far more timely reporting to the public, but also makes any failure to report federally enforceable under the Clean Water Act. EPA should keep all biomonitoring reportable in the DMRs, rather than dramatically scaling back the bioassessment monitoring.

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The permit should require the TDS plan to be issued and approved by EPA *before* the permit is issued – this type of after-the-fact planning does not protect the environment or the people of Kivalina. The plan should be made available to the public for public comment.

Monitoring using the total cyanide method is discontinued entirely – at the same time that the permit limitations for cyanide are almost wholly lifted. This creates the situation where there is no effluent limitation for cyanide being discharged, and no testing for it downstream (at Stations 2, 10, 151 and 160, all locations where it is currently monitored for), although Teck Cominco discharges millions of pounds of cyanide each year. Thus, the concerned public – particularly residents of Kivalina, who drink the water into which Teck Cominco is discharging the cyanide – will have no way of knowing the concentrations of cyanide in the water as it moves downstream. Monitoring for nickel, silver and hardness is discontinued entirely, with no justification or explanation or examination of the potential environmental impacts, nor any evidence to support this weakening of the permit.

Monitoring of the tributary streams above the mine that feed into the mine is discontinued entirely, so there is no way of determining how much of the pollution in the effluent is a result of natural mineralization flowing into the tailings pond and how much is being added by Teck Cominco. Given that Teck Cominco is embarking on further development of the mine’s footprint through Aqqualuk, it appears particularly irresponsible to stop monitoring the tributaries at this point.

This obfuscation of the actual impacts of Teck Cominco is clearly by design, but it is also clearly not protective of human health or the environment.

The deletion of biomonitoring and ambient monitoring means that an important source of information on the mine’s environmental impacts will be lost. Such information is critical to determine the impact of offsite pollution by the mine, such as that along the haul road. See CRPE Exhibits 14, 15, 16 and 17.

It is unrealistic to state that the permit duration is five years – this is another misleading statement found throughout the environmental review documents. The first permit was in effect for 13 years. It was issued in 1985 and ran until 1998 because it was “administratively extended” after it expired in 1990. The second permit, issued in 1998, expired in 2003, but is still in force today, six years later, making it now in effect for 11 years. One can only expect, given this history, that the present permit will be in effect for far longer than five years. This fact should be disclosed to the public. A suggested change would be to issue two-year permits, which would be administratively extended until they were renewed, so that the actual life of the permit was five years, as the EPA claims it is here. Two-year permits would be a far more nimble vehicle for responding to changing environmental or regulatory conditions.

Much of the Draft Permit organization and wording is so unclear that even a water quality specialist is frequently confused as to the intended meaning. It appears that the new Draft Permit is significantly less clearly worded and organized than past versions. Clearly, the issues presented in this Draft Permit were not intended to be understood by the average citizen.

The Draft Permit is 43 pages long. Much of it is composed of text which would have been much more understandable had it been summarized using additional tables.

Because the Draft Permit includes discussion of numerous speculative options, it is unclear what will actually be included in the final permit. As such, it is unnecessarily difficult for the public to comment meaningfully.

NPDES permits have been issued for the Red Dog facilities since 1985. Mining began in 1988, and the mill became operational in 1989. The scale of the operations and the volumes of waste produced and discharged have expanded throughout the life of the mine. Approximately 2.4 billion gallons of treated effluent was released into Red Dog Creek. Nevertheless, it appears that the specific permit standards have gotten progressively weaker.

The enforceable portions of the permit have narrowed such that they are now focused on the release of Total Dissolved Solids (TDS), which is seldom the focus of NPDES permits at other comparable metal mines. The 1998 NPDES permit had a TDS limitation of 176 mg/L (monthly average), which was based on actual baseline (pre-mining) data from the area. The proposed NPDES permit calls for complete elimination of an limitation on TDS at Outfall 001.

NPDES

The instream TDS limitation is not supported by any evidence. Even the Brix and Grosell (2005) study, when read most expansively, would support only a limitation of 1,357 mg/L. Brix and Grosell (2005) did not determine that 1,500 mg/L will be protective of Arctic grayling during all life history phases including the fertilization to egg hardening phase. That study determined that the no observable effects concentration was as low as 132 mg/L, and the lowest observable effect concentration was as low as 254 mg/L. The 1,500 mg/L is not protective of spawning grayling. EPA cannot throw out half the data on TDS toxicity. What that Brix study means is that half of the toxicity test results with Arctic grayling *do not* support 1,500 mg/L. EPA appears to have reached a predetermined conclusion and is desperately trying to assemble evidence to support it; unfortunately, such evidence does not exist. The SEIS's statements to the effect that fish surveys indicate that the present level of TDS is not having a negative impact on fish populations are similarly without foundation, as the fish levels are below those of baseline (when there was less TDS) and no studies have been done during a discharge year when TDS levels were lower than they are presently.

For many decades, standard definitions of Total Dissolved Solids (TDS) have stated that TDS is a *general* measure of *all* the chemical components dissolved in a water sample. Such TDS determinations at metal mine sites routinely include all major ions, together with numerous metals, metal-like elements, and non-metal constituents. The sum of these constituent concentrations is the Total Dissolved Solids.

NPDES Many chemical constituents normally present in the ores and effluents at metal mine sites are not publicly reported or regulated at the Red Dog Mine. Many of these constituents are potentially toxic to humans, aquatic life and other forms of life. In addition, the US EPA and numerous national and international technical and regulatory agencies have determined use standards and criteria for many of the constituents not regulated at Red Dog. Some of the chemical components likely present in the Red Dog effluents, but which are not regulated (or publicly reported) include: arsenic, antimony, cobalt, chromium, iron, manganese, nickel, molybdenum, vanadium, silver, thallium, uranium and other forms of natural radioactivity, cyanide and related cyanide breakdown products, sulfate, nitrate, chloride (total residual chlorine), boron, phosphorus forms, water temperature and organic compounds.

While the Proposed Red Dog NPDES permit does contain limitations for a few metals and metal-like elements such as aluminum, iron, lead, copper, selenium and zinc, these limitations are extremely high when compared to their respective aquatic life criteria. The same is true for the limitations for ammonia and pH.

The Proposed NPDES Permit is essentially a license to pollute.

At present, all publicly-available water quality and toxicity samples for Outfall 001 and the other monitoring sites are collected, handled and analyzed by Teck Cominco or their paid representatives. Considerable public confidence would be generated by developing a source of *independent data*. As such, the Red Dog Mine is essentially self-monitoring. The EPA's decision is not supported by substantial evidence, as it offers almost no support for any of

the radical actions it is taking in removing effluent limitations and monitoring requirements and dramatically weakening the remaining effluent limitations. Not only is EPA's action not supported by any evidence, the evidence that does exist contradicts its actions in the draft permit. For example, studies demonstrate reduced fertilization rates in salmon at TDS concentrations as low as 250 ppm. See Final Report for ASTF Grant #98-1-012, Salmon as a Bioassay Model of Effects of Total Dissolved Solids, prepared for the Alaska Science and Technology Foundation by Michael S. Stekoll, William W. Smoker, Ivan A. Wang, and Barbi J. Failor of the University of Alaska at Fairbanks ("ASTF Report"), incorporated by reference here.

The removal of the effluent limitation for TDS is startling in that Brix (2005) (submitted under separate cover as CRPE Exhibit 22) determined that TDS made up half of the toxicity in the Teck Cominco effluent, and that source of the other half of the toxicity was not yet determined. More recent representations by Teck Cominco to EPA are that TDS makes up *all* of the effluent toxicity. See CRPE Exhibit 23, June 2005 DMR, at 3 ("all of the effluent toxicity can be attributed to TDS"). The removal of the TDS effluent limitation, and the significant elevation in the TDS in-stream limitation during grayling spawning season, are not supported by the evidence and are directly contradicted by Teck Cominco's own submissions to EPA.

It is disturbing that the biomonitoring studies are being removed from the permit requirements, particularly as the studies have demonstrated levels of copper in fish livers at levels consistently higher than baseline levels. Ott and Morris 2005. The deletion of the biomonitoring requirements that are then being included in the state permit means that these requirements will no longer be federally enforceable, and given ADEC's inability or unwillingness to deny Teck Cominco almost any permit modification it requests, presage the end of all biomonitoring at the facility as that is surely what Teck Cominco will suggest next. Biomonitoring requirements should be retained in the NPDES permit. Additionally, several important biomonitoring studies are proposed to be deleted entirely, not just moved to the state permit: the periphyton surveys at Stations 9, 7, and upstream and downstream of Dud Creek on Ikalukrok Creek (meaning all the surveys on Ikalukrok Creek), the metals studies of fish in the Wulik, and the studies for fish presence and use in Anxiety Ridge, Evaingiknuk Creek, and Buddy Creek. It is shocking that EPA is simply deleting these important biomonitoring studies at a time when residents of Kivalina are expressing increased unease with the impacts of the mine on their subsistence resources. EPA cannot hide its head in the sand, and it cannot allow Teck Cominco to leave Kivalina residents completely in the dark as to the impacts of the mine on their subsistence resources. The reduction in biomonitoring, apparently spurred by the State's request, has Teck Cominco's fingerprints all over it.

The permit was modified in 2003 to allow for a higher TDS effluent limit and instream limit, and the results of aquatic biomonitoring in 2004 shows that over the past five years, 2004 was the year with the lowest density of invertebrates in the Mainstem Red Dog Creek at Station 10, in Ikalukrok Creek above Dudd Creek, in Ikalukrok Creek at Station 7. Ott and Morris 2005 (CRPE Exhibit 24). Further, Ott and Morris report that in 2004, no larval arctic grayling were found in Mainstem Red Dog Creek at Station 10, in Ikalukrok Creek above Dudd Creek, in Ikalukrok Creek at Station 7 in 2004 (Ott and Morris 2005, Exhibit 24).

Additional conclusions of the biomonitoring report are that periphyton is decreasing in Ikalukrok Creek, that maximum concentrations of iron, aluminum and lead were higher than pre-mining baseline conditions, and that maximum concentrations of cadmium and median concentrations of cadmium increased in 2004. Ott and Morris 2005.

1. The following are among the specific inadequacies of the permit.

Allowing the 001 Outfall effluent pH to rise as high as 10.5 permits discharge of waters that would be toxic to many species of aquatic organisms, strictly due to the high pH. In addition, such an elevated pH tends to increase the dissolved concentrations of numerous metal and metal-like chemical species in the effluent. Several of these elements, such as arsenic, antimony, molybdenum, vanadium, thallium, uranium, manganese, chromium, are likely to be present in elevated concentrations in the effluent at such pHs, but will not be regulated under the terms of the Proposed NPDES Permit.

It deprives the public of significant information to not include the ambient monitoring results in the monthly DMR, as now allowed by condition I.C.5. Having the data available only once per year does not allow public accountability and diminishes the opportunities for the public to review the data and enforce the permit. All of the ambient monitoring should be included in each monthly DMR. This is particularly the case for the testing at Station 12, which is "clean" water unpolluted by the mine discharge and offers a baseline of sorts.

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There is no support for deleting the dissolved oxygen and hydrogen sulfide ambient monitoring requirements; there is no environmental analysis of the potential impacts of this permit change. There is no support for deleting the total cyanide ambient monitoring.

In addition to the Clean Water Act, the permit violates the Magnuson-Stevens Act because the mixing zones for cyanide, TDS and ammonia will disrupt essential fish habitat in the Mainstem of Red Dog Creek. The concentrations of cyanide, TDS and ammonia will be allowed to be above the aquatic life criteria in the mixing zones.

The mixing zones for TDS, cyanide and ammonia will create a barrier between the mainstem of Red Dog Creek and the North Fork of Red Dog Creek where fish do spawn. Both ammonia and cyanide degrade naturally. Warm temperatures, sunlight, and oxygenated water help speed the degradation process. Although they ultimately degrade naturally into relatively harmless compounds, they are very toxic to fish and aquatic organisms when present. The mixing zones extend across the mouth of the North Fork of Red Dog Creek. The North Fork is excellent fish habitat. Grayling are known to migrate in and out of the North Fork, and to use it for spawning. Both the present ADEC mixing zone regulations, and the mixing zone regulations proposed under the Murkowski administration in 2004 (still under consideration by EPA), prohibit 'barriers to migratory species or fish passage.' It is not apparent that either EPA in from the NPDES Permit Fact Sheet, or ADEC in its 401 Certification of the mixing zone in the NPDES Permit, have evaluated the potential for cyanide and/or ammonia in the mixing zone to form a barrier to fish migration into the

North Fork of Red Dog Creek. This is simply not legal.

There is no support for changing the ambient monitoring from Station 10 to Station 151. Changing the monitoring location will make comparisons of ambient monitoring data from the 1990s and through 2005 with new monitoring data difficult. Both stations should be monitored.

There is no cyanide monitoring at all at Stations 2, 73, 160 or 10 in the new permit, which calls into question EPA's ability to determine, based on any evidence, that the removal of the cyanide effluent limitation will not have any impact downstream. The approach appears to be to remove any monitoring that might actually show impact downstream; this is a violation of the anti-degradation and backsliding regulations. Total cyanide monitoring should be conducted at Stations 2, 73, 160, 10 and 151.

The upper pH range should be 8.5 based on the designated use of contact recreation in the Middle Fork, but is set at 10.5.

Teck Cominco adds numerous organic and other chemicals during the processing of the lead-zinc ores. See CRPE Exhibit 25 for a list of those in use as reagents. The Proposed Permit fails to regulate the majority of these compounds by failing to set limits on any organic compounds, oils and greases, fuels, nitrates or sulfates.

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Numerous samples from Outfall 001 have failed the cyanide limitations contained in the existing NPDES permit. This was true even though several forms of cyanide-related compounds are known to be present in the Red Dog effluents (such as metal-cyanide complexes, cyanate, thiocyanate), but are not detected by either the WAD or Total cyanide analytical methods. Nevertheless, with no technical justification provided, the Proposed NPDES Permit states that no enforceable limitations for *any form of cyanide* will be included in the new permit. This is an unreasonable change in the permit conditions. The 001 Outfall effluents should be analyzed for both WAD and Total Cyanide, and also for cyanate and thiocyanate once per week as noted in the Proposed Permit documentation.

Consistent with many other aspects of the Proposed NPDES Permit, the zinc limitation at Outfall 001 is also proposed to be weakened. The proposal is to allow the zinc limitation to rise from 210 to 269 $\mu\text{g} / \text{L}$. Zinc has consistently been shown to be toxic to most species of cold water fish.

The Proposed Permit also would weaken the limitations at 001 for selenium as well as for zinc.

There is no reason to allow Teck Cominco to calculate, rather than measure, hardness at Outfall 001.

It is important that EPA clarify the reporting of split samples, but the method chosen in condition I.A.5.e would allow Teck Cominco to repeatedly split samples to get lower values to

average in with violative results, as it has been doing for the past five years. The permit should require the reporting of the *highest* value of any valid test of a split sample to discourage this laboratory shopping that Teck Cominco has engaged in.

In the modified permit from 2003, the TDS was required to be monitored twice per week at the end of the mixing zones; in this permit, that is reduced to once per week. This backsliding is not appropriate and not protective of the environment, particularly given the recentness of the imposition of the mixing zones.

There is a conflict in the permit between the requirements in I.A.7.c.2 and I.D.6, as I.D.6 does not include station 150's conductivity data in the DMRs. All the ambient monitoring data should be included in the DMRs to resolve this conflict.

Because the TDS concentration in the effluent is only monitored once per week, the use of the 110% of the highest effluent value could result in spikes of TDS not being captured by the modeling. Additionally, the term "highest measured effluent value" is not defined – is this over the life of the facility, the permit, the year, the month? We suggest over the life of the facility.

The new permit deletes several important conditions from the current permit, including I.C.11 on discharge during winter, I.C.14 and I.G.7 on the reopener, and I.C.15 on unauthorized discharge. Each of these conditions plays an important part in protecting the arctic environment, and their removal makes the permit less protective of the environment, less stringent, and in violation of the anti-backsliding regulations. The deletion of I.C.15 on unauthorized discharge, coupled with new permit condition II.1, gives Teck Cominco a permit shield for any unauthorized discharge. This is considerably less protective of the environment and human health than the present permit, which allows federal enforcement of unauthorized discharges.

Likewise, the QAPP condition in the current permit, I.I.1, is considerably more detailed and protective than the new condition. Additionally, the certification, data verification, and archiving conditions (conditions I.G.4, 5, 6, 7, 8, 9, 10 and 11) have been deleted without cause or explanation. These are conditions that play an important role in protecting the public, and their deletion significantly weakens the renewed permit. These deletions appear to be backsliding, as are all other permit condition deletions.

Conditions I.C.6 and I.C.7 are considerably less protective of human health and the environment than the current permit and appears to be backsliding. All of the data should be available each month in the DMRs.

The biomonitoring for benthic invertebrates (current condition I.F.1.d) has been inexplicably dropped; again, this is backsliding, and a failure to protect the environment. Removing the biomonitoring means that there is no way to determine if there is actually an impact on the environment, making the permit considerably less protective.

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The renewed permit drops condition I.G, which is even more necessary since there has been precipitate noticed along the Red Dog Creek downstream of the Outfall 001 in recent years. Ott and Morris 2005. This condition should be restored.

The WET test must include 7 dilutions to be valid.

Condition II.I is a license to pollute, especially in the context of the deletion of condition I.C.15. Condition I.C.15 should be restored to keep the proper balance in the permit toward the presumption that discharge of unpermitted substances is a permit violation. A good start would be to reinsert the sentence deleted from condition III.B.3 that states, "Except as provided in permit conditions in Part III.G, Bypass of Treatment Facilities and Part III.H, Upset Conditions, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for non-compliance."

Current permit condition III.F on removed substances should be included in the final permit; it is inexplicably deleted in the renewed permit.

There is nothing in the environmental review documents that documents when Teck Cominco reapplied for the permit renewal, and on information and belief, Teck Cominco did not reapply within the statutorily required time.

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The new permit deletes condition IV.J on oil and hazardous substance liability. These deletions are not explained or justified, and make the permit weaker; they should be restored in the final permit. Likewise, the new condition IV.M is weaker than the existing permit condition, and the existing permit condition should be restored.

2. EPA must change the draft permit to make it legal.

We suggest the following specific changes to the draft permit, in addition to the other suggested elsewhere in these comments.

- The TDS limits found in the present 1998 NPDES permit should be retained.
- The proposed permit should include cyanide limitations based on the monitoring of WAD Cyanide and Total Cyanide, together with specific determinations for thiocyanate and cyanate. The 001 Outfall effluents should be analyzed for both WAD and Total Cyanide, and also for cyanate and thiocyanate once per week.
- Teck Cominco should be required to report *detailed* chemical analyses for both the untreated water entering the water treatment plant and the treated water being discharged at Outfall 001. These analyses should be reported at least twice during each operating season, and should include, as a minimum, the following constituents: aluminum, antimony, arsenic, barium, cadmium, copper, chromium, cobalt, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver,

thallium, vanadium, zinc; major cations (calcium, magnesium, sodium and potassium), and nonmetals (sulfate, nitrate, ammonia, boron, phosphorus, fluoride, chloride, alkalinity), and natural radioactive constituents (uranium, thorium, potassium-40, gross alpha and beta). These samples should also be analyzed for in an Organic Priority Pollutant Scan, together with oil and grease, WAD cyanide, thiocyanate and cyanate, water temperature, pH and WET Testing.

- Several of the constituents listed above are potentially toxic to aquatic and other organisms and they are not monitored as part of either the existing or the proposed NPDES permit. All these constituents should be added to the required monitoring and effluent limitations should be developed and included in the Proposed NPDES Permit.

- The Final Permit should require that additional water quality monitoring, sediment sampling, flow measurement and toxicity testing be conducted by some competent, independent party, such as the U.S. Geological Survey, at the 001 Outfall and other strategic locations. This party should be both financially and politically independent of both Teck Cominco and the regulatory agencies. This independent monitoring should also include collection of field measurements of pH, water temperature and specific conductance throughout the margins of the Red Dog facilities and along both banks of the local tributaries to define the possibilities of non-point source seepages from the site. Comparable surveys should be conducted during the winter months to evaluate the existence / degree of non-point seepage that might be occurring during the months when the treatment plant is not operating. Such surveys could easily employ the use of various remote sensing techniques.

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- The permit would require WET testing to be performed once per month. However, because past samples often have not yielded useful results, it is proposed that WET testing should be required twice per month. In this way, it is much more likely that useful toxicity data will be obtained during any one season. Additionally, the WET testing must use seven dilutions to be legal.

- Legal WET testing is especially important as it indicates the presence of toxicity due to the sum of all the potential contaminants in the effluents.

- There should be some limits on barium discharge, rather than just monitoring requirements.

B. Teck Cominco had undue influence in the crafting of the permit conditions.

Many of the permit provisions found in this revised permit were concocted years ago during the last round of permit renewal (that permit was issued, appealed and then withdrawn, in 2007). Then, and now, the EPA permit and the State Certification appear to be a concerted effort by EPA, ADEC and Teck Cominco to avoid any real enforceable limits in the permits. Teck Cominco has effectively lobbied the State to weaken its water quality criteria at every turn, with the express ambition of then using those weakened criteria to get weaker EPA permit limitations. See email from Mark Thompson to Luke Boles, November 22, 2005 (Exhibit 27, submitted under separate cover and incorporated here by reference). Thompson repeatedly seeks weaker permit limitations from the state, which have apparently lead to weaker EPA permit conditions as well: Thompson

writes, "EPA has retained the previous zinc limits that were based on natural conditions. Teck Cominco requests that the State not re-certify the natural condition zinc criteria and certify that implementation of the current state-wide criteria is consistent with the anti-degradation standards. This should pave the way for EPA to use the higher state-wide standard." What is remarkable are Teck Cominco's attempts to get rid of the zinc limits based on natural conditions, because this will allow it to pollute more, while at the same time requesting cadmium limits based on natural conditions, also to allow it to pollute more. Teck Cominco is consistently seeking the weakest limits possible, and EPA must reject this naked attempt to play the State off EPA and vice versa. The entire Thompson email is a demonstration that Teck Cominco had undue influence in the setting of the Alaska permit and certification limits, and thus in the setting (or more accurately, relaxing) of the EPA permit limitations.

C. EPA and Alaska appear to be conspiring to produce the weakest permit possible.

A series of emails between EPA and ADEC (submitted as CRPE Exhibits 28-32) demonstrate that EPA and ADEC are seeking the weakest possible permits with the least public input, all in an apparent effort to appease Teck Cominco. The picture these emails paint is not of regulators trying to protect the environment, but rather to weaken the permit and keep Teck Cominco happy. These emails demonstrate that EPA and the State negotiated the SSCs to mesh with the permit limits they already had in mind, rather than seeking SSCs that were determined by science or environmental need, that ADEC noted to EPA that it could change the final TDS certification with public notice, that the State was already planning a new Compliance Order by Consent in the event Teck Cominco could comply with its permit limitations, that the state has separated the TDS and Cadmium SSCs to facilitate allowing Teck Cominco to violate its new permit, that the EPA has asked ADEC to withdraw its previous SSC for TDS of 500 ug/L, that the State negotiated using a lesser number of cadmium samples for the natural condition cadmium SSC, and that EPA actually wrote most of the State's cadmium SSC and sent it to the State (see Exhibit 28-32).

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XII. THE PERMIT AND CERTIFICATIONS VIOLATE THE PROHIBITIONS IN STATE AND FEDERAL LAW AGAINST BACK-SLIDING AND ANTI-DEGRADATION.

The permit renewal violates 40 C.F.R. §122.62, violates 33 U.S.C. §1342(o), and violates the State of Alaska's anti-degradation regulations and thus 40 C.F.R. §122.4.

A. The permit renewal violates 40 C.F.R. §122.62.

EPA may modify a permit to reflect a change in the State certification of an NPDES permit. See 40 C.F.R. 122.62(a)(3)(iii) ("For changes based upon modified State certifications of NPDES permits, see Sec. 124.55(b)."). That authority, however, also is limited:

If there is a change in the State law or regulation upon which a certification is based, or if a

court of competent jurisdiction or appropriate State board or agency stays, vacates, or remands a certification, a State which has issued a certification under Sec. 124.53 may issue a modified certification or notice of waiver and forward it to EPA. If the modified certification is received before final agency action on the permit, the permit shall be consistent with the more stringent conditions which are based upon State law identified in such certification. If the certification or notice of waiver is received after final agency action on the permit, the Regional Administrator may modify the permit on request of the permittee only to the extent necessary to delete any conditions based on a condition in a certification invalidated by a court of competent jurisdiction or by an appropriate State board or agency.

40 C.F.R. 124.55(b).

Under Section 124.55(b), EPA is allowed to modify the permit *only* to make it “consistent with the *more stringent conditions* which are based upon State law identified in such certification.” (emphasis added). In this case, the certifications contains significantly less stringent conditions than were imposed by the original permit. Accordingly, EPA cannot modify the permit to reflect those changes, but must retain the original, more stringent discharge restrictions.

B. The Permit renewal violates 33 U.S.C. §1342(o).

The Permit renewal violates 33 U.S.C. §1342(o), as it contains effluent limitations which are less stringent than the comparable effluent limitations in the previous permit and Teck Cominco meets none of the exceptions found in §1342(o). For example, the previous discharge limit was 196 ppm TDS on a daily basis. That effluent limitation has been entirely removed from the permit, but the new TDS in-stream limitation will allow TDS discharge from the outfall pipe of in excess of 4,000 ppm – a significant jump up from 196 ppm. This is a clear violation of §1342(o).

C. The Permit renewal violates Alaska state anti-degradation regulations and thus violates 40 C.F.R. 122.4.

The Clean Water Act regulations make it clear that an NPDES permit may not be issued:

- (a) When the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA; . . . [or]
- (d) When the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States

40 C.F.R. 122.4. Thus, EPA cannot approve the permit renewal if it does not comply with Clean Water Act provisions or regulations or the applicable State WQS.

EPA relies on the State 401 certification to demonstrate that the permit modification

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complies with applicable State WQS. EPA must also ensure that the permit complies with the State antidegradation regulations. See *PUD No. 1 of Jefferson County and City of Tacoma v. Washington Dept' of Ecology*, 511 U.S. 700, 705 (1994) (“EPA’s regulations . . . require that state water quality standards include ‘a statewide antidegradation policy’”); *id.* at 707 (“Upon approval by EPA, the state standard became ‘the water quality standard for the applicable waters of that State.’”); see also 40 C.F.R. 131.12. Consistent with EPA regulations, Alaska’s antidegradation policy requires that “existing water uses and the level of water quality necessary to protect existing uses must be maintained and protected.” 18 AAC § 70.015(a)(1); see also 40 C.F.R. 131.12(a) (“The State shall develop and adopt a statewide antidegradation policy” that, at a minimum ensures that “[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected”).

EPA does not discuss this requirement in either the NPDES permit or its SEIS. This approach represents a failure by EPA to ensure that all existing uses of Red Dog Creek are protected. Indeed, EPA in earlier documents has acknowledged that a 500 ppm TDS limit may not be protective of spawning Arctic grayling, and in this permit has proposed a 1500 ppm limit. Rather than acting proactively to avoid the harm that it had earlier identified (through the Steckoll and Brix studies, for example), EPA has approved the potentially harmful activities. The Brix study, done for Teck Cominco, does not support a 1500 ppm in-stream limit. EPA’s approval of that limit in Alaska’s certification contravenes the antidegradation requirement, which requires EPA to act positively to protect the spawning fish. Once it identified the potential effect on Arctic grayling, EPA should have refused to approve the permit renewal that might cause the impact.

XIII. EPA AND ADEC MUST REJECT THE DRAFT §401 STATE CERTIFICATION.

The EPA and ADEC should reject the proposed §401 Certification because (1) Teck Cominco has failed to demonstrate that the proposed site-specific criterion will have no adverse affect on the aquatic ecosystem; (2) the proposed site-specific criterion for Red Dog Creek does not ensure viable habitat downstream; and (3) Teck Cominco lacks the historical record to demonstrate it is able and willing to comply with the proposed site-specific criterion.

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The Certificate of Reasonable Assurance covers several state actions (based on the federal permit), each of which is illegal: the granting of mixing zones for TDS, ammonia and WAD cyanide; the allowance of a pH effluent limit from 6.0 to 10.5 pH units; the deletion of the requirement for consultation with state and federal agencies on grayling spawning before discharge commences; the raising of the TDS concentrations allowed downstream of the discharge; the deletion of portions of the Preliminary Draft Permit and changes to other portions, for TDS monitoring; the deletion of significant ambient monitoring requirements; the deletion of significant biomonitoring/bioassessment requirements; and the removal of WET monitoring. Each of these changes has the potential for significant environmental impact, as in every case they allow more pollution and less oversight and monitoring. The state is abdicating its responsibility wholly, and EPA may not approve the state certification.

A. Teck Cominco has failed to demonstrate no adverse effect on aquatic life.

Teck Cominco has the burden of showing that the proposed water quality standards will have no adverse effect on aquatic life. EPA, ADEC and Teck Cominco Alaska have not demonstrated in any reasonable fashion that the discharge of effluents containing TDS concentrations of 1500 mg/L are not toxic to various forms of aquatic life; absent from available documents for public review are data and analysis by Teck Cominco (or anyone else) which demonstrates no adverse effect on aquatic life.

The proposed TDS level of 1500 mg/L is demonstrably harmful to aquatic organisms. Rather than there being no adverse impact on aquatic life, just the opposite is true, as ADEC well knows. An Alaska Department of Fish & Game literature review documents harm to aquatic life when TDS levels are in the range contemplated by the proposed water quality standards revisions.⁸ The information presented in the Fish & Game TDS study shows quite clearly that some waters containing TDS concentrations less than 1500 mg/L can be toxic to fish and other aquatic organisms (many of which are fish food). Indications of the potential for acute and chronic toxicity are best seen in the summary tables presented on pages 6 through 16 of that report. It is clearly unreasonable and technically indefensible to use the results of this literature survey to support an *increase* in the TDS concentrations allowed downstream of Outfall 001.

The Fish & Game TDS study may be underestimating the impact of TDS on aquatic organisms. The Fish & Game TDS study states that water samples are filtered through a 2.0 micrometer pore-size filter prior to being evaporated, dried and weighed to determine total dissolved solids (TDS) content. It is true that this is a standard analytical method, but it is an inappropriate method to be used at sampling stations in this permit. The effluent water discharged into the mainstem of Red Dog Creek by Teck Cominco is not filtered. Due to the addition of water treatment reagents and natural geochemical reactions, this water often contains significant concentrations of particulate materials, some portion of which may contain constituents potentially toxic to aquatic organisms. Filtration of the TDS samples prior to "analysis" (drying and weighing) removes many of these particles resulting in lowered TDS concentrations. The fish and other aquatic organisms in Red Dog Creek are not being exposed to filtered waters. This analytical procedure, therefore, presents a misleading picture of the chemical conditions to which the aquatic organisms are being exposed. Once the mine's effluent waters enter Red Dog Creek, the suspended and colloidal particles can easily be consumed by organisms. The particles may also dissolve, releasing some of their potentially-toxic constituents, such as metals, or metal cyanide forms. There is considerable debate and uncertainty amongst toxicologists about the toxicity of such particulates from mining wastes.

⁸Scannell and Jacobs, Alaska Department of Fish & Game, Effects of Total Dissolved Solids on Aquatic Organisms, Technical Report No. 01-06, June 2001 at 6-16 (hereafter "Fish & Game TDS study").

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The 2001 Aquatic Biomonitoring study⁹ states that the Invertebrate Density was much greater at upstream station 9 (11.7 # / m³) than at station 10 (3.21 # / m³), as an average during 2001.¹⁰ This appears to indicate some degree of toxicity from the mine discharge.

Station 10 was the first monitoring location downstream from the Red Dog outfall before Station 151 was inaugurated in the 2004 permit modification. Before being discharged, the effluent is treated; the treatment is needed to remove unacceptable contaminants in the mine facility discharge waters that result from the dissolution of the rock that is mined and processed, together with the residual chemical reagents that are added during the mineral processing stages. Many of these contaminants (both the “natural” rock products and the processing reagents) are potentially toxic to aquatic life.

At a minimum, waters at station 10 and Station 151 should be analyzed for the Total Solids content, which would include both the traditional TDS plus the suspended solids. Both the latest volume of Standard Methods For The Examination of Water and Wastewater (20th Edition, 1998) (“Standard Methods”) and the standard analytical methods document for the U.S. Geological Survey (Techniques of Water-Resources Investigations of the U.S.G.S., Chapt.A1, Methods For Determination of Inorganic Substances in Water and Fluvial Sediments, third edition, 1989, Book 5) contain methods that would be more suitable for these purposes. For example, see pages beginning on 2-54 in Standard Methods. Also, the detailed chemical composition of these solid fractions should be determined.

Unfortunately, the use of a TDS standard at this monitoring station masks most of the potential toxicity of these discharges. Simply determining TDS or Total Solids, by whatever method, will reveal almost nothing about the actual or potential chemical toxicity of the discharged waters. The release of waters containing elevated TDS concentrations can impair other potential water uses in addition to aquatic life uses. Such waters may require some form of additional treatment prior to use.

The 2001 Aquatic Biomonitoring study, at page 39, states that the waters at station 10 rapidly return to background concentrations for TDS, about 150 mg/L, during periods of no mine discharge. This reinforces the notion that the proposed TDS standard of 1500 mg/L is roughly *ten times background* – the concentrations under which the local aquatic organisms evolved. Baseline data from 1982-83, before the mine began discharge, reveal that the median TDS concentrations in 11 samples was 198 mg/L (the maximum, 876 mg/L is about half of the new proposed standard; the

⁹Phyllis Weber Scannell and Alvin G. Ott, Aquatic Biomonitoring at Red Dog Mine, 2001, National Pollution Discharge Elimination System Permit No. AK-003865-2, Alaska Department of Fish & Game Technical Report No. 02-04, May 2002.

¹⁰See *id.* at Summary Tables, Executive Summary.

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minimum was 9 mg/L).¹¹

B. Site-specific data is incomplete.

Conspicuously absent in the environmental review documents is any data on TDS concentrations at points below Station 10 during the discharge season. Such data is crucial, and could help ADEC and the public determine if those TDS concentrations already found as a result of Teck Cominco's discharges could affect salmon, grayling, Dolly Varden, and aquatic invertebrates (fish food). The data that is available is troubling. The 2001 Aquatic Biomonitoring study, at Page 41, Figure 36, shows that the reported maximum zinc concentrations at station 10 were between about 1000 and 1800 micrograms per liter during 1999 to 2001. Such zinc concentrations are routinely considered to be extremely toxic to cold water fishes. Yet, EPA proposes to raise Teck Cominco's zinc limits. It is true that the U.S. EPA has traditionally allowed higher zinc concentrations in waters with elevated hardness. However, has it been empirically demonstrated, via detailed toxicity testing, that Red Dog effluents with zinc concentrations between 1000 and 1800 micrograms per liter are truly non-toxic to local fish? Or, has this only been assumed because of the use of the Hardness - Toxicity equations presented in documents such as the "Gold Book" (Quality Criteria for Water 1986, U.S. EPA 440/ 5-86-001)?

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Most troubling, however, is ADEC's rush to change the TDS limits after the study funded by the Alaska Technology and Science Foundation and Teck Cominco, and prepared by the University of Alaska at Juneau, determined that levels of TDS far below 1500 ppm were toxic to salmonid reproduction

C. The water quality standards for Red Dog Creek do not ensure the viability of spawning habitat in Ikalukrok Creek.

Ikalukrok Creek provides essential spawning habitat for grayling, chum salmon, and coho salmon. EPA and ADEC must place a high priority on maintaining quality spawning habitat for sources of subsistence fishing. The proposed water quality standard for TDS does not protect spawning habitat.

A variety of fish use the waters that Teck Cominco currently discharges its mine waste into. According to a 1999 Fish and Game study, "Arctic grayling, slimy sculpin, and juvenile Dolly Varden migrate upstream in Ikalukrok Creek, through the mainstem of Red Dog Creek, and into the North Fork of Red Dog Creek in early summer to rear and return to the Wulik River in fall to winter. Chum salmon spawn in the lower reaches of Ikalukrok Creek in late July and in August. Dolly

¹¹Phyllis Weber Scannell and Sally Andersen, Aquatic Taxa Monitoring Study at the Red Dog Mine, Alaska Department of Fish & Game, February 1999, at 32.

Varden spawn in Ikalukrok Creek during late August through September.”¹² All of the spawning by these fish is threatened by Teck Cominco’s ongoing discharges, and will continue to be threatened if the TDS standard is raised. Further, the young fish – including juvenile Dolly Varden and young-of-the-year Arctic grayling – use the Red Dog Creek in the summer months.¹³ Fish & Game reports that the presence of 4-day-old fish suggest that Arctic grayling spawned in the Mainstem of Red Dog Creek just below the entrance of the North Fork of Red Dog Creek.¹⁴

Teck Cominco has claimed that the “data we have for Stations 10 and 7 demonstrate that when TDS is at or below 1500 mg/l at Station 10, it does not exceed 500 mg/l at Station 7, except on rare occasions in late September.”¹⁵ This is simply not the case. Teck Cominco violated the TDS limit of 500 mg/l at Station 7 (located on Ikalukrok Creek several miles downstream from the confluence with Main Stem Red Dog Creek) on the following dates: July 27, 1999; July 25, 2001; August 27, 28, 29, 2001.¹⁶ None of these violations are the “rare” late September occasions of high TDS at Station 7. Moreover, none of these violations occurred when TDS exceeded 1500 mg/l at Station 10.¹⁷ This data demonstrate that even if Teck Cominco complied with the 1500 mg/l proposed standard on Red Dog Creek, waters downstream in Ikalukrok Creek could exceed 500 mg/l. TDS concentrations at this level harm salmon spawning habitat,¹⁸ and are occurring at times when chum salmon and Dolly Varden are spawning in the Ikalukrok.¹⁹ Put simply, allowing Teck Cominco to pollute so that concentrations of TDS can rise to 1500 mg/L in stream means that spawning fish will be affected at downstream locations; because of this impact, the proposed change to TDS standards must be rejected.

D. Teck Cominco will likely not comply with the proposed water quality standard.

Teck Cominco has repeatedly violated the terms and conditions of its mine site NPDES

401 Cert

¹²Id. at 3.

¹³Id. at 31.

¹⁴Id. at 94.

¹⁵Revised Request for Site Specific Criterion (TDS), Authorization of Mixing Zones, and Modification of 401 Certification, January 9, 2001 at 2.

¹⁶See Mine Site Permit Discharge Monitoring Reports (DMRs) for 1999, 2000, and 2001.

¹⁷See *infra*.

¹⁸See Fish & Game TDS study, *supra*, at 11-12. There is no data for toxicity to Arctic grayling.

¹⁹Phyllis Weber Scannell and Sally Andersen, Aquatic Taxa Monitoring Study at the Red Dog Mine, Alaska Department of Fish & Game, February 1999, at 3.

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permit, No. AK-003865-2 (“mine site permit”), discharging mine effluent in excess of the limits for Total Dissolved Solids (TDS), cyanide, cadmium and other limitations. Teck Cominco was never able to comply with the effluent limitations for TDS in the 1998 permit. Instead, Teck Cominco obtained three compliance orders from U.S. EPA and ADEC to allow more time for Teck Cominco to comply. However, Teck Cominco has repeatedly violated even the terms of the relaxed TDS standards in the compliance orders, which are substantially identical to the proposed TDS revisions it seeks.

The water quality standard for TDS in Main Stem Red Dog Creek would be 1500 mg/l. In discharge seasons during 1999, 2000, 2001 and 2002, Teck Cominco routinely violated the proposed water quality standards. Among other days, Teck Cominco violated the TDS limit of 1500 mg/l at station 10 on fifteen consecutive days between June 24, 1999 and July 9, 1999; on four consecutive days from July 14 through July 18, 1999; September 5, 1999; October 1, 1999; October 5, 1999; on seven consecutive days from June 22, 2000 through June 28, 2000; on four consecutive days from July 5, 2000 through July 8, 2000; July 11, 2000; and on October 7, 2001 and October 2001.²⁰ For example, on June 27, 2000, Teck Cominco’s Station 10 readings were over 1600 mg/l TDS, while on June 28, 2000, they were 1590 mg/l TDS.²¹ On July 7 and 8, 2000, Teck Cominco’s Station 10 readings were over 1600 mg/l TDS.²²

These exceedances continued into the recent discharge season in 2002. The 2002 Compliance Order by Consent to the Teck Cominco NPDES Permit AK-003865-2 pertaining to the concentration of TDS in the Red Dog Mine discharge water stipulates that TDS concentrations be maintained at or below 500 mg/l in the Main Stem of Red Dog Creek (as measured at Station 10) from the initiation of discharge in the spring until completion of the Arctic Grayling spawning season.²³ Teck Cominco violated this COBC on May 28 and 29, 2002.²⁴ Teck Cominco violated this

²⁰See DMRs for 1999, 2000 and 2001.
²¹Letter 1 from Mark Thompson, Cominco Alaska, to Randall F. Smith, US EPA, re: Compliance Order Docket No. CWA-10-99-0167 – TDS, July 17, 2000.
²²Letter 2 from Mark Thompson, Cominco Alaska, to Randall F. Smith, US EPA, re: Compliance Order Docket No. CWA-10-99-0167 – TDS, July 17, 2000.
²³See Letter from Mark Thompson, Teck Cominco, to Pete McGee, ADEC, Re NPDES Permit AK-003865-2, Draft 2002 State COBC for TDS, May 29, 2002.
²⁴*Id.*

COBC on June 3, 2002.²⁵ Teck Cominco again violated this COBC on June 6, 2002.²⁶

Because Teck Cominco has not changed its method of treatment or discharge, these violations can be expected to continue in the coming discharge seasons. The predictability of Teck Cominco's violations makes the new TDS standard a mockery of the regulatory process: Teck Cominco has never complied with its 1998 permit limits for TDS to this point; rather than giving the company a free pass to continue to pollute the creeks and rivers that Kivalina residents rely on, ADEC should force Teck Cominco to clean up its act.

E. The individual changes are not supported by any evidence, are not protective of the environment, and should not be approved by EPA.

The Certificate of Reasonable Assurance covers several state actions (based on the federal permit), each of which is illegal. We discuss several of these below, and also refer to our comments elsewhere in this letter on the specific NPDES permit provisions involved, and incorporate them by reference here. None of the following changes by Alaska are supported by evidence, and none should be approved by EPA.

401 Cert

The granting of mixing zones for TDS, ammonia and WAD cyanide is in contravention of EPA's mixing zone regulations and the Magnuson-Stevens Act, as the mixing zones may impede fish migration to the North Fork of Red Dog Creek.

The allowance of a pH effluent limit from 6.0 to 10.5 pH units is not protective of the environment.

The deletion of the requirement for consultation with state and federal agencies on grayling spawning before discharge commences does not protect the grayling.

The raising of the TDS concentrations allowed downstream of the discharge, is not protective of the environment.

The deletion of portions of the 1998 Permit and changes to other portions, for TDS monitoring, are not protective of the environment.

The deletion of significant ambient monitoring requirements is not protective of the

²⁵Letter from John Martinisko, Teck Cominco, to Pete McGee, ADEC, Re NPDES Permit AK-003865-2, Draft 2002 State COBC for TDS, June 3, 2002.

²⁶Letter from Mark Thompson, Teck Cominco, to Pete McGee, ADEC, Re NPDES Permit AK-003865-2, Draft 2002 State COBC for TDS, June 7, 2002.

Response

Comment ID: 7.100

Response

The comments have been addressed in this comment response document. This has resulted in some changes to the SEIS, but the scope of the changes do not warrant preparation of a second draft SEIS. The selected alternative and environmentally preferable alternative and the rationale for their selection are presented in the final SEIS. EPA agrees that a wastewater pipeline is an important component of the environmentally preferred alternative. However, as discussed in response to comments above and the final SEIS, we cannot require its construction and implementation.

401 Cert [environment.
The deletion of significant biomonitoring/bioassessment requirements means that significant harm to the environment will go undetected and unreported, and the monitoring requirements will not be federally enforceable.
Each of these changes has the potential for significant environmental impact, as in every case they allow more pollution and less oversight and monitoring. The state is abdicating its responsibility wholly, and EPA may not approve the state certification. It is backsliding and also a violation of the anti-degradation regulations.

XIV. CONCLUSION

7.100 [For the foregoing reasons, the EPA should address each of the comments raised above and by others in the public comment process, create a legally adequate SEIS and recirculate it for public comment. Failing that, the EPA should adopt Alternative D and require a wastewater pipeline as part of the NPDES permit.

Sincerely,
/S/ [submitted electronically]
Luke Cole
Jennifer Giddings
Attorneys for commenters

Attachments submitted under separate cover.

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Dan DeLauder
Organization: Remote Site Services Incorporated
Address: 5700 Old Seward Highway, Suite 102
City, State Zip: Anchorage, Alaska 99518
Email: dandelauder@comcast.net

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

8.001 [Please add our name to the list of supporters for the Red Dog Mine. They have provided a tremendous financial basis for Northwest Alaska and the entire state. The future development of the mine will continue this long term growth. There environmental practices and policies and world class. We fully support Red Dog on their new development.

Response

Author Name: DeLauder, Dan—Remote Site Services Incorporated

Comment ID # 8.001

Response

Thank you for your comment.

Author Name: Duchanin, James—Individual

Comment ID: 9.001

Response

Thank you for your comment.

From: Mcgrath.Patricia@epamail.epa.gov

Sent: Friday, January 30, 2009 6:41 PM

To:

Subject: Fw:

----Forwarded by Patricia McGrath/R10/USEPA/US on 01/30/2009 05:36PM ----

To: Patricia McGrath/R10/USEPA/US@EPA

From: James Duchanin <jduchanin@hotmail.com>

Date: 01/30/2009 02:54PM

Subject:

Dear Ms. McGrath

I have worked at Red Dog Mine for 8 years. Red Dog Mine has provided my family and I the opportunity to pursue an Alaskan lifestyle that I cherish very much. It has given my wife, children and myself opportunities to excel in our individual talents and skills. As a result we have been able to give back to Alaska in the forms of community volunteerism, sports, fine arts, sports coaching and charitable giving.

I am grateful and proud to be a part of the Red Dog community and I wish to express my support for Alternative B of the Red Dog Mine-Aqqaluk Project.

Thank You,

James N. Duchanin
3321 Windlass Circle
Anchorage, AK 99516

Hotmail® goes where you go. On a PC, on the Web, on your phone. [See how.](#)

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Teck

February 3, 2009

Ms. Patricia McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
OWW-135
Seattle, Washington 98101

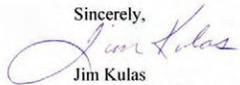
Re: Teck Comments on Draft SEIS

Dear Ms. McGrath:

On behalf of Teck Alaska Incorporated, I am pleased to provide comments on the draft SEIS concerning the Red Dog Mine. Renewal of the NPDES permit and completion of the SEIS is critically important to the Mine, and we appreciate the hard work that EPA has put into this project. We will provide comments on the draft NPDES permit under separate cover.

If you have any questions, please contact Chris Eckert at (907) 426-9139.

Sincerely,



Jim Kulas
Manager, Environmental and Public Affairs



Aqqaluk Draft SEIS Comments

Comment 1

10.001

Abstract – We note that certain of our comments, if accepted, would require changes to the SEIS abstract.

Comment 2

10.002

Teck Cominco Alaska Incorporated recently changed its name to Teck Alaska Incorporated. Please use "Teck Alaska Incorporated" as the full name of the company, or "Teck" when using an abbreviated form of the company name.

Comment 3

10.003

Executive Summary Section 1.0, p. ES-1.

The last sentence indicates that the Corps must make decisions to issue or deny Section 404 permits for placement of fill in wetlands associated with mining the Aqqaluk Deposit and increasing the height of the tailings impoundment to hold additional tailings and wastewater from the Aqqaluk Deposit. EPA appropriately addressed the impacts of both activities in the draft SEIS. Increasing the height of the tailings impoundment to accommodate Aqqaluk (986-foot level) is not anticipated to occur until 2016. As the 2016 milestone approaches, Teck will submit a 404 permit application to the Corps. The draft SEIS correctly characterizes the Section 404 permitting sequence on page 3-104, but in most other references, the SEIS should be revised to note that submission of a Section 404 permit application for the tailings impoundment expansion will occur as the 2016 milestone approaches.

Comment 4

10.004

Executive Summary Section 2.0, p. ES-5.

The No Action Alternative – Alternative A – should be clarified in two ways. First, the NPDES permit should be reissued, but with the same limits that are currently in effect. In many places, the SEIS states or suggests that the administratively-extended permit would continue on indefinitely. This is probably not possible, and the SEIS should not suggest that the existing permit would live on forever without being reissued.

Second, at this point in time, Teck is only seeking a 404 permit for the Aqqaluk deposit area. Teck will seek a 404 permit for the tailings impoundment expansion as the 2016 milestone approaches. Hence, the reference to 404 "permits" in line 2 under Alternative A should be in the singular ("permit").

Response

Author: Kulas, Jim—Teck Cominco Alaska Incorporated

Comment ID: 10.001

Response

Comment noted. Substantive changes within the final SEIS are reflected in the abstract.

Comment ID: 10.002

Response

References to Teck Cominco Alaska Incorporated have been changed to Teck Alaska Incorporated (or Teck).

Comment ID: 10.003

Response

The final SEIS clarifies the issues associated with the Section 404 permit applications at the end of Section 1.0 of the Executive Summary and in Section 1.3 (Decision to Be Made). The other references to Section 404 applications are general enough that additional explanation was not warranted.

Comment ID: 10.004

Response

The no action alternative means that there is no federal action that occurs, including not reissuing the NPDES permit. EPA could not reissue the permit with the same limits since permits need to be based on water quality standards and there are updated water quality standards that would need to be incorporated into any reissued permit. Therefore, the description of the no action alternative has not been revised.

The text in the summary and in Chapter 1 has been clarified to indicate that Teck is only applying for a Section 404 permit to develop the Aqqaluk Deposit and that an application to expand the tailings impoundment would be submitted in the future.

Comment 5

Executive Summary Section 2.0, p. ES-5.

10.005 The summary of Alternative C incorrectly states the preferred treatment method for the concentrate wastewater as lime precipitation. The description of the preferred wastewater treatment system for concentrate wastewater should be changed to match the description given in Section 2.2.3 of the document.

Comment 6

Section 1.6.1, p. 1-9, National Park Service.

This section states that if a pipeline across Cape Krusenstern were to be selected, NPS would need to receive an application under ANILCA Title XI. Additionally, the SEIS indicates that there would be a separate NEPA action with NPS as lead (or co-lead) agency.

The question as to whether a pipeline can be authorized under the existing NANA easement has not been resolved. Teck and NANA have begun discussions with NPS concerning this issue and ANILCA Title XI. The existing SEIS language presents a view which is too rigid insofar as it does not contemplate the possibility of authorizing a pipeline under the existing easement. Teck also believes that the reference to future NEPA proceedings should be more general and need not, and should not, at this stage predict which agency(ies) will be lead agency. It should also reference the possibility for tiering.

10.006 **Recommended Revision**

We suggest the following language in lieu of the first full paragraph on page 1-10:

For any alternative involving a pipeline across Cape Krusenstern National Monument, NPS would need to determine whether the pipeline could be authorized under the existing NANA easement, or alternatively, under ANILCA Title XI. Title XI, and its implementing regulations at 43 CFR Part 36, establish specific NEPA requirements. NPS has indicated that should a pipeline alternative be selected, ANILCA's NEPA requirements would need to be met under a separate NEPA action. Any future NEPA action concerning a pipeline project would tier off the environmental analyses undertaken in this SEIS.

Comment 7

Section 1.6.2, p. 1-12, Tribal Governments.

10.007 The SEIS indicates that "information in the SEIS may benefit their decisions regarding the Aqqaq Project." We are not aware of any decisions that must be made by any tribal government regarding the Aqqaq Project. We suggest replacing the underlined language with "...information in the SEIS may inform their opinions regarding the Aqqaq Project."

Comment ID: 10.005

Response

The text in the Executive Summary of the final SEIS has been revised to reflect that the concentrate wastewater would be treated with a high-density sludge system.

Comment ID: 10.006

Response

The language in the paragraph in question was provided verbatim by George Helfrich (NPS). Therefore, the text has not been changed.

Comment ID: 10.007

Response

The text in Section 1.62 has been edited per the suggestion.



Comment 8

Section 2, p. 2-1, Alternatives.

The purpose and need is to obtain two federal permits – an NPDES permit from EPA and a Section 404 permit from the Corps – to allow ongoing mining operations. Some of the clarity on purpose and need is lost in Chapter Two, where the discussion suggests that the purpose and need is to "mine Aqqaqaluk." This lack of clarity, in turn, carries into the alternatives. A number of components of the alternatives are unrelated to the underlying federal permits. For example, transport along the DMTS is unrelated to the NPDES permit and 404 permit for the Aqqaqaluk area. Issues such as road and port closures are mitigation measures and should be presented as such rather than as components of alternatives. Similarly, mine closure is not within the scope of either EPA's or the Corps' present agency actions and need not be part of the suite of alternatives. Instead, closure is an environmental consequence which should be fully discussed using the best available information which, in this instance, is the closure and reclamation plans being developed by Teck under the oversight of the State of Alaska.

We encourage EPA to better align the alternatives analysis with the purpose and need statement by removing from the alternatives those components that are more appropriately characterized as mitigation measures or which transcend the underlying federal actions being considered by the agencies.

Comment 9

Section 2.2.1, p. 2-5.

"The no action alternative represents no reissued NPDES permit for the Red Dog Mine and no new Section 404 permits associated with development of the Aqqaqaluk Project. Therefore, the no action alternative includes continued mining in the Main Pit until the projected closure date of 2011, but does not include development of the Aqqaqaluk Project."

In Comment 13, Teck addresses the costs and feasibility associated with meeting the requirements of the 1998 permit. If Alternative A were to be selected, it is unclear whether the Mine could continue to operate until 2011 due to the inability to meet the permit limitations. The discussion should be corrected to note that selection of Alternative A could result in immediate closure of the mine, rather than continuing operations through 2011.

Comment 10

Section 2, p. 2-10, DMTS.

In general, the SEIS equates the DMTS as the road. For example, on page 2-10, it notes that the concentrate line would be "paralleling the DMTS." The DMTS is the entire transportation system which includes the road, port, and related facilities. It would include any pipelines. Throughout the SEIS, language should be corrected to note that pipelines would be built "in the DMTS," not along side of it.

Comment ID: 10.008

Response

NEPA is clear in that all reasonable alternatives be considered regardless of whether or not they are within the jurisdiction of the lead agency (see CEQ's compilation of the 40 most frequently asked questions). Scoping identified a number of issues, including impacts due to fugitive dust and effects of operations on subsistence. Port and road closure and alternate means for transporting concentrate were included as part of reasonable alternatives to address those issues. A dry closure for tailings is included as part of an alternative to consider a mechanism to reduce the volume of contaminated water that would need to be treated over the long term. The alternatives have been developed by EPA and the cooperating agencies and are not revised in the final SEIS.

Comment ID: 10.009

Response

EPA acknowledges that construction of the reverse osmosis wastewater treatment system under Alternative A would be very costly, i.e., \$100-200 million to construct and \$10-20 million annually to operate. It is, however, speculative and beyond the scope of this NEPA analysis to evaluate whether this would cause mining to cease. This is dependant on a number of factors, e.g., the price of zinc, that are unrelated to the treatment system. Moreover, if Alternative A were selected, the treatment system would be needed regardless of whether mining ceases. That is, there would continue to be the need for a permitted discharge from the tailings impoundment, which would have to meet the current TDS limits.

Comment ID: 10.010

Response

The text throughout the document has been revised to refer to the DMTS road or DMTS port to clarify the reference. The pipeline would be incorporated into the DMTS road.

10.008

10.009

10.010



Comment 11

Section 2.2.3, p. 2-10, Dry Cover Closure Option, and Environmentally Preferred Alternative, p. ES-6.

Through the closure planning process, it was determined by the State and stakeholders that it was not technically feasible nor desirable to relocate main waste to the Aqqaluk Pit. The backfilling of the Aqqaluk pit would result in the loss of access to the Paalaaq ore body possibly resulting in the permanent loss of the resource. Additionally, the partially backfilled pit would not have sufficient volume for the long-term storage of sludge and storm water that is needed for the long-term water treatment that will be required at Red Dog.

The tailings facility closure method proposed in the Reclamation and Closure Plan, and summarized in Alternative B, reflects the results of both technical assessments and extensive consultation with the local communities and other stakeholders. The selection process included brainstorming of all possible tailings management and closure methods, further investigations leading to the development of four options, and detailed assessment of the four options by technical experts and local stakeholders. The latter step included over twenty meetings and two major options evaluation workshops. The proposed closure method was the first choice of over half of the participants in the first workshop and about 90% of the participants in the second workshop. The primary technical reasons were the fact that water cover is the only technology that has been proven to control the oxidation of sulfidic tailings over the long term, and the strong and successful experience of the site with the water cover method. Alternatives involving a dry cover were also examined. Concerns raised by the technical experts included the challenge of constructing a dry cover on the Red Dog tailings, and the difficulty of keeping it from being periodically inundated. Further analyses showed that the cover and the upper tailings would be subject to periodic drying and wetting, creating both a potential for sulfide oxidation and a means to transport the resulting contaminants to the surface. Other concerns raised about the dry cover option by community members included the possible uptake of contaminants by animals using the cover, and the increased toxicity of any seepage.

For these reasons, Teck believes that EPA should select wet closure under Alternative B as the Preferred and Environmentally Preferred Alternative.

Comment 12

Section 2.3.6, p. 2-20, Sixth Paragraph.

The SEIS states that "For the Aqqaluk Project, the Applicant proposes to collect the seepage and storm water runoff associated with the Aqqaluk Pit and to pump these wastewaters to the tailings impoundment." Teck has been collecting storm water from the Aqqaluk Deposit area since 1991.

Recommended Revision

We suggest modifying the sentence above as follows:

"For the Aqqaluk Deposit area, the Applicant has been collecting storm water since 1991. The collected storm water is pumped to the tailings impoundment. For mining of the Aqqaluk project, the Applicant proposes to collect the seepage and storm water runoff

Comment ID: 10.011

Response

In the draft SEIS, EPA did not identify the closure component of the environmentally preferred alternative. The SEIS evaluated both the wet closure proposed by Teck and the State of Alaska and a dry closure plan that was developed to minimize the amount of water that would require long-term treatment. After reviewing Teck's draft closure plan and refining the SEIS, EPA has determined that the wet closure plan is environmentally preferred for the following reasons: the fine-grained nature of the tailings would make the tailings difficult to compact and compaction times long; any failure of the cap would promote wetting and drying cycles which could produce acid and mobilize metals; wet closure is easier to maintain over the long term since precipitation and runoff will continue to collect in the impoundment (dry closure would require maintenance of diversions); and, in the event of mine closure before the planned end of mine life, the wet cover can be put in place more easily. In addition the wet cover is reversible and does not preclude the use of dry closure in the future. The executive summary and Section 2.7 have been revised to identify wet closure as a component of the environmentally preferred alternative.

Comment ID: 10.012

Response

The text in Section 2.3.6 has been revised to clarify this point in the final SEIS.

10.011

10.012



10.012
(cont)

associated with the Aqqaq Pit and to pump these wastewaters to the tailings impoundment."

Comment 13

Section 2.3.6.1, pp. 2-20 – 2-21; and Section 3.5.3.1, pp. 3-66 – 3-68.

The Draft SEIS suggests that, for Alternative A, reverse osmosis could be implemented at the Red Dog Mine to meet the permit limits contained in the 1998 permit. The discussion misleads the public by suggesting that the technology required to attain the limits could be feasibly implemented at the Red Dog Mine. Pretreatment of the entire effluent volume is theoretically possible as a paper exercise, but it is not feasible at the Red Dog Mine because it is not cost effective under any economic climate and, operationally, it would be so complex as to be unworkable.

The SEIS greatly simplifies, or excludes, the multiple treatment steps that would be required to produce water that would be suitable for reverse osmosis treatment. Determining the actual steps required for such a system is not possible without extensive test work. Teck is not aware of any such system in operation or undergoing pilot testing.

As with all water treatment plants the treatment steps are expected to fall outside of operational ranges at various times. The plants are designed to cut off discharges before a permit limit is violated. As the number of treatment steps increases and the complexity of the treatment increases, the operational "up time" for the overall plant decreases. Given the complexity of the proposed treatment system, we believe it is unlikely that the plant would be within operational limits for a sufficient period of time to discharge enough water to maintain the tailings pond water balance during the short summer discharge season.

10.013

Reverse Osmosis (RO) or other membrane filtration processes have not been proven to be feasible on a large scale on water with characteristics similar to Red Dog's. Although there are pilot plants being tested with gypsum levels similar to Red Dog, these effluents have less dissolved metals and other salts compared to Red Dog.

The large scale RO plants operating around the world at 98% TDS removal are treating either lower metal/salt content or sea water. Sea water contains mainly sodium chloride that has a very high solubility/saturation level. In contrast, Red Dog discharge water is at the saturation level of gypsum. This difference allows sea water desalting to be very effective because there is less membrane fouling and removal rates can be very high.

Pretreating with barium hydroxide before RO is possible, but has only been shown to reduce TDS levels to the 2,000 mg/L -3,000 mg/L range. Barium hydroxide pretreatment raises the pH to a point where the physical stability of the RO membrane is affected. To correct this, the solution would have to be acid-treated to return the effluent back into a pH range suitable for RO. This treatment would have an unknown effect on the effluent potentially resulting in multiple additional treatment steps prior to RO treatment.

Treating 20 MGD of water would require 17,000-20,000 tonnes of barium hydroxide octahydrate per year, at a cost of \$30-\$35 million just for the reagent. The quantity of barium needed to treat 20 MGD of water would require a large, new facility to handle, process, and mix the reagent, resulting in additional disturbance to the tundra. The Mine could not handle the amount of sludge generated from continuous barium treatment of 14,000 gpm using the current Red Dog clarifier system. The new system would require an area much larger

Comment ID: 10.013

Response

Under NEPA, EPA is required to consider a no action alternative. In this case, the no action alternative reflects no reissuance of the NPDES permit. Therefore, Teck would need to comply with the current TDS limits. As a result, EPA had to address what would be required to meet these limits. While there are not comparable systems in place, the proposed reverse osmosis system with barium hydroxide treatment represents an appropriate technology to achieve the necessary TDS removal efficiency. Scaling concerns precludes the use of reverse osmosis alone. Pretreatment with barium hydroxide addresses these concerns and, as indicated by the commenter, brings the TDS levels down to 2,000-3,000 mg/L and enables reverse osmosis to be used effectively.

EPA acknowledges the commenter's point that similar systems have not been used at other locations. However, reverse osmosis systems are in place at mines and other industrial facilities and are used on wastewaters with metals loadings comparable to the Red Dog Mine. EPA has added language to the final SEIS (Section 2.3.6.1) acknowledging that the proposed system would require an extended period of pilot-testing and full-scale optimization. As a result, there would likely be period of several years where the facility would likely remain out of compliance, either because sufficient volumes of water could not be treated and discharged or permit limits could not be met. EPA has also acknowledged that while the technology should be feasible it has not been proven successful in any other application.

As noted above, the treatment system would require significant optimization. The approximate facility sizes are based on reverse osmosis systems treating comparable flow volumes and are intended to be approximations of the likely space requirements. The final SEIS recognizes that the actual configuration and size of the new facilities cannot be finalized until the work is completed.

Lastly, the final SEIS discloses the relative impacts of Alternative A, including additional treatment and related power requirements, on all resources and socioeconomics.

Response



10.013
(cont)

than the 250 ft by 150 foot facility described in the Draft SEIS. The proposed size of the new facility would not even be sufficient for the clarifier that would be needed for the barium hydroxide pretreatment. Additionally, significant new power generation facilities would be required at the Mine, introducing additional environmental costs into the balance.

The treatment underlying Alternative A requires significant groundtruthing by EPA. We request that EPA substantially revise the Alternative A/RO discussion in the various places it occurs to apprise the public that, although RO may be theoretically possible, it is unlikely to be operationally feasible or cost effective at the Red Dog Mine.

Comment 14

Section 2.3.6.1, p. 2-21

In at least three locations in the SEIS (page 2-21, first complete sentence; page 3-66, last complete sentence, and footnote d of Table 3.5-11), the 1998 NPDES Permit limits for TDS are incorrectly cited as:

10.014

176 mg/l monthly average
198 mg/l daily maximum

The correct 1998 NPDES Permit TDS limits are:

170 mg/l monthly average
196 mg/l daily maximum

Comment 15

Section 2.3.6.2, p. 2-22.

10.015

Alternative B is described in the SEIS in a way that may leave the reader with the impression that barium hydroxide will be used, 24/7, as the preferred treatment method going forward. Teck views the use of barium hydroxide as a small component of the TDS management plan. Teck intends to use barium hydroxide only during periods of low flow, when its use will provide the maximum benefit and ensure sufficient water is discharged to maintain the water balance. As the TDS control plan is implemented, there may be seasons when barium hydroxide will not be used.

Comment 16

Section 2.3.6.2, p. 2-22, Second Paragraph.

10.016

“Calcium hydroxide does not react with sulfides in the wastewater and therefore does not reduce TDS or sulfate levels in the discharge. In contrast, barium hydroxide does cause sulfide precipitation and produces barium sulfate.”

Neither calcium hydroxide nor barium hydroxide are intended to precipitate metal sulfides. The reagents are added to produce insoluble calcium and barium sulfates and metal hydroxides, the precipitation of which decreases TDS. Barium sulfate is more insoluble than calcium sulfate, and is therefore more effective in reducing TDS.

Comment ID: 10.014

Response

The text throughout the document has been revised to reflect the correct permit limits for TDS.

Comment ID: 10.015

Response

The draft and final SEIS both indicate that barium hydroxide treatment would be used in place of calcium hydroxide “as needed” throughout the discharge season. Section 2.3.6.2 indicates that over the long term the TDS control plan required by the NPDES permit is likely to include a combination of different measures to ensure long-term compliance with TDS limits.

Comment ID: 10.016

Response

The commenter is correct and the final SEIS has been revised to reflect the requested language change.



Comment 17

Section 2.3.9, p. 2-25, Temporary Closure of the DMTS Road and Delayed Opening of the DMTS Port.

The 100% utilization of the late summer haulage period is needed to move all the concentrate. Starting around late July or early August, concentrate is hauled as it is produced. If the road were shut down for a 30-day period, Teck would be unable to transport that concentrate off-site prior to the end of shipping season. Unshipped concentrate would displace concentrate produced the following year, requiring the need to increase storage capacity or reduce production.

The closure of the road for caribou migration lasting from a few hours to multiple days is a common occurrence as the caribou move through the DMTS corridor. These road closings are expected and planned for to limit the impact on concentrate transportation. The mine site concentrate storage building has inadequate capacity to store the concentrate produced for extended periods of road closure. The capacity of this building is approximately 30,000 tonnes, which equates to about 10 days of production. During normal operation, it is half-full. Hence, under normal circumstance, it can only accommodate a 5 days road closure.

There is a similar problem with the loss of shipping days at the beginning of the season. There are no extra days in the shipping season to make up for unused days. Availability of vessels and a limited loading capacity constrain scheduling flexibility and do not allow for a shorter shipping season.

The SEIS incorrectly states that under Alternative D, concentrate hauling would increase prior to road closure. This is incorrect, as the concentrate would not be stockpiled at the mine site except during the road closure period. The increased daily road trips would be experienced for a period of time after the road closure. Roads trips would most likely be most intensive for the short period of time after the road is reopened until the Port closes for the winter and then spread out over the winter.

Comment 18

Table 2.3-3, p. 2-27, Reagents Used in Froth Floatation Process.

Dextrin is currently in use in the Mill as an organic depressor and should be added to Table 2.3-3 with an estimated annual consumption of 115 tonnes per year.

Comment 19

Section 2.3.18, pp. 2-29 – 2-31, Reclamation and Closure.

On page 2-29, the SEIS states “[a]n 18-inch layer of shale would be spread over the waste rock dump, graded, and compacted. Depending on the level of weathering of shale, the first layer may be allowed further weathering time prior to final grading and compaction of the first layer. A second 18-inch layer of the shale would be placed and lightly compacted.”

To provide for the maximum vegetative growth, the second 18-inch layer (the top layer) would not be compacted for the cover option. The compaction of this layer would inhibit the establishment of vegetation and result in increased erosion of the cover.

Comment ID: 10.017

Response

NEPA requires that the impact analysis consider a full range of alternatives. As the commenter is well aware, deriving alternatives that fit within a specific range of operational constraints, particularly for an existing operation is a difficult exercise. The intent of the road closure alternative is to address concerns regarding the potential impacts to fall caribou migration. The final SEIS considers adding additional storage capacity of the CSBs at the port and the mine so that adequate storage would be available for the annual production to be shipped from the port facility while allowing concentrate production at the mill to occur at normal operational levels. The increased traffic that would be necessary to accommodate the 30-day closure could occur when it was operationally practical.

EPA understands based on NANA’s comments that the subsistence committee currently approves the opening of the port only after the beluga have passed the port in the summer, which implies that closure of the port to avoid the beluga migration has not been an issue in terms of operations. The analysis for Alternative D continues to assume that operations would not begin until the summer beluga migration has been completed.

Comment ID: 10.018

Response

Dextrin has been added to Table 2.3-3.

Comment ID: 10.019

Response

The text in Section 2.3.18 has been revised to note that the top layer of cover material would not be compacted. It has also been revised to note that 3.3 million cubic yards of cover material would need to be salvaged from appropriate waste material in developing the Aqaluk Pit. The cover material would be stored in two stockpiles (shown in Figure 2.9) to facilitate spreading over the impoundment following closure. Removal of the pipelines under Alternative C, as stated in the text would be to minimize the long-term impacts to wetlands, consistent with the Section 404(b)(1) guidelines and wetland policy established in Executive Order 11990. Costs are not addressed since NEPA does not require that economic benefit be weighed against environmental benefit.

10.017

10.018

10.019

10.019
(cont)

The source of the dry cover material considered in Alternative C is not clear. As most of the acceptable cover material would come from the Aqqaluk pit, large stockpiles of cover material would have to be maintained for use in closure. The additional waste segregation and additional stockpile disturbance have not been considered in Alternative C. In order to have a more accurate portrayal of a dry closure scenario, EPA should provide better information and estimates (tons, acres, stockpile locations, etc.) for the segregation and storage requirements.

Last, the discussion of Alternative C (p. 2-31) does not provide much detail on reclamation of the buried pipeline and suggests as fact, without discussion, that the benefits (environmental and others) of removing the pipelines outweigh the costs of leaving them in place.

Comment 20

Section 2.3.1.8, p. 2-30.

"Buildings, equipment, yards and roads no longer necessary for long-term maintenance would be decommissioned, and either buried or removed from the site."

NANA has the right to require Teck to remove buildings and infrastructure, but no decision in that regard has been made and will not be made for some time. The SEIS should state that while removal of buildings and infrastructure is an option, NANA has not yet made a decision.

Comment 21

Section 2.4.5, p. 2-34.

"A concern over water chemistry in the tailings impoundment led to a consideration of alternative tailings disposal methods. Paste tailings disposal is a method that involves mixing tailings with cement to form a paste. The paste, which solidifies similarly to concrete, allows wet tailings to be disposed of outside a traditional impoundment. No technological reasons exist why paste tailings disposal could not be implemented at the Red Dog Mine;"

A major technical hurdle to overcome related to the paste tailings option is designing a paste that would be stable in the long term. It is unclear if cemented tailings would stand up to low pH conditions on the surface of the tailings paste that would result from the exposure of the tailings to the atmosphere.

Comment 22

Section 2.5, p. 2-36, Table 2.5-1, Mitigation Measures by Resource, Under "Subsistence."

"Form a Stakeholder Participatory Monitoring and Review Committee to coordinate and collaborate ongoing health efforts and initiatives in the area, including those related to mining." "Section 3.13.3"

AND

Comment ID: 10.020

Response

The text has been modified to reflect that NANA would determine the ultimate fate of the site's buildings at closure.

Comment ID: 10.021

Response

EPA believes that the addition of cement would likely neutralize any low pH levels associated with the tailings, thereby avoiding the concern raised by the commenter. Paste tailings are, therefore, considered technologically feasible and no changes have been made in the final SEIS.

Comment ID: 10.022

Response

The Stakeholder Participatory Monitoring and Review Committee is a mitigation measure that stemmed from the health analysis. The form that the committee may take is up to the interested parties, whether that is a separate committee or part of an entity formed as a result of the risk management process. The text in the final SEIS has not been modified.



Section 3.13.3, p. 3-255, Paragraph 4, Entitled “Recommendation.”

"The potential effects of large-scale mining operations on general health are complex and for Red Dog Mine, have not been directly investigated. The health analysis has suggested that positive and negative impacts have occurred since the mine began operations. These changes have occurred as a result of a number of factors, potentially including the Red Dog Mine and other development; improvements in technology, transportation and communication, and social changes. To address these and future changes, a Stakeholder Participatory Monitoring and Review Committee could be formed to coordinate and collaborate ongoing health efforts and initiatives in the area, including those related to mining. The committee would be voluntary and consist of a collaborative multistakeholder group comprising members from public health agencies such as ADHSS and Maniilaq Association, NANA, Teck, and the NWAB. Specific activities could include oversight and advisory functions for the monitoring identified in this section, planning for future anticipated changes such as closure, and addressing new health issues and questions related to mining as they arise in future permitting, operations, and management decisions. The committee could ensure adequate consultation among public health agencies and stakeholders (health agencies, regulatory agencies, local, regional, and tribal governments, and industry) on any issues related to regional health, including mining."

The recommendation in Section 3.13.3 and Table 2.5-1 of the SEIS cited above is very broad, but appears to overlap with both risk management plan activities and with existing committees (e.g., the Subsistence Committee, the Ikayuyqit Team, and other committees). Rather than create another layer of stakeholder committees, which risks creating stakeholder involvement “fatigue,” it would be better to incorporate appropriate aspects of the SEIS recommendation into existing structures. The risk management plan already includes a recurring stakeholder communication and collaboration process, including periodic review and improvement on actions being taken to achieve the risk management objectives. This will address the safety and health of the subsistence food resources and mine-related health issues (e.g., worker health and safety) on an ongoing basis.

As noted in Comment 110, many of the health issues included in Section 3.13 are discussed only as they pertain to health statistics for Alaska Natives as a whole, or more generally, about the relationship between economic development, cultural changes, and health demographics. This general information has not been connected in any meaningful way to site-related activities, and has little or no relevance to the site or the SEIS process.

More specifically, the information contained in subsections titled, “General Health Status,” “Social and Psychological Health,” and “Cancer” should be removed from the SEIS, unless data can be provided that link these issues to site-specific impacts. The recommendations in Section 3.13.3 and Table 2.5-1 must reflect this exclusion. The proper forum for addressing these public health issues that are not directly relatable to the potential environmental impacts associated with the mine is not in the SEIS, but rather in Maniilaq publications and actions. Moreover, as stated, the recommendation from Section 3.13.3 is not appropriately placed in the Subsistence category of Table 2.5-1 because it addresses health issues that go beyond subsistence food availability and use.

If EPA is unwilling to remove these sections from the SEIS, it must, at a minimum, include a qualifier in each section on pages 3-235 through 3-245 which plainly states that there has been no established causal link between the subjects addressed and the Red Dog Mine and that the SEIS should not be interpreted as establishing such a connection.

Comment ID: 10.023

Response

Section 3-13 describes general health status of Alaska Natives, the population in the NWAB and, where possible, residents in specific villages. Where possible, based on available data, the section identifies links between both site-specific effects (such as subsistence impacts and environmental contaminants) and mine-related social, demographic, and economic changes, and health outcomes.

Comment ID: 10.024

Response

Cancer, and social and psychological health are relevant because these concerns have been raised by Maniilaq Association, a cooperating agency on the SEIS. The SEIS discusses potential links between mine-related activities and these categories of health outcomes, and supports these discussions using available data. Secondly, the SEIS focuses on these issues because they represent substantial baseline health disparities. Under its Environmental Justice responsibilities, EPA seeks to identify and address the potential for disproportionate adverse effects on low income and minority populations.

Table 2.5-1 has been modified to remove the reference to the Stakeholder Participatory Monitoring and Review Committee from the subsistence heading but remains as part of monitoring (Table 2.5-2) under the health heading.

Comment ID: 10.025

Response

The relationship between public health and mine activities are summarized at the end of each of the subsection in Section 3.13-Health.

The text has been modified to address the suggested revision to the Recommendation Section.

10.022 (cont)

10.023

10.024

10.025



Recommended Revision

Replace the "Recommendation" paragraph in Section 3.13.3(page 3-255) with the following:

"The risk management plan includes a recurring stakeholder communication and collaboration process, including periodic review and improvement on actions being taken to achieve the risk management objectives. This will address the safety and health of the subsistence food resources and mine-related health issues on an ongoing basis and provide a forum for stakeholder input into planning, implementation, and review. Subsistence and mine-related health issues identified in the SEIS could be appropriately addressed as part of the risk management plan and specific implementation plans developed as part of that process."

Replace the quoted text in Table 2.5-1 with the following: "Continue stakeholder involvement in subsistence food monitoring within the risk management process."

10.025
(cont)

Comment 23

Section 2.5, p. 2-37, Table 2.5-2, Selected Monitoring by Resource, Under "Wildlife."

"Monitor health of local populations of voles, shrews, and ptarmigan."

Given the highly variable nature of trying to monitor animal populations, and the difficulty in establishing trends with such variable data, the health of these wildlife populations can best be evaluated on an ongoing basis through monitoring of their foods, i.e., through vegetation monitoring. The details of this monitoring are being developed in the monitoring plan associated with the risk management plan (Exponent 2008).

Recommended Revision

Consider modifying the quoted sentence as follows: "Monitor health of local populations of voles, shrews, and ptarmigan through vegetation monitoring." Otherwise, the details can be addressed through stakeholder involvement in the monitoring plan development.

10.026

Comment 24

Section 2.5, p. 2-37, Table 2.5-2, Selected Monitoring by Resource, Under "Vegetation."

"Monitor changes in the vertical distribution of metals in surface tundra and underlying soils."
This monitoring item is not necessary to achieve the objectives set out in the risk management plan. Monitoring of vegetation tissue concentrations and plant community parameters will indicate changes in metals availability for uptake.

Recommended Revision

Remove this line item from the table.

10.027

Comment ID: 10.026

Response

The recently released US Geological Survey report Assessment of Metal Exposure and Sub-Lethal Effects in Voles and Small Birds Captured Near the DeLong Mountain Regional Transportation System Road, Cape Krusenstern National Monument, Alaska, 2006 recommends continued monitoring of small mammals and birds along the DMTS. EPA believes that such monitoring is important as discussed in Section 3.9.2. Teck's draft risk management plan includes monitoring wildlife species. EPA acknowledges that vegetation monitoring could provide an assessment of bioavailability of metals within soils. However, in the absence of details presented in a final risk management plan(s) as to how this would be done, EPA will retain the monitoring measure as described in the draft SEIS.

Comment ID: 10.027

Response

The idea that sampling metals tissues in plants illustrates uptake conditions is correct. However, other commenters have noted concerns about whether metals are moving through the soils and at what kinds of rates and in what form. Therefore, the recommendation (initially identified in the draft risk management plan) to sample the vertical distribution of metals remains in the final SEIS.



Comment 25

Section 2.5, p. 2-37, Table 2.5-2, Selected Monitoring by Resource, Under “Vegetation.”

“Monitor tissue concentrations in shrubs, herbaceous plants, mosses and lichens to track rate of changes (1 year frequency).”

The monitoring media and frequencies most appropriate to achieving the objectives of the risk management plan will be selected. The details of this monitoring are being developed in the monitoring plan associated with the risk management plan (Exponent 2008). Monitoring of some of these media may serve as surrogates for others, thus not all of these may require monitoring, and certainly not on an annual basis. Particularly not for mosses, where the minimum frequency compatible with the methodology would be a three-year basis.

Recommended Revision

Change the quoted text in the second column to: “Monitor tissue concentrations in vegetation such as shrubs, herbaceous plants, mosses, and/or lichens to track rate of changes.”

Comment 26

Section 2.5, p. 2-38, Table 2.5-2, Selected Monitoring by Resource, Under “Health.”

“Form a Stakeholder Participatory Monitoring and Review Committee to coordinate and collaborate ongoing health efforts and initiatives in the area, including those related to mining.”

See Comment 22. The risk management plan includes a recurring stakeholder communication and collaboration process, including periodic review and improvement on actions being taken to achieve the risk management objectives. As part of the risk management process, a specific Monitoring Plan is being developed that will explicitly address the process and forums for stakeholder collaboration and participation.

Comment 27

Section 2.7, p. 2-39, Preferred Alternative.

EPA has appropriately identified Alternative B, the Applicant’s proposal, as the so-called Preferred Alternative. As relevant background, the consent decree in *Adams v. Teck Cominco Alaska, Inc.*, Case No. A:04-cv-0049 (JWS), entered on October 23, 2008, obligates Teck to pursue, in good faith, a water pipeline project under the terms of the Consent Decree. The Consent Decree obligates Teck to pursue permits under the schedule set forth in Exhibit C to the companion Settlement Agreement. Exhibit C to the Settlement Agreement provides that Teck will apply for a permit for marine discharges within 30 days of the point that a reissued permit for Red Dog Creek is in effect and no longer subject to appeal. Teck brings the Consent Decree and the water pipeline contemplated under the Consent Decree to your attention for three reasons:

1. EPA is correct in noting that it does not have legal authority to require construction of the concentrate line and water pipeline and, therefore, Alternative C should not be the Preferred Alternative. Teck has not submitted permit applications for any marine pipeline and will not do so, unless and until it has first secured the ability to discharge into its current location in Red Dog Creek under a renewed permit. We note that there are additional reasons why Alternative C should not be the Preferred Alternative.

10.028

10.029

10.030

Comment ID: 10.028

Response

EPA acknowledges that monitoring of mosses and lichens may be better suited to longer intervals. However, similar to previous responses, in the absence of details presented in a final risk management plan(s), EPA will retain the reference to the draft risk management plan, which includes identifying the 1-year time frame.

Comment ID: 10.029

Response

Since the final risk management plan is not complete, EPA has not modified the text.

Comment ID: 10.030

Response

Comment noted.



10.030
(cont)

First, as a general matter, any pipeline project to the Chukchi Sea is fundamentally a different project than that proposed by Teck in this instance. A marine pipeline project raises different environmental consequences and permitting issues than the project currently proposed by Teck (renewal of permit into Red Dog Creek).

Second, the engineering and design for a marine water pipeline is not sufficiently developed to pursue permitting of the alternative at this point in time. Exhibit C to the Settlement Agreement reflects a logical sequence for a water pipeline, which is to renew the permit for discharges into Red Dog Creek followed by a permitting process for a marine pipeline.

Third, the NPS has indicated that it would expect to play a major role in any pipeline project through Cape Krusenstern. NPS has indicated that additional NEPA analysis would be required, potentially involving applications under ANILCA Title XI. Accommodating the land use issues and role of NPS in the context of this SEIS would be unworkable.

10.031

2. Our second point is that the marine outfall is memorialized in the Consent Decree and Settlement Agreement and, as a result, is reasonably foreseeable. Consequently, we believe it should be included in the short list of reasonably foreseeable projects in Section 3.19.

10.032

3. Last, the sequence contemplated here – permitting of the renewal into Red Dog Creek followed by additional permitting and NEPA review of the water pipeline – is entirely consistent with NEPA. We strongly believe that EPA needs to be more transparent in the SEIS regarding the water pipeline, noting the existence of the Consent Decree and Settlement Agreement, the schedule contemplated under those agreements, and the fact that, although the water pipeline is analyzed in this SEIS as a component of various alternatives (and as a reasonably foreseeable action in Section 3.19 (as we propose)), it will likely be analyzed in a future NEPA document (e.g., triggered by the issuance of 404 permits), which would tier off the environmental analyses contained in this SEIS. We encourage EPA to set the stage for a future NEPA analysis through appropriate references, in the Final SEIS, to tiering, etc.

Comment 28

Section 2.7, p. 2-40, Environmentally Preferable Alternative.

10.033

At this time, EPA has not identified the Environmentally Preferred Alternative with respect to closure. Teck believes that EPA should select wet closure under Alternative B in the Final SEIS as both the Preferred and Environmentally Preferred Alternative.

The selection of Alternative C as the Environmentally Preferable Alternative would ignore the work and testimony of many stakeholders, including most who participated in the SEIS, in the design of the Red Dog Closure plan now under review by the State. Several important factors have been omitted from Alternative C with respect to closure costs and availability of cover materials. Adding increased closure costs to present production costs could move Red Dog into the class of producers who are unable to operate during market downturns, such as those in existence today. This could result in closure, just as under Alternative A, leading to similar broad, adverse economic and social impacts.

Comment ID: 10.031

Response

The marine outfall is considered as part of alternatives C and D. It is also considered in the cumulative effects analysis.

Comment ID: 10.032

Response

EPA agrees that the Consent Decree, Settlement Agreement, and schedule for beginning permitting of the wastewater discharge pipeline should be disclosed in the SEIS. The final SEIS includes text in Sections 1.1, 2.7 and 3.19 that discloses this information.

Comment ID: 10.033

Response

See response to comment 10.011. EPA has added text to the final SEIS identifying wet closure under Alternative B as part of the environmentally preferred alternative. As indicated in the response to Comment ID 10.009, its is speculative and beyond the scope of this NEPA analysis to evaluate whether a dry closure of the tailings impoundment would cause mining to cease.

Comment 29

Section 2.7, p. 2-41, Alternative D.

"Closure of the Port during marine mammal migration may reduce subsistence impacts associated with beluga harvest."

10.034 Shipping activities at the Port do not commence until Teck has been notified by the Subsistence Committee that whale hunting activities have ceased, and it is okay to commence shipping activities. The existing language suggests that there currently are no mitigation measures in place to reduce potential impacts on subsistence activities. The statement should be modified to reflect that shipping activities at the Port do not commence until Teck has received notification from the Subsistence Committee.

Comment 30

Section 2.7, p. 2-42, Table 2.7-1.

Table 2.7-1 is missing some potential impacts related to the various alternatives.

- 10.035 • Air quality under Alternative C: Increased exhaust and fugitive emissions from reclamation activities associated with backfilling Aqqualuk pit.
- 10.036 • Water Resources – Surface Water under Alternative D: The comment "No benefit to creeks crossing DMTS from reduced input from fugitive dust" is unclear.
- 10.037 • Water Resources – Groundwater: The statement under Alternative C that permafrost could be restored more quickly is theoretical (we know of no studies that have been done on this), and should be eliminated.
- 10.038 • Vegetation – Acres of Disturbance: There is no accounting for additional cover material stockpiles and associated disturbances for Alternative C.
- 10.039 • Wildlife Impacts: Are beluga whales currently impacted by Port activities? If unknown, how can they be less under Alternative D?
- 10.040 • Subsistence Land Mammals: The SEIS does not address the impacts related to the greater accessibility by four-wheelers along the DMTS.
- 10.041 • Subsistence Marine Mammals: Could the decrease in belugas be attributable to other factors such as the increased use of outboard motors in recent years, as suggested by the Noatak hunters who were interviewed?
- 10.042 • Alternative C: The increased costs associated with this alternative may cause closure in economic downturns.

Comment ID: 10.034

Response

The text has not been changed. Concerns regarding port operations affecting beluga whale hunts were identified early in the NEPA process and may be an indication that communication between the Subsistence Committee and local hunters needs to be improved. While EPA acknowledges that the Subsistence Committee "notifies" Teck when whale hunting activities have ceased, we are uncertain as to the effectiveness of the function of the Subsistence Committee as noted within the SEIS.

Comment ID: 10.035

Response

Table 2.7-1 has been revised to include fugitive dust from reclamation activities under each of the alternatives.

Comment ID: 10.036

Response

The final SEIS has been modified to indicate that Alternative D would reduce the risk of metals loading to creeks along the DMTS, but to a lesser degree than Alternative C. EPA has also modified the final SEIS to note that water quality data and trends from streams along the DMTS have not demonstrated that there are effects, though continued monitoring is warranted.

Comment ID: 10.037

Response

The final SEIS indicates that permafrost "could" be restored more quickly. This acknowledges that there is uncertainty.

Comment ID: 10.038

Response

The final SEIS includes a discussion of the two stockpiles necessary for creating a dry cover on the tailing impoundment at closure. The acreages of the stockpiles have been included.

Comment ID: 10.039

Response

Current impacts to beluga whales from port activities are described in the draft SEIS (p. 3-129). Observations of Alaska Native subsistence hunters have indicated that beluga whales appear to avoid activity at the port by heading to deeper waters. These observations have been corroborated by a decline in subsistence take of the species over the past several decades. Alternative D includes a "subsistence component" which consists of the port's closure throughout the annual June beluga whale migration (through July 1) to reduce subsistence impacts. Additional text has been added to Table 2.7-1 to clarify this point.

Comment ID: 10.040

Response

Although use of the DMTS is limited to mine traffic and recreational access is prohibited, there is some level of four-wheeler use along the road by locals to access hunting grounds. Access to the mine site via the DMTS would continue to be restricted during mining of the Aqqualuk Deposit under all alternatives. Therefore, the existing level of disturbance to caribou and other wildlife resulting from four-wheeler use would continue under all alternatives.

Comment ID: 10.041

Response

The draft SEIS (p. 3-128, 3-210 to 3-214) describes changes in beluga whale resources and potential causes, including noise from outboard motors, particularly when used to hunt belugas, and changes to the marine environment (e.g., ice conditions) both of which can affect beluga migration and distribution. However, the draft SEIS goes on to state that "use of outboard motors to hunt beluga as well as changing ice conditions have occurred in other beluga harvesting communities, such as Kotzebue, Noatak, and Point Lay, yet among those communities, Kivalina has the lowest recorded

Response

- 10.043 **Comment 31**
Section 3.2, p. 3-2, Table 3.2-1.
 The National Ambient air standard for lead should be 0.15 µg/m³, instead of 1.5 µg/m³.
- 10.044 **Comment 32**
Section 3.2.2, p. 3-3.
 “In addition, minor source permits AQ0290MSS01, AQ0290MSS02, AQ0290MSS03, and AQ0290MSS05 have been issued by ADEC.”
 Minor source permit AQ0290MSS06 is missing the text and should be added.
- 10.045 **Comment 33**
Section 3.2.2, p. 3-5, Figure 3.1.
 The ambient air boundary appears to be shifted 90 degrees clockwise. Also, the figure does not appear to indicate the location of the PM₁₀ sample location at the south end of the air boundary, where the haul road passes through it. Specific location coordinates can be provided if requested.
- 10.046 **Comment 34**
Section 3.2.2.1, pp. 3-7 - 3-9, Table 3.2-7.
 The data within the table does not accurately represent the most current annual emission limits for several of the sources and parameters. Teck can provide the most current and accurate information if requested.
- 10.047 **Comment 35**
Section 2.2.2.2, p. 3-10, Snow Drift Sampling.
 “Dust accumulation in snow surrounding the mine has been reported annually during the spring (Clark 2005). In April 2005 a sampling effort was completed to analyze metals concentrations in snow drift areas and non-drift areas surrounding the mining activities.”
 The document incorrectly states that dust accumulation in snow is monitored annually. Teck performs an annual snow survey to determine the water content of the snow. The sampling for dust accumulation referenced in the SEIS was done once in 2005, and is not an ongoing activity.
- Recommended Revision**
Delete the first sentence of the paragraph and begin the paragraph with “In April 2005, a sampling....”

total beluga harvests from the Chukchi Sea stock since 1986.” Kivalina hunters traditionally have used the areas near the port for subsistence harvest and therefore their observations report changes in this area. However, Noatak residents, whose observations regarding changes in beluga migration are different from those of Kivalina residents in that they attribute the decline in beluga harvest to other factors (e.g., the use of outboard motors), traditionally hunt beluga during their summer migration before they reach the port site. Table 2.7-1 focuses on effects of the alternatives, which include localized displacement of belugas from the vicinity of the port site during operations which may affect subsistence harvest by Kivalina residents.

Comment ID: 10.042
Response
 The socioeconomic analysis indicates that the costs of implementing Alternative C would exceed those of other alternatives and that royalties paid to NANA would be reduced for a short period of time. The details of how Teck’s accounting system incorporates capital costs into operational costs in consideration of zinc prices were not available for the impact assessment. Without additional information, it is unclear that Alternative C would substantially affect the operation’s sensitivity to zinc prices. Therefore, the text remains unchanged.

Comment ID: 10.043
Response
 The National Ambient Air Quality Standard (NAAQS) for lead was changed from 1.5 µg/m³ to 0.15 µg/m³ on November 12, 2008. This change will be made to Table 3.2-1 and Table 3.2-6.

Comment ID: 10.044
Response
 Minor source permit AQ0290MSS06 will be added to the text.

Comment ID: 10.045
Response
 Comment noted. Figure 3.1 has been modified to reflect the correct orientation of the ambient air boundary. The figure also includes the location of the missing PM₁₀ sampling site.

Comment ID: 10.046
Response
 Table 3.2-7 has been revised based on data provided from Teck.

Comment ID: 10.047
Response
 The report indicated that dust was “observed” annually, not monitored annually. The text in the final SEIS has been modified per the suggestion.

Comment 36

Section 3.2.2.2., p. 3-10, Last Paragraph, First Sentence.

“In addition to metals deposition around the mine site, there is concern that metals deposition along the DMTS from concentrate truck traffic is causing adverse impacts to vegetation (see Section 3.7.2) and some wildlife species (see Section 3.9.2) surrounding the DMTS.”

Recommended Revision

Suggest changing “and some wildlife species” to “and possibly to some wildlife species,” since there has been no confirmed adverse impact to wildlife from metals deposition.

Comment 37

Section 3.2.2.2, p. 3-11, Paragraph 3, and p. 3-12, Figure 3.2.

“Figure 3.2 illustrates a comparison of modeled lead concentrations in moss in the vicinity of the DMTS to background lead concentrations in moss. The modeled concentrations were developed from geostatistical modeling with measured concentrations of lead in moss samples collected along the DMTS (Hasselbach et al. 2005). The background concentration (0.6 mg/kg dry weight) reflects the median moss tissue concentrations collected in arctic regions and reported by Ford et al. (1995 cited in Hasselbach et al. 2005).”

The background moss concentration that NPS compares these model results against may not be representative of background moss concentrations in the mineralized area of the Western Brooks Range surrounding Red Dog.

Figure 3.2 showing modeled results is misleading, particularly with the wide range of concentrations contained in each shaded area. Figure 3.2 gives the impression that concentrations are elevated near Kivalina by placing it in the 10-100 ppm range. In actuality, the closest data point to Kivalina is <10 ppm, as shown in Figure 1-9 of the DMTS Fugitive Dust Risk Assessment (Exponent 2007a). The nearest data point >50 ppm is over 15 miles away. It would be preferable to show the actual data points.

Recommended Revision

Replace Figure 3.2 showing modeled results with a figure illustrating the actual moss data, e.g., Figure 1-9 in the DMTS Fugitive Dust Risk Assessment (Exponent 2007a). This figure includes the NPS data and other data covering a broader area than the current Figure 3.2.

Replace the cited text with a brief discussion of regional moss concentrations as shown in the replacement Figure 3.2 (e.g., Figure 1-9 from Exponent [2007a]).

Comment 38

Section 3.2.2.2, p. 3-11, Paragraph 3, and p. 3-13, Figure 3.3.

“Figure 3.3 compares modeled lead concentrations in soil to arctic cleanup levels for lead in soils. What the figure illustrates is that the concentrations of lead in soils in the immediate vicinity of the DMTS are higher

Comment ID: 10.048

Response

The text in section 3.2.2.2 of the final SEIS has been changed in accordingly.

Comment ID: 10.049

Response

The two figures have been consolidated into a single figure depicting observed (sampled) lead in moss data. The text in Section 3.2.2.2 has been revised accordingly.

Comment ID: 10.050

Response

Please see the response to the previous comment. The reference to cleanup levels has been eliminated.

10.048

10.049

10.050

10.050
(cont)

than concentrations in soils further from the road. However, none of the levels identified within this data set exceeded cleanup levels established by ADEC (400 mg/kg).”

As discussed in Comment 37, the modeled results are misleading. It would be preferable to show the actual data points. Also, Figure 3.3 does not currently compare lead concentrations to an arctic cleanup level for soil. There is no mention of a cleanup level on the figure, and the shading does not appear relate to cleanup levels in any way.

Recommended Revision

*Replace Figure 3.2 showing modeled results with a figure illustrating actual soil data, such as Figure 3-7 from Exponent (2007a). If the data are related to a cleanup level, any associated text should clarify that 400 mg/kg is the **residential** cleanup level, which is a level that would be protective for full-time daily exposure to soil and dust as might occur around a person’s home or yard.*

Comment 39

Section 3.2.2.2., p. 3-11, Paragraph 3, Last Two Sentences.

“Note that the lead concentration in mosses in the same area is higher than the soil lead concentrations. The relationship between lead concentrations in moss and soil is unknown.”

Moss concentrations have typically been higher than soil concentrations (Exponent 2007a), however, a direct relationship between lead concentrations in moss and soil has not been established.

Recommended Revision

Replace the quoted sentences with the following: “Moss concentrations have typically been higher than soil concentrations (Exponent 2007a). However, a direct relationship between lead concentrations in moss and soil has not been established.”

Comment 40

Section 3.2.2.2, p. 3-15, Table 3.2-8.

Table 3.2-8 appears to be an abbreviated summary of some of the dust control improvements made to the mine facility. Detailed lists of improvements are provided in appendices to the DMTS Fugitive Dust Risk Assessment (Exponent 2007a) and the evaluation of ecological risk within the ambient air/solid waste permit boundary (Exponent 2007b).

The table does not include some significant dust control improvements that have occurred at the mine facility.

Recommended Revision

Add the following items to the table:

10.052

Comment ID: 10.051

Response

The text in Section 3.2.2.2 has been revised per the suggestion.

Comment ID: 10.052

Response

Table 3.2-8 has been updated to reflect the identified dust control upgrades.



10.052
(cont)

- **Road Controls (2006)** – Completed construction and installation of and began utilization of a new water truck fill station, which decreased water truck fill times and subsequently increased water truck cycle rates.
- **Gyratory Crusher (2006)** – Installation of stilling curtains, wing walls (to deflect wind around the dump-pocket opening), and a 37,000 cfm baghouse to capture dust generated from dumping operations into the crusher dump pocket.
- **Jaw Crusher (2006)** – Installation of stilling curtains, wing walls (to deflect wind around the dump-pocket opening), and a 34,000 cfm baghouse to capture dust generated from dumping operations into the crusher dump pocket.
- **Coarse Ore Stockpile Building (2007)** – Installation of a 50,000 cfm baghouse to place the entire building under negative pressure during crushing operations.
- **Concentrate Storage and Loadout (2008)** – Installation of a 65,000 cfm baghouse to place the entire building under negative pressure during concentrate conveying and truck loading operations.

Provide a note to the table indicating that this is a summary, and refer the reader to Exponent (2007a) for more detailed discussion and summary of improvements.

Comment 41

Section 3.2.2.2, p. 3-11, Paragraph 5.

10.053

“Following NPS discoveries regarding metals deposition along the DMTS, Teck began preparation of an ecological risk assessment. The risk assessment was designed to evaluate whether metal-laden dust found in the tundra within and around the DMTS port, the DMTS, and outside the Red Dog Mine boundary was likely to have adverse impacts on human health or the environment.”

Recommended Revision

Suggest removing the word “ecological” from the header and the first sentence, since the risk assessment was both a human health and ecological risk assessment (as indicated in the second sentence).

Comment 42

Section 3.2.2.2, p. 3-11, Last Paragraph.

10.054

“The highest metals concentrations were found to the north and west of the port, road, and mine, which is the downwind direction.”

Recommended Revision

Insert the word “prevailing” before “downwind.”

Comment ID: 10.053

Response
A revision in the final SEIS was made per the comment.

Comment ID: 10.054

Response
A revision in the final SEIS was made per the comment.

Comment 43

Section 3.2.3.1, p. 3-16, Paragraph 1.

10.055 “The MOU describes the process by which Teck will evaluate potential impacts from fugitive dust emissions and measures that can be implemented to reduce emissions. A risk management plan to be developed under the MOU will include the following information (ADEC 2007).”

The risk management plan (RMP) is not “under the MOU.” Instead, the RMP will integrate related efforts from multiple programs, including efforts following from the DMTS risk assessment, the mine-area ecological risk evaluation conducted as part of the closure and reclamation planning process, the MOU between the ADEC and Teck Cominco, and the SEIS.

Recommended Revision

Remove the second sentence. The RMP is discussed below in the paragraph following the bulleted list on page 3-16 of the SEIS. See the next comment.

Comment 44

Section 3.2.3.1, p. 3-16, Paragraph 2 (following bulleted list).

10.056 “Details of the steps to study and reduce fugitive dust impacts were proposed by Teck in a draft risk management plan that was released on August 26, 2008.”

As discussed in the prior comment, the MOU-related action items will be integrated into the RMP.

Recommended Revision

After the quoted sentence, insert the following addition: “The risk management plan aims to integrate fugitive dust related efforts from multiple programs, including efforts following from the DMTS risk assessment (Exponent 2007a), the mine-area ecological risk evaluation conducted as part of the closure and reclamation planning process (Exponent 2007b), the MOU (DEC 2007), and this SEIS.”

Comment 45

Section 3.9, p. 3-17, Table 3.2-9.

10.057 The table does not appear to incorporate the added emissions associated with the hauling, stockpiling, and placement of the dry cover material that is proposed under Alternative C.

The difference between particulate emissions from Alternative B to Alternative D appear to greatly over estimate the effect of the dust reduction activities proposed under Alternative D. The major dust generating activities of mining and road trips do not change between the alternatives. Because the analysis appears to be biased; the emission factors used in the calculation should be rechecked to ensure the factors were properly applied.

Comment ID: 10.055

Response

The text has been revised based on the clarification provided.

Comment ID: 10.056

Response

EPA appreciates the comments but has not, however, been involved in the risk management plan’s development. It would not, therefore, be appropriate to comment on the specific goals or aims of the risk management plan.

Comment ID: 10.057

Response

The analysis considers that Alternative C would generate additional fugitive dust as a result of the stockpiles compared to the other alternatives. These differences were not quantified for the analysis. The difference in fugitive dust generated between alternatives B and D results from the elimination of dust from the surface of the concentrate trucks as a result of the truck washes. As pointed out in your comment, the major dust generating activities associated with mining (and hauling ore) would be the same under Alternatives B, C, and D.



Comment 46

Section 3.2.3.3, p. 3-18, Paragraph 6.

10.058

“Additional ore would be placed in the low-grade ore stockpiles, which could result in additional fugitive emissions from the piles. After mining is completed in 2031, reclamation activities would commence. The waste rock dump would be revegetated as soon as possible, which would minimize or eliminate future emissions. These areas would continue to serve as sources of fugitive dust until vegetation was reestablished.”

The paragraph should state that concurrent reclamation of the waste rock dumps is proposed under Alternative B. Currently, the paragraph incorrectly indicates that reclamation of the waste rock dumps would not begin until mining is complete in 2031. In the proposed closure plan, the reclamation of the waste rock dumps are scheduled to commence no later than 2012.

Comment 47

Section 3.2.3.4, p. 3-19, Second Paragraph.

10.059

“Point source emissions (e.g., exiting a stack or vent) may increase because of the additional generators that would be needed for the port site water treatment plant and to pump diesel and concentrate slurry. These sources would need to meet PSD requirements and would not be expected to create an adverse long-term impact on ambient air quality. Also, fugitive dust emissions may increase temporarily during construction of the pipeline, causing a short-term adverse impact on surrounding ambient air quality.”

The Point source emissions in Alternative C would certainly increase; therefore, the words “may increase” in the first sentence is inaccurate. Additionally, the first sentence should also note that increased power would be needed for dewatering facilities and increased camp size and/or utilization because of increased personnel at the facility.

Recommend Revision

Revise the first sentence to include the additional activities and replace ‘may’ with ‘would.’ Point source emissions (e.g., exiting a stack or vent) will increase because of the additional generators that would be needed for the increased camp utilization, dewatering facilities, port site water treatment plant, and to pump diesel and concentrate slurry....

Comment 48

Section 3.2.4, p. 3-20 , Paragraph 3.

10.060

“Over the longer term, the pipeline is expected to substantially diminish fugitive dust emissions along the DMST because concentrate truck traffic would be reduced from approximately 38 round trips per day to two (supply trucks) although the estimated 10 round trips by light vehicles may increase slightly in response to pipeline monitoring and support needs.”

Some of the information in this summary paragraph is not provided in the prior discussion for this alternative in Section 3.2.3.4, and the numbers of truck trips before and after do not match.

Comment ID: 10.058

Response

The text has been revised to reflect that the closure plan calls for reclamation of the waste rock dump beginning in 2012.

Comment ID: 10.059

Response

The text in the final SEIS has been modified per the suggestion.

Comment ID: 10.060

Response

The text has been revised to be consistent across the two sections based on the traffic estimates presented in Section 3.15.2.1 (Transportation). The numbers include an estimated 3 round trips per day by light truck that would be needed to conduct regular pipeline monitoring.

10.060
(cont)

Recommended Revision

Revise Section 3.2.3.4 to include the information provided in this summary paragraph. Verify which set of truck trip numbers are correct, and make sure the correct numbers are used in both Section 3.2.3.4 and 3.2.4.

Comment 49

Section 3.3, p. 3-21.

“Water resources are affected when ore and non-ore minerals degrade in the presence of oxygen and water, and the weathering products are rinsed from those minerals by incidental precipitation, snow melt, surface water flows, or groundwater. This is evidenced by the red color present in Red Dog Creek even before mining began and in Cub Creek, a mineralized but undisturbed watershed northwest of the Red Dog Mine within the Wulik drainage basin. Groundwater as well as surface water may be affected.”

10.061

Based on the above statement, it is unclear how permafrost groundwater could be affected. The term ‘ground water’ should be replaced with ‘active-zone groundwater.’

Recommended Revision

“...This is evidenced by the red color present in Red Dog Creek even before mining began and in Cub Creek, a mineralized, but undisturbed, watershed northwest of the Red Dog Mine. Active-zone groundwater, as well as surface water, may be affected.”

Comment 50

Section 3.3.1, p. 3-21.

“In addition to the geochemical weathering that released lead, zinc, and cadmium to water resources, physical weathering of the ore deposit may also have contributed to an uncharacterized wind dispersion of these elements in the vicinity of the deposit. Fugitive dust at a distance from the deposit (e.g., DMTS corridor) can be expected to have been largely absent.”

10.062

In the premining environment, fugitive dust from sand bars along the downstream drainages of Red Dog Creek were potential sources of metal bearing dust. Even today, cobbles of Red Dog mineralization can be found 20 miles downstream of the deposit.

Recommended Revision

Modify the text to indicate that the drainages downstream of the Red Dog deposit as possible sources of premining metal laden fugitive dust.

Comment ID: 10.061

Response

Comment noted. The text has been changed according to the recommended revision.

Comment ID: 10.062

Response

The sentence in question has been deleted from Section 3.3.1 in the final SEIS.

Comment 51**Section 3.3.2.2 , p. 3-23.**

10.063 "Since 1998 when monitoring of the water quality of the Main Pit sump began, the water quality has always reflected elevated TDS (7,000 to 14,000 mg/L), zinc (1,000 to 2,000 mg/L) and iron (250 to 1,000 mg/L), as illustrated in Figure 3.5. The pH has typically been on the order of 3.5 and all parameters appear to vary seasonally, being highest in June. Owing to the inflow of surface runoff, the water quality in the pit sump is better than if it contained only water seeping from the pit walls. The runoff is typically better quality and tends to dilute the contributions from the Main Pit walls. Since 1998, water quality in the pit sump has worsened. The worsening of water quality over time is indicative of more active weathering of sulfide minerals in pit walls, additional exposed surfaces, contributions from materials stockpiled in the pit, or a combination of all three."

Another reason for the change in water quality in the mine pit sump may be the more efficient capture of infiltrating stream water, which, in the past, diluted the water in the main pit sump. During the operational life of the mine, various improvements to the bypass system have been made. These improvements increased the efficiency of the bypass and decreased the amount of fresh water entering the pit. As stated above, the fresh water dilutes the mine pit sump water. As the volume of fresh water entering the pit is reduced, the quality of the mine pit sump is expected to worsen.

Recommended Revision

Include the reduction in fresh water entering the pit as a possible cause of worsening mine pit sump water quality.

Comment 52**Section 3.3.2.4, General Comments.**

10.064 This section discusses the geochemistry of fugitive dust in the environment, including with respect to weathering and bioavailability. However, it does not cite or discuss the work done at Teck's Trail Research lab (Clark 2008) or work done by the USGS (USGS 2003) regarding particle weathering and fate, nor does it discuss the bioaccessibility study work regarding barium and aluminum (Shock et al. 2007).

Recommended Revision

Consider adding brief discussions of the above-referenced work in this section.

Comment 53**Section 3.3.2.4, p. 3-30, Paragraph 3.**

10.065 "The oxidation products of the lead and zinc sulfides have different levels of bioavailability, as noted above. While metals held in low solubility phases are somewhat unavailable relative to more soluble (bioavailable) phases such as lead carbonate, the existing load of these constituents will alter to more bioavailable forms over time. Because of the limited precipitation in the area, there is little evidence that these chemical

Comment ID: 10.063**Response**

Comment noted. The text has been modified to include a discussion indicating that, previously, water infiltrating from the stream could have diluted the pit water quality.

Comment ID: 10.064**Response**

This section of the SEIS describes the geochemical factors related to the fate (weathering) of fugitive dust in the environment as derived from ore concentrate. Weathering directly relates to the form and thus the bioavailability of cadmium, lead and zinc. The principal point of the work described in USGS (2003) is that ore minerals may be distinguished from naturally weathered materials by the degree of mechanical erosion of each type. It also points out that galena in fugitive dust shows little evidence of chemical weathering. This observation supports the discussion in the final SEIS that weathering of galena would be slow. USGS 2003 is cited in the final SEIS. The work of Shock et al. (2007) considers the bioavailability of barium and aluminum, but does not relate it to the geochemistry. Note that this work is relevant to the predicting risk to wildlife and is discussed in Section 3.9.2.1. The Clark 2008 work appears to actually be referring to two studies, Brienne (2007) and Jensen and Brienne (2007). These studies describe mineral weathering studies conducted by Teck for soils collected near the mine site and mill. A paragraph has been added to Section 3.3.2.4 to present the basic findings from these studies as they relate to mineral weathering that associated with fugitive dust.

Comment ID: 10.065**Response**

Text has been added to Section 3.3.2.4 in the final SEIS that provides additional discussion of the weathering of fugitive dust.



constituents would be transported far from their original site of deposition. The reservoir of more bioavailable forms of cadmium, lead and zinc can reasonably be expected to increase over time, although the specific forms of these elements and their concentrations in the soil environment cannot be accurately predicted based on the information currently available. In terms of baseline conditions, the size of the “pool” of more bioavailable cadmium, lead and zinc is limited to the total load incurred to date. Effects that have resulted from the presence of these materials in the environment may be observed in water quality, wildlife, and vegetation and are discussed further in those sections.”

It would be appropriate to discuss the mineralogy of dust known from site specific studies. In addition, it would be helpful to add some discussion of how the conservative bioavailability assumptions are used in the assessment of risk to human health and ecological risk to provide context for the above discussion.

Recommended Revision

After the quoted paragraph, add the following as a new paragraph:

“Although concentrations of bioavailable forms of metals may increase as a result of weathering, they may not be available for exposure, as they may be bound up with organic matter or soil within the tundra, and not necessarily available for exposure of humans or wildlife. Assessment of risk to humans and wildlife from exposure to metals in the environment surrounding the site is based on conservative assumptions of bioavailability in the risk assessment (Exponent 2007a). All metals were assumed to have 100 percent bioavailability in the human and ecological risk assessments, except lead in the human health risk assessment. Lead was evaluated for human health with both site-specific and EPA default bioavailability. While there are no data available on the bioavailability of soil lead along the DMTS corridor, USGS (2003) has reported on the mineralogy of lead in Red Dog ore concentrate, port soil, Ikalukrok Creek alluvium, and colluvial samples from deposits in the area. Scanning electron microscopy shows that galena particles in port soil exhibit morphology similar to ore galena particles: well-developed cubic cleavage with smooth faces. This is in contrast to galena particles from stream alluvium, which are rounded from physical/mechanical processes, and from colluvial samples, which are etched and rounded. It is noteworthy that neither the soil nor the alluvial galena particles are etched, indicating less oxidation than in colluvial samples, which could be related to a lack of acidic conditions. In any case, it should be noted that many of the geochemical forms of lead that would most likely be formed from oxidation of lead sulfide in the environment (e.g., lead sulfites, lead sulfates, and lead oxides) are also considered by U.S. EPA (1999b) to have less than the EPA default assumption of bioavailability. Thus, the approach used in the human health risk assessment of estimating risks based on both the IEUBK model default absolute bioavailability of 30 percent and the site-specific value of 9.7 percent should adequately address this area of uncertainty.”

10.065 (cont)

Comment 54

Section 3.3.3.2, p. 3-33, Aqqaluk Pit.

“Under this alternative, the Aqqaluk Pit is not developed so there are no effects associated with it.”

10.066

Response



10.066
(cont)

Under the no action alternative, the near surface weathering of the Aqqaluk deposit will continue to contribute metals to the Red Dog Creek and Sulfur Creek forever. Under the other alternatives, this source of metal contamination is removed from the creek system. It is incorrect to state that there are no effects associated with not developing the Aqqaluk deposit.

Comment 55

Section 3.3.3.2, p. 3-33, Fugitive Dust.

“The specific geochemical forms of cadmium, lead and zinc resulting from the oxidation of galena and sphalerite in soil environments are dependant on the actual soil conditions, such as temperature, pH, clay mineral content, types of soil minerals, organic matter content, moisture, etc. Predicting what forms will result, in a quantitative manner, is speculative. However, the types of forms described here are likely and routinely observed.”

The prediction of the geochemical forms is not speculative. The examination of weathered ore deposits in the region tells us very specifically what form will result from the process.

Comment 56

Section 3.5.2.1, p. 3-55.

“**Adjusted Precipitation.** The majority of the water entering the tailings impoundment is precipitation falling directly onto the tailings impoundment and runoff from precipitation, including snow melt in the South Fork watershed.”

The Middle Fork watershed is a significant source of water entering the tailings system, as this is the main pit.

Recommended Revision

Adjusted Precipitation. The majority of the water entering the tailings impoundment is runoff precipitation falling directly onto the tailings impoundment, main pit, waste rock disposal areas, and Aqqaluk deposit.

Comment 57

Section 3.5.2.2, p. 3-62, Paragraph 3.

“Table 3.5-9 shows median and maximum observed water quality values for metals and other major constituents for the nine creeks occurring along the DMTS from 2001 through 2007. Temperature, pH, and hardness data are not available for these streams to calculate the stream-specific WQS for ammonia and some metals. Using the Wulik River WQS shown in Table 3.5-6, all median values are below applicable WQS for the growth and propagation of fish, shellfish, other aquatic life, and wildlife. Some maximum values at sites both upstream and downstream of the DMTS exceed the lowest WQS. The data, however, are highly variable between sites and by individual pollutant. There are also no clear trends showing higher values downstream of the DMTS compared to upstream sampling locations.”

10.069

Comment ID: 10.066

Response

The text has been revised to include a discussion that the natural loading of metals to Red Dog Creek would continue if the Aqqaluk Pit is not developed.

Comment ID: 10.067

Response

The discussion in Section 3.3.3.2 states that a quantitative prediction of the actual forms of cadmium, lead and zinc that will occur is speculative without a better understanding of reaction rates and actual soil conditions. The discussion does not intend to indicate that the potential forms cannot be known, and indeed different forms of weathering products are discussed throughout Section 3.3.

Comment ID: 10.068

Response

The text has been revised according to the recommended revision.

Comment ID: 10.069

Response

The text is unchanged. Evaluation of the reference stream data used for Teck’s risk assessment (Exponent 2007) showed that WQS were not exceeded for any constituent in any of the three samples that were taken. Moreover, it is EPA’s determination that these data are not comparable to those presented in Table 3.5-9 because trends can not be evaluated. The reference data consisted of only one sample taken from each of 3 different sample locations, with all samples collected on the same date.

10.069
(cont)

The text should be enhanced by a discussion of background concentrations in the area. As noted in the last sentence of the cited passage, there are no distinguishable trends in metals concentrations upstream vs. downstream of the DMTS, suggesting there is little impact from the DMTS on stream metals concentrations. In fact, there are few differences between metals concentrations in water from streams that cross the DMTS and reference streams that are unimpacted by the DMTS. As noted in the DMTS Risk Assessment (Exponent 2007a), concentrations of all the metals shown to exceed a water quality criterion in Table 3.5-9 of the SEIS were indistinguishable from reference conditions.

Recommended Revision

Add a discussion of background concentrations in streams from the area. Provide a clear conclusion that “there appears to be little or no impact from the DMTS on metals concentrations in streams in the vicinity of the DMTS.”

Comment 58

Section 3.5.2.3, p. 3-65.

“The existing loading facilities at the port have slightly altered local bathymetry. Water is a few feet deeper just off the dock face where tugs tie up and the lightering barges are loaded with concentrate. Movement of the barges and turbulence from tugboat props probably displace some of the bottom material at both locations.”

10.070

The area around the Port is actively dredged to maintain sufficient depth for the safe operation of the tugs and barges. The movement of the barges and prop turbulence do not result in significant displacement of bottom material.

Recommended Revision

“The existing loading facilities are routinely dredged to maintain sufficient water depth for the operation of the Port. Water is a few feet deeper just off the dock face, where tugs tie up and the lightering barges are loaded with concentrate.”

Comment 59

Section 3.5.3.1, p. 3-67.

This technology has not been demonstrated to be technically and economically feasible. High TDS concentrations and large flows are significant limitations. See Comment 13.

10.071

Comment 60

Section 3.5.3.2, p. 3-70.

“The discharges of treated effluent to Red Dog Creek would continue after closure because of the need to treat tailings dam seepage and other wastewater managed in the Aqqualuk Pit. The expected instream constituent concentrations would be expected to be approximately the same as those occurring during mine operations. After closure, a small reduction in the TDS concentration of the effluent could result, if water

10.072

Comment ID: 10.070

Response

The text has been revised to reflect that the area around the port is actively dredged to maintain sufficient depth for the safe operation of the tugs and barges.

Comment ID: 10.071

Response

Please see the response to Comment ID 10.013.

Comment ID: 10.072

Response

The text has been modified to indicate that copper concentrations may also be expected to decrease in the pit water.



10.072 (cont)

quality in the Aqqaluk Pit improves over time. This would provide the Applicant more flexibility in discharging water and managing the water level in the Aqqaluk Pit.”

In addition to the reduction in TDS, a reduction in copper concentration is also expected, as the major source of copper is regent use.

Comment 61

Section 3.5.3.3, p. 3-71, Marine Effluent Limitations.

Appendix C in Volume 2 of the SEIS uses effluent data from the mine and available ambient concentrations from the Chukchi Sea to demonstrate that a small marine mixing zone is needed to comply with chronic water quality criteria. Using EPA’s reasonable potential analysis methodology, Appendix C identifies that a dilution factor of 16.95 is needed to comply with the chronic water quality standard for nickel, and less dilution was needed to comply with chronic water quality standards for ammonia, cadmium, copper, chlorine, cyanide, chromium VI, lead, mercury, selenium, silver, and zinc. The information was also presented in Table 3.5-13, Projected Marine Discharge Effluent Quality and Minimum Dilution Requirements, on page 3-72 in Volume 1 of the SEIS. On page 3-71, the SEIS notes that modeling results show that the WQS for nickel, the most critical constituent, will be met less than ten feet (three meters) from the discharge point.

The above demonstration is a reasonable preliminary analysis and shows that the mine effluent would not have acute, chronic, or even human health impacts. The dilution modeling referred to on page 3-71 of the SEIS is not actually presented anywhere, so it is not possible to evaluate its accuracy, but that is of only minor concern since the needed dilution factor of 16.95 is the important factor, and it is likely that such dilution will be attained close to the outfall. Perhaps, the model inputs should be different, and perhaps, the distance to attain the necessary dilution may be greater than 10 feet, but it still will be a short distance, and the dilution will be rapidly attained.

10.073

Appendix C is misleading because it asserts, without any basis, that no mixing zone may be allowed for compliance with an acute water quality standard (WQS), and that also no mixing zone may be assumed for mercury since it is a bioaccumulative pollutant. Based on not allowing mixing zones for acute WQS or for human health mercury WQS, Appendix C then presents potential effluent limitations for cadmium, chromium, copper, WAD cyanide, lead, mercury, nickel, silver, and zinc set equal to the acute aquatic life criteria and the mercury human health criterion at the end of pipe.

Alaska’s mixing zone regulations specifically allow mixing zones for acute criteria and for bioaccumulative constituents such as mercury. Requirements for mixing zones are found in 18 AAC 70.250 (June 26, 2003) (the latest EPA-approved version of the regulations) and provide that:

(a) The department will not approve a mixing zone if the department finds that available evidence reasonably demonstrates that the pollutants discharged could

.....

- (1) bioaccumulate, bioconcentrate, or persist above natural levels in sediments, water, or biota to significantly adverse levels, based on consideration of bioaccumulation and bioconcentration factors, toxicity, and exposure;

.....

Alaska’s regulations clearly allow acute mixing zones. See 18 AAC 70.255(d) (June 26, 2003) (stating "Acute aquatic life criteria apply at and beyond he boundaries of a smaller initial mixing zone surrounding the

Comment ID: 10.073

Response

EPA concurs with the commenter that it is not necessary to determine the specific permit limits that may be developed in a draft NPDES permit for the marine discharge under Alternatives C and D. To assess the discharge’s effects, it is only necessary to understand the area within the receiving water where effects could occur and potential discharge quality. Including draft permit limits is premature since they are likely to change in the future based on additional discharge and ambient monitoring data and the specific permitting approach followed by EPA and ADEC. EPA acknowledges that the commenter is correct in that mixing zones for acute water quality standards and bioaccumulative pollutants can be allowed under certain conditions.

The projected permit limits for Alternatives C and D have, therefore, been removed from the final SEIS. Appendix C retains the information regarding marine water quality standards and chronic mixing zone discussion to demonstrate the area within the receiving water where chronic water quality standards would be exceeded based on the available discharge quality data. Consistent with the comment, additional text has been added describing the smaller area where acute criteria would also be exceeded. The discharge’s effects on aquatic resources are discussed in Section 3.10.



outfall. The smaller initial mixing zone for application of acute criteria must be sized to prevent lethality to passing organisms.")

Alaska’s regulations also allow for mixing zones for bioaccumulative contaminants such as mercury provided that based on considerations such as exposure, they would not bioaccumulate to significantly adverse levels. Because the SEIS does not consider mixing zones for compliance with the acute aquatic life-based water quality standards and for mercury, the derivation of the water quality-based effluent limitations for cadmium, chromium, copper, WAD cyanide, lead, mercury, nickel, and zinc are incorrect, and Appendix C presents excessively stringent limits for these constituents.

The dilution factors required to achieve the acute WQS and mercury criteria shown in Table C-2 are all less, for most pollutants much less, than the 16.95 dilution factor determined identified in the Appendix C as achievable for the proposed discharge. Therefore, the initial mixing zone identified at 18 AAC 70.240(d)(8) for compliance with the acute aquatic life criteria will be smaller than the mixing zone for chronic aquatic life and human health criteria, and the regulatory requirements for an such an acute mixing zone will be easily achieved by a diffuser for the mine wastewater.

Acute, chronic, and human health criteria are not based on instantaneous exposures, but include duration of exposure components. A freshwater discharge to marine waters achieving acute, chronic, and human health criteria within about ten feet of the discharge ports is very protective because the dilution occurs in a matter of seconds, and the biota are well protected from receiving a prolonged duration of exposure.

Recommended Revision

10.073
(cont)

Teck believes that it is not necessary to develop preliminary marine effluent limitations in this SEIS. This level of information is more than what is required by NEPA to reasonably inform the public about the environmental consequences of an alternative. The position that EPA has taken on effluent limitations in this SEIS could be prejudicial to future efforts to permit a marine outfall. We strongly believe that EPA should remove the estimated effluent limitations from the SEIS and Appendix C. Alternatively, if EPA elects to retain this discussion, it should be revised to correct errors relating to Alaska’s mixing regulations.

The following three sentences in Paragraph 1 on page C-3 should be deleted:

“The Ce was then compared directly to the acute WQS since no mixing zone is allowed for these WQS. If the Ce exceeded the acute standard, reasonable potential was demonstrated and a limit must be included in the permit. The maximum projected effluent concentrations for copper, chlorine, cyanide, nickel, and zinc exceeded the acute WQS, and effluent limits are required for these parameters.”

The second sentence in the second paragraph on page C-3 should be deleted.

A new paragraph should be added to page C-3 describing the Alaska WQS rule provisions for an initial mixing zone for achieving acute aquatic life criteria. Calculations should be discussed demonstrating that the acute criteria will all be achieved in the initial mixing zone, which is smaller than the mixing zone for chronic aquatic life criteria and human health-based criteria (i.e., mercury).

The second and third sentences in the third bullet on page C-4 should be deleted. A new bullet should be added following this bullet which states that acute water quality criteria will be achieved at the edge of an initial mixing zone. The acute criterion for WAD cyanide, which is the most stringent acute criterion, would make the dilution at the edge of the initial mixing zone 15.12.



10.073
(cont)

Appendix C should identify that modeling with CORMIX demonstrated that acute, chronic, and human health criteria were all attained within less than 10 feet (3 meters). It should note that prior to discharging mine wastewater at the port, a new NPDES permit will be required, and the permitting authority will evaluate the variability in the effluent data, ambient conditions, and Teck proposed diffuser design to determine the amount of dilution needed, and what amount that the diffuser can achieve. The necessary mixing zone is likely to be small, and dilution to attainment of acute, chronic, and human health criteria is expected to occur in a very short time after discharge. Appendix C does not need to develop effluent limits, but can acknowledge that water quality criteria are attained rapidly following discharge, and the NPDES permit will evaluate and determine any water quality-based limits that might be needed. If EPA determines that Table C-4 is essential, it must be revised to reflect the fact that the Alaska WQS rule allows mixing zones for acute aquatic life criteria and human health-based criteria.

Similarly, the final sentence in paragraph 2 of Section 3.5.3.3 on page 3-71 of the SEIS that says, "Appendix C includes a summary of effluent limits that would be included in a draft NPDES permit for the marine discharge under Alternatives C and D," should be deleted

Comment 62

Section 3.5.3.3, p. 3-73.

10.074

In the third and fifth paragraphs of page 3-73 of the SEIS, DMTS storm water runoff is incorrectly cited as being governed under EPA's MSGP. Storm water management for the DMTS (Port Road and Port site) is managed under the Port's individual NPDES permit.

Comment 63

Section 3.6.1, p. 3-75.

10.075

"Samples from two small seeps located along Red Dog Creek exceeded aquatic life WQS for cadmium, copper, iron, lead, nickel, phosphorus, and zinc (EPA 1984). The high metal content of shallow groundwater samples in the project area indicates that the source of the water is from mineralized rock or soils."

Stream gravels downstream of the Red Dog deposit contain eroded fragments of the original outcropping deposit. These mineralized fragments are weathering in the shallow active layer and can contribute to metal loads in the streams, especially during period of low flows.

Comment 64

Section 3.6.3.1, p. 3-79, General Comment.

10.076

An extensive groundwater hydrology study was conducted by MWC/Geomatrix with the oversight of the EPA. The study determined that the hydraulic regime is constrained by low permeability shales with compartmentalized fractures. The study showed that regardless of the presence or absence of permafrost, the effect of the project on groundwater would be negligible.

Comment ID: 10.074

Response

The text in both locations has been revised to reflect that storm water runoff is covered by the port's NPDES permit.

Comment ID: 10.075

Response

Comment noted.

Comment ID: 10.076

Response

Comment acknowledged. EPA has added additional discussion to Section 3.6.3.1 to clarify this issue.

Comment 65

Section 3.7.2, p. 3-86, Paragraph 5.

“The construction and operation of the mine, DMTS, and their associated facilities have resulted in changes from the pre-mining conditions, including direct impacts on vegetation communities and changes in plant community composition and a reduction in biomass for some species.”

10.077

Biomass was not directly evaluated in the vegetation studies within the Exponent risk assessment. However, percent cover was one of the parameters evaluated.

Recommended Revision

Change “reduction in biomass for some species” to “reduction in percent cover for some species”.

Comment 66

Section 3.7.2, p. 3-86, Paragraph 6.

“Indirect effects to vegetation have occurred outside areas of physical disturbance and are likely the result of the physical and chemical influences of the DMTS and mining operation. Increased pH, metal concentrations, and dust levels have been recorded near the DMTS and mining facilities (Ford and Hasselbach 2001; Hasselbach et al. 2005; Exponent 2001; 2007a; 2007b). Potential sources for these changes are road construction/maintenance/operation, lead and zinc concentrate spillage, gravel and dust spray from road traffic, and dust generated during mining operations. Fugitive dust (including lead and zinc concentrates, tracked out of loading and unloading facilities by concentrations trucks) is considered to be the major cause of physical and chemical changes along the DMTS (Exponent 2007a).”

10.078

Fugitive dust is believed to be the cause of observed vegetation effects through a combination of chemical effects of metals, physical effects of dust on plants, and chemical effects of pH changes resulting from road dust (regardless of the presence of metals). Given the inseparability of the degree of causation by these different mechanisms with the available information (Exponent 2007a), the quoted text should be revised to reflect this.

Recommended Revision

Revise the last two quoted sentences as follows: “Potential sources for these changes are road construction/maintenance/operation, lead and zinc concentrate spillage and tracking, gravel and dust spray from road traffic, and dust generated during mining operations. Fugitive dust is considered to be the major cause of physical and chemical changes along the DMTS through a combination of chemical effects of metals, physical effects of dust on plants, and chemical effects of pH changes resulting from road dust, regardless of the presence of metals (Exponent 2007a).”

Comment ID: 10.077

Response

The word “biomass” has been replaced with the phrase “percent cover”

Comment ID: 10.078

Response

The text in Section 3.7.2 has been revised per the suggestion.



Comment 67

Section 3.7.2, pg. 3-87, Paragraph 1.

“While prevailing winds near the mine site are to the west, NPS data indicates that some airborne contaminants may be reaching vegetation in the Noatak National Preserve and Wilderness, located east of the facility.”

Recommended Revision

The NPS data is extremely limited and the above statement is speculative and should be removed. If the statement remains, it should be modified as follows to provide context:

“Prevailing winds near the mine site originate from the east (between the southeast and northeast quadrants depending on the season) resulting in the greatest dust deposition to the north and west of the DMTS and mine facility areas. NPS data suggests that some airborne contaminants may be reaching vegetation in the Noatak National Preserve and Wilderness, located east of the facility.”

10.079

Comment 68

Section 3.7.2, p. 3-87, Paragraph 2.

“These changes (elevated pH, metal concentrations, and dust levels) are interrelated, in that the fugitive dust contains a high concentration of metals, while the elevated pH is attributed in part to the elevated lead, zinc, cadmium, and calcium chloride concentrations (Exponent 2007a).”

This sentence could use clarification to more accurately reflect the conclusions cited in Exponent 2007a.

Recommended Revision

“These changes (elevated pH, metal concentrations, and dust levels) are interrelated, in that the fugitive dust contains metals, road bed materials and calcium chloride, all of which may be contributing to elevated soil pH in tundra surrounding the DMTS road and port facilities (Exponent 2007a).”

10.080

Comment 69

Section 3.7.2, p. 3-87, Paragraph 2.

“Soil pH was found to decrease with distance from the DMTS and declines to below 6.0 by 0.25 mile (600meters) from the DMTS, below 5.0 by 0.5 mile (750 meters), and falls to 3.9 to 4.5 [the upper limits of the natural range] by 0.62 mile (1,000 meters) of the DMTS (Exponent 2007a).”

Recommended Revision

To more accurately reflect what the risk assessment says, and to correct several meters to miles conversion errors, this sentence should read as follows:

10.081

Comment ID: 10.079

Response

The text has been modified to include the suggested revision.

Comment ID: 10.080

Response

The text in Section 3.7.2 has been revised per the suggestion.

Comment ID: 10.081

Response

The text has been modified to include the suggested revision.



10.081
(cont)

“The pH ranges from 6.9 to 7.7 between the DMTS and 0.25 mile (400 meters), declines to below 6.0 by 0.37 mile (600 meters) from the DMTS, below 5.0 by 0.47 mile (750 meters), and falls to 3.9 to 4.5 [the upper limits of the natural range] by 0.62 mile (1,000 meters) of the DMTS (Exponent 2007a).”

Comment 70

Section 3.7.2, p. 3-87, Last Sentence of Paragraph 2.

“The difference between the distance road-related fugitive dust moved on the Dalton Highway compared to the distances of increased metals concentrations along the DMTS may reflect the fact that the ore concentrate consists of very small particles, and therefore is more readily carried longer distances.”

If dispersion were strictly a function of particle size, concentrate dust would be expected to travel farther than coarse roadbed material (i.e., sand and gravel), but would be expected to behave similarly to the fine particles in road dust. The most common size fraction of dust particles collected over 24 hours at locations 30m, 70m, 150m, and 300m from the Dalton Highway was the 10-20 µm diameter range. Also, Walker and Everett (1987) observed a decrease in median particle size with distance from the road, ranging from 0.5 - 2 mm particles at the road source to 2-50 µm particles at 312 m from the road. The particle size of zinc and lead concentrates at the site is <40 µm, with 80 percent <20 µm (Teck Cominco 2003b,f).

The quoted sentence is speculative and unnecessary.

Recommended Revision

Remove the quoted sentence.

Comment 71

Section 3.7.2, p. 3-87, Paragraph 3.

“The effects that these physical and chemical changes have had on vegetation include blackening of mosses and lichens, partial defoliation of shrubs, elevated plant mortality, and a transition in dominant species near the DMTS and mining facilities.”

The observed changes referenced in this sentence are not widespread in field observations; they are limited to areas close to the mine, road, and port facilities.

Recommended Revision

Clarify the language to state that: “Observed changes in vegetation along portions of the DMTS road include blackening of mosses and lichens, increased plant mortality, and a transition in dominant species near the DMTS and mining facilities.”

Comment ID: 10.082

Response

The sentence in question has been deleted from the final SEIS.

Comment ID: 10.083

Response

The text in Section 3.7.2 has been revised per the suggestion.

Comment 72

Section 3.7.2, p. 3-88, First Sentence of Paragraph 2.

“Teck contracted with Exponent to conduct a vegetation survey as part of their risk assessment in 2007.”

The vegetation survey was conducted in 2004, but the risk assessment was published in 2007.

Recommended Revision

To clarify, please change the sentence to the following: “Teck contracted with Exponent to conduct a vegetation survey in 2004 as part of their risk assessment (Exponent 2007a).”

Comment 73

Section 3.7.2, p. 3-88, First Sentence of Paragraph 3.

“Exponent’s risk assessment found that vegetation communities in some areas were altered from reference sites used to estimate natural conditions as far out as 1.25 miles (2,000 meters) from the DMTS (Exponent 2007a). Impacts were greater on the northern side of the DMTS than on the southern side.”

Recommended Revision

To clarify, here is a modification of the quoted text: “Exponent’s risk assessment found that the coastal plain and tundra vegetation communities beyond 1,000 meters from the road, or 1,430 meters from the port are similar to reference communities. However, lichen cover in some areas differed from reference sites at distances up to 1.25 miles (2,000 meters) from the DMTS (Exponent 2007a). Observed changes to vegetation were greater on the northern side of the DMTS than on the southern side.”

Comment 74

Section 3.7.2, p. 3-88, Paragraph 3.

“Evergreen shrubs, moss, and lichen cover were found to be reduced near the DMTS in all vegetation types, with the exception of hillslope communities, where moss cover decreased with distance from the road.”

Recommended Revision

“Evergreen shrubs, moss, and lichen cover increased significantly with distance from the road, with the exception of hillslope communities, where moss cover decreased with distance from the road.”

Comment 75

Section 3.7.2, p. 3-89, Paragraph 2.

“However, the reference sites used by Exponent to estimate background conditions were sites in areas slightly enriched by natural mineralization; therefore, their distance measurements to background conditions are likely underestimated.”

Comment ID: 10.084

Response

The sentence in question has been revised to reflect the appropriate dates in the final SEIS.

Comment ID: 10.085

Response

The language resulted from input from the cooperating agencies and remains unchanged. Lichen is a component of both coastal plain and tundra communities, and as the second sentence in the suggested revision states, “lichen cover in some areas differed from reference sites at distances up to 1.25 miles” indicating that not all coastal plains and tundra vegetation communities beyond 1,000 meters from the road were similar to reference communities. The original text is simply the paragraph’s topic sentence, which states that some vegetative communities are altered at up to 2,000 meters. The following sentences in the paragraph define which vegetative communities differ, and at what specific distances for each community.

Comment ID: 10.086

Response

The text in Section 3.7.2 has been revised in the final SEIS per the suggestion.

Comment ID: 10.087

Response

The text in Section 3.7.2 has been revised in the final SEIS per the suggestion.

10.084

10.085

10.086

10.087



10.087
(cont)

This statement is not proven. Base metal mineralization occurs naturally throughout much of the western Brooks Range, and strongly elevated zinc, lead, and silver concentrations (reflecting the mineralization) have been identified in many areas. The terrestrial reference areas were selected after review of existing studies and data, with a focus on factors such as prevailing wind directions, bedrock geology, topography and physiography (including slope, aspect, and water features, such as streams and tundra ponds), and plant and animal communities. Possible reference areas were considered to the east, north, west, and south of the mine and DMTS. The prevailing wind originates from the east, between the northeast and southeast quadrants; thus, the most significant dust deposition has occurred to the north and west of the DMTS road and mine.

As a result, areas to the north and west were not preferred areas for establishing the terrestrial reference area. Areas to the east were eliminated because the topography is more mountainous than most of the DMTS area. Thus, the focus was on selecting an area to the south of the mine and DMTS road. However, selecting an area too far south would have put the reference area into the Noatak valley, where the plant community includes trees and, therefore, would not have provided a good comparison with plant communities at the site. For these reasons, the terrestrial reference area was targeted for placement somewhere within several miles south of the DMTS. Within that band south of the DMTS, the selected area was to be in a geologic area known to be relatively free of lead/zinc base metal mineralization. The selected area also needed to contain a variety of topographic conditions (elevations, slopes, and aspects), streams and ponds, and plant communities, providing the opportunity to sample environments similar to those along the length of the DMTS road. Based on these criteria, the Evaingiknuk Creek drainage was selected as the best choice. This basin met the most criteria, and had low base metal mineralization compared with other possible reference locations that were considered to the south of the DMTS.

Recommended Revision

Delete the quoted sentence, which is the last in the paragraph.

Comment 76

Section 3.7.2, p. 3-90, Paragraph 3.

“Published thresholds were developed for agricultural crops, as opposed to arctic species; therefore, comparisons should be considered conservative.”

Recommended Revision

“Published thresholds were developed for agricultural crops, as opposed to arctic species; therefore, it is unknown if thresholds are protective for the plant species found at the site.”

Comment 77

Section 3.7.2, p. 3-90, Paragraph 3.

“In addition, tissue samples were unwashed because this more accurately represents the concentrations available to both humans and wildlife; however, the concentrations reported within Exponent (2007a, 2007b) represent both metals concentrations within plant tissues (which affect phytotoxicity), as well as metallic dust that settled onto the plant’s surface (which may not affect phytotoxicity).”

10.088

10.089

Comment ID: 10.088

Response

The text in Section 3.7.2 has been revised in the final SEIS per the suggestion.

Comment ID: 10.089

Response

The text in Section 3.7.2 has been revised in the final SEIS per the suggestion.

10.089
(cont)

Recommended Revision

This revised language clarifies the above-quoted text: "In addition, tissue samples were unwashed because this more accurately represents the concentrations available to both humans and wildlife. However, the concentrations reported within Exponent (2007a, 2007b) represent both metals concentrations within plant tissues (which affect phytotoxicity), as well as metallic dust that settled onto the plant's surface (which may not affect phytotoxicity), therefore concentrations in plant tissues likely overestimate the amount of CoPCs actually taken up by plants. This also tends to make the comparison of plant tissue concentrations with literature threshold values a conservative comparison."

Comment 78

Section 3.7.2, p. 3-91, Paragraph 1.

"Zinc concentrations exceeded phytotoxicity thresholds at all distances and reference sites tested, indicating that zinc toxicity may be a contributing factor for the observed effects to vascular plants."

10.090

Recommended Revision

Clarification to the quoted text: "Zinc concentrations in shrub tissue samples exceeded the lowest phytotoxicity thresholds at almost all distances and reference sites tested, indicating that zinc toxicity may be a contributing factor for the observed effects to vascular plants."

Comment 79

Section 3.7.2, p. 3-91, Paragraph 2.

"Concentrations of aluminum and zinc were above phytotoxicity thresholds for sedges at points 33 feet (10 meters) away from the DMTS (Exponent 2007b)."

10.091

Recommended Revision

"Concentrations of aluminum and zinc were above phytotoxicity thresholds for sedges at 5 of 27 stations located 33 feet (10 meters) away from the DMTS (Exponent 2007b)."

Comment 80

Section 3.7.2, p. 3-91, Paragraph 3.

"Concentrations of zinc were high enough to cause mortality in mosses up to 330 feet (100 meters) away from the DMTS haul road, and reduction in cover up to 0.62 mile (1,000 meters); zinc concentrations were high enough to cause mortality in mosses up to 0.62 mile (1,000 meters) from the port facility and 1.25 miles (2,000 meters) away from the intersection of the DMTS with the mine's ambient air/solid waste permit boundary [transect TT6] (Exponent 2007a)."

10.092

Recall that vegetation tissue concentration data includes metals both within the plant and on the plant surfaces, thus making the comparison with phytotoxicity thresholds a more conservative one.

Comment ID: 10.090

Response

Text in the final SEIS has been revised per the commenter's suggestion.

Comment ID: 10.091

Response

There are not 27 stations located 33 feet of the DMTS and only 2 stations were above the phytotoxicity thresholds; therefore the suggested revision is not accurate.

The text has been revised to say "Concentrations of aluminum and zinc were above phytotoxicity thresholds for sedges at 2 stations located 33 feet (10 meters) away from the DMTS (Exponent 2007b, Table 6-18)."

Comment ID: 10.092

Response

This argument that the phytotoxicity thresholds are conservative is valid for vascular plants, but as non-vascular plants draw in chemicals directly from the atmosphere (including their surfaces) any toxins found on their surfaces could contribute to their phytotoxicity levels. Therefore, as the text states, concentrations of zinc are likely high enough to cause mortality at the distances stated.



Recommended Revision

10.092
(cont)

Modify the sentence as follows, and add a new sentence after it: "Concentrations of zinc were high enough to potentially cause mortality in mosses up to 330 feet (100 meters) away from the DMTS, and reduction in cover up to 0.62 mile (1,000 meters) from the DMTS. Concentrations of zinc were high enough to potentially cause mortality to mosses up to 0.62 mile (1,000 meters) from the port facility and 1.25 miles (2,000 meters) away from the intersection of the DMTS with the mine's ambient air/solid waste permit boundary [transect TT6] (Exponent 2007a). However, vegetation tissue concentration data includes metals both within the plant and on the plant surfaces, thus the comparison with phytotoxicity thresholds is conservative."

Comment 81

Section 3.7.2, p. 3-91, Paragraph 4.

10.093

"While the weathering products of lead and zinc sulfides at the site are not thoroughly documented it is unlikely that they would generate sulfuric acid. Therefore, more research is needed to determine the exact relationship between the types of sulfur present and the potential effects that they might have on the vegetative communities."

Teck has conducted studies of weathering of the dust and found that the weathering produced sulfuric acid in humidity cell tests.

Comment 82

Section 3.7.2, p. 3-92, Paragraph 1.

10.094

"Based on existing conditions, the following monitoring proposals would provide additional insight relevant to future analyses:

- Monitor changes in the vertical distribution of metals in surface tundra and underlying soils;
- Monitor tissue concentrations in shrubs, herbaceous plants, mosses, and lichen to track the rate of changes, and;
- Monitor moss and lichen community composition to evaluate bryophyte community health."

The first bullet item is not necessary to achieve the objectives set out in the risk management plan. Monitoring of vegetation tissue concentrations and plant community parameters will indicate changes in metals availability for uptake.

The third bullet items needs minor clarification.

Recommended Revision

"Based on existing conditions, the following monitoring proposals would provide additional insight relevant to future analyses:

Comment ID: 10.093

Response

The weathering (oxidation) of lead and zinc sulfides does not produce acidity, although the similar weathering of iron sulfide (pyrite) does. An analysis of lead-zinc concentrate (assumed to be a proxy for dust; Table 2-1 in Exponent 2007a) can be used to estimate a dust iron sulfide content of approximately 0.011%. The dust appears to have little to no acid neutralization capacity. There is no reported carbonate that would derive from calcium carbonate and very little calcium to corroborate this fact. Thus, the very small amount of pyrite potentially present could indeed produce some sulfuric acid, although the capacity to do so would be correspondingly limited.

Comment ID: 10.094

Response

The first bullet reflects text from the draft fugitive dust management plan, which is the only formal document currently available for citation. The first bullet is retained. The third bullet has been clarified per the suggestion.

10.094
(cont)

- Monitor tissue concentrations in shrubs, herbaceous plants, mosses, and/or lichen to track the rate of changes, and;
- Monitor plant community composition, including mosses and lichens, to evaluate plant and bryophyte community health.

Actual monitoring protocols will be described further in the risk management plan.

Comment 83

Section 3.8.2.2, p. 3-101, Table 3.8-1.

10.095

To make the table easier to understand and consistent with other wetland tables within the document, the following changes are suggested: In Table 3.8-1 move the Upland row from its present position to the location below the Total Wetland row, prior to the Total row. This would make this table consistent with Table 3.8-2, Existing Wetlands Mapped Within the General Mine Area (ABR 2007c), and Table 3.8-3, Existing Wetlands Mapped Along the DMTS and Port Facilities (DOWL in prep).

Comment 84

Section 3.9, p. 3-111, Last Paragraph.

10.096

“Thus a risk assessment was initiated in 2003 to evaluate the potential for adverse ecological effects in habitats within the project areas (Exponent 2007a).”

Recommended Revision

Clarification: “Thus a risk assessment was voluntarily initiated by Teck in 2003 to evaluate the potential for adverse ecological effects in habitats within the project areas (Exponent 2007a).”

Comment 85

Section 3.9.2.1, p. 3-112, Paragraph 3.

10.097

“In addition, HQs within the project area were compared to HQs calculated for reference areas, and it was assumed that any HQs that fall within the range of reference areas HQs, indicate no risk of adverse impacts.”

Recommended Revision

Add the following sentence after the quoted sentence: “When more than one reference scenario had been developed for a receptor, the scenario with the most complete data or the highest chemical concentrations (most conservative scenario) was selected for comparison.”

Comment ID: 10.095

Response

To simplify the discussion, uplands not part of wetland complexes have been removed from all three tables (3.8-1 through 3.8-3).

Comment ID: 10.096

Response

The sentence in question has been revised in the final SEIS to reflect that Teck voluntarily initiated the risk assessment.

Comment ID: 10.097

Response

Although page 6-72 of Teck’s risk assessment (Exponent 2007) includes the quoted sentence, the risk results in the assessment (e.g., Section 6.5.3.1) are usually discussed with respect to the range of HQs that were calculated for the reference locations. We think this is appropriate rather than relying on a single reference location. Furthermore, the use of the highest chemical concentration at a reference station is not a conservative approach when comparing to stations associated with the mine.



Comment 86

Section 3.9.2.1, p. 3-113, paragraph 2.

“Note that there is uncertainty regarding the bioavailability of aluminum and barium and that the study by Shock et al. (2007) suggests that the bioavailability may be less than that assumed in the risk assessment. However, the available information does not allow for a definitive determination of the bioavailability of these metals.”

Recommended Revision

“Note that there is uncertainty regarding the bioavailability of aluminum and barium, and that the study by Shock et al. (2007) suggests that the bioavailability may be less than that assumed in the risk assessment. Although the available information does not allow for a definitive determination of the bioavailability of these metals, it is strong evidence that the bioavailability assumption used in the risk assessment was very conservative.”

Comment 87

Section 3.9.2.1, p. 3-113, Paragraph 2.

“In addition, the NOAEL TRV for mammals exposed to barium (5.1 mg/kg-day) may be overly conservative. EPA (1995) performed a comprehensive review of the toxicity literature for barium and derived a NOAEL TRV for mammals of 51.8 mg/kg-day, which is approximately 10 times greater than the TRV used in the risk assessment. Increasing the barium TRV for mammals by a factor of 10 would reduce the calculated HQs by a factor of 10. For example, if an HQ of 20 were calculated using the TRV of 5.1 mg/kg-day, the same exposure would result in an HQ of approximately 2 using the TRV of 51.8 mg/kg-day.”

Recommended Revision

Replace the last sentence in the quotation with the following sentence: “If exposures for barium were compared against the TRV of 51.8, all hazard quotients for caribou and muskrat, and most hazard quotients for vole and shrew, would drop below 1.0.”

Comment 88

Section 3.9.2.1, p. 3-114, Table 3.9-2, “Summary of Risks for Wildlife Species Evaluated in the Risk Assessment (Exponent 2007).”

While it is useful for the SEIS to incorporate information from the risk assessment, the summary of wildlife risks presented in Table 3.9-2 does not accurately reflect the findings from Exponent (2007). Presenting only the raw hazard quotient results, particularly “maximum hazard quotients” that are based on NOAEL TRVs and 95% UCL concentrations, does not reflect other lines of evidence that were used to make risk interpretations. For example, as explained in other sections of the SEIS and in this comment document, some of the TRVs are overly conservative due to the form in which chemicals were administered. Other conservative assumptions include the assumption of 100% bioavailability. For aluminum and barium, this is evidenced by the work in Shock et al (2007). Assumptions used in the assessment were discussed in detail in

Comment ID: 10.098

Response

We agree with the comment. The text in Section 3.9.2.1 has been revised to include the recommended revision.

Comment ID: 10.099

Response

We agree with the comment. The text will be revised to include the recommended revision.

Comment ID: 10.100

Response

Table 3.9-2 will be revised to include the LOAEL-based HQs as well as the NOEL-based HQs. This will provide additional information on the range of estimated hazard quotients for each receptor, as they are based on less conservative toxicity values and exposure point concentrations than those used in the development of the NOAEL-based HQs. Section 3.9.2.1, including the text surrounding Table 3.9.2, discusses and emphasizes the uncertainties and conservatism associated with the exposure estimates and toxicity values used in the assessment and also includes a lengthy discussion of the bioavailability of aluminum and barium. We think that the current level of detail in the draft SEIS is appropriate. For additional details the reader can refer to Teck’s risk assessment (Exponent 2007), which is cited and is publicly available.

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the “Uncertainty Assessment” section within the risk assessment (Exponent 2007a). The section of the risk assessment titled “Interpretation of Ecological Significance” (Exponent 2007a) provides a compilation of the risk characterizations for individual receptors, and weighs multiple lines of evidence to reach conclusions about risk to the receptors evaluated. The conclusions presented in Section 7.2 “Ecological Risk Conclusions” of Exponent (2007a) are the most accurate summary of the risk assessment findings, taking into account all of the lines of evidence and considerations.

Recommended Revision

Replace Table 3.9-2 and the last sentence of the paragraph that precedes it with the following summary. The bullet items in the following summary could be made into a table if desired. Also, summary Table 6-44 from the Exponent (2007a) risk assessment could also be included.

“A summary of the conclusions regarding risk to wildlife from the 2007 risk assessment is presented below.

- Caribou – For caribou, no adverse effects are predicted for the vast majority (>99.98 percent) of caribou that pass through the site only during migration. Caribou overwintering near the mine have an estimated exposure to aluminum and barium that is 1.3 to 2.5 times the LOAELs. However, the actual potential for adverse effects to overwintering caribou is thought to be small, given the highly conservative nature of the aluminum and barium TRVs and low bioavailability of aluminum and barium at the site.*
- Moose – Population level effects are considered unlikely for mammalian herbivores under current conditions.*
- Arctic Fox – Population level effects are considered unlikely for mammalian carnivores under current conditions.*
- Muskrat – The likelihood of adverse population-level effects to wildlife foraging in streams, including mammalian herbivores, is considered to be very low.*
- Tundra vole – Herbivorous small mammals inhabiting tundra within 10–100 m of the DMTS road, near the port facilities, or near the mine’s ambient air/solid waste boundary showed incremental risk from exposure to aluminum and barium. However, exposures decreased to no-effects levels or were comparable to reference exposures beyond 100 m from the road and 1,000 m from the mine’s ambient air/solid waste boundary. Although elevated risks were predicted for aluminum and barium near the road, port, and mine, the actual potential for adverse effects is thought to be low given the highly conservative nature of the aluminum and barium TRVs and low bioavailability of aluminum and barium at the site.*
- Tundra shrew – Insectivorous small mammals inhabiting tundra within 10–100 m of the DMTS road, near the port facilities, or near the mine’s ambient air/solid waste boundary showed incremental risk from exposure to aluminum and barium. However, exposures decreased to no-effects levels or were comparable to reference exposures beyond 100 m from the road and 1,000 m from the mine’s ambient air/solid waste boundary. Although elevated risks were predicted for aluminum and barium near the road, port, and mine, the actual potential for adverse effects is thought to be low given the*

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highly conservative nature of the aluminum and barium TRVs and low bioavailability of aluminum and barium at the site.

- *Brant – The likelihood of adverse population-level effects to wildlife foraging in coastal lagoons, including avian herbivores, is considered to be very low.*
- *Green-winged teal – The likelihood of adverse population-level effects to wildlife foraging in streams, including avian herbivores, is considered to be very low.*
- *Black-bellied plover – The likelihood of adverse population-level effects to wildlife foraging in coastal lagoons, including avian invertivores, is considered to be very low.*
- *Common snipe – Population-level effects are considered unlikely for avian invertivores under current conditions.*
- *Snowy owl – Population-level effects are considered unlikely for avian carnivores under current conditions.*
- *Lapland longspur – Population level effects are considered unlikely for avian invertivores under current conditions.*
- *Willow ptarmigan – Adverse effects to herbivorous birds from lead are possible near the port and mine. These effects, if occurring, could result in population-level effects in these areas. However, along the length of the road, the likelihood of adverse effects to herbivorous birds is low.*

Comment 89

Section 3.9.2.1, p. 3-115, Last Paragraph.

“The muskox is one such species that was not addressed directly by the risk assessment but they consistently occur near the DMTS and thus have the potential for exposure to fugitive dust contamination.”

When receptors are selected for evaluation in food web exposure models, they serve not only to estimate risk to that particular species, but also as an indicator species, results for which can be used to assess the likelihood of adverse effects to ecologically-similar species (i.e., those of a similar trophic level with similar dietary preferences and foraging habits). This approach eliminates the need to assess every species separately. DEC guidance (1999) recommends this approach by specifying default indicator species for different receptor groups and geographic regions of Alaska.

In the Exponent (2007a) risk assessment, the caribou serves as an appropriate indicator species for muskox, as the diet of the caribou is modeled as consisting of 80 percent nonvascular plants. Furthermore, caribou exposure scenarios evaluated small areas (e.g., port or mine assessment unit), which would be comparable to the lower end of the home range size for muskox. For example, Jingfors (1984) reports a core area, or home range, of 330 square km for a muskox herd inhabiting the Sadlerochit River in Northern Alaska. Also, in the Arctic National Wildlife Refuge, radio-collared muskoxen used an average core area of 223 square km in the summer and 27 to 70 square km in the winter (Reynolds et al. 2002). These studies indicate that muskox home range is not extremely small, and is comparable in size to the assessment units evaluated in this risk assessment. Thus, based on similar assumptions about dietary composition and home range size, the caribou

Comment ID: 10.101

Response

We believe that in terms of diet, caribou is a reasonable indicator species for muskox and the text in Section 3.9.2.1 has been revised. However the text continues to note some uncertainty in terms of risk since the home range for muskox is smaller than caribou.

10.101



Comment ID: 10.102

Response

Please see the response to the previous comment.

is an appropriate indicator species for muskox in this ERA, and conclusions regarding risk to caribou are protective of risk to muskox.

Recommended Revision

10.101
(cont)

Add the following text after the sentence quoted above: "However, in the Exponent (2007) risk assessment, the caribou serves as an appropriate indicator species for muskox, as the diet of the caribou is modeled as consisting of 80 percent nonvascular plants. Furthermore, caribou exposure scenarios evaluated small areas (e.g., port or mine assessment unit), which would be comparable to the lower end of the home range size for muskox. Thus, based on similar assumptions about dietary composition and home range size, the caribou is an appropriate indicator species for muskox in this ERA, and conclusions regarding risk to caribou are protective of risk to muskox."

Comment 90

Section 3.9.2.2, p. 3-121, Paragraph 1.

"In addition, because muskoxen occur along the road and are relatively sedentary, they may also be at risk of exposure to contaminants. However, as noted above, the risk assessment for DMTS (Exponent 2007) did not address this species directly and thus there is uncertainty about the risk to muskox."

10.102

As mentioned earlier, in the Exponent (2007) risk assessment, the caribou serves as an appropriate indicator species for muskox, as the diet of the caribou is modeled as consisting of 80 percent nonvascular plants. Furthermore, caribou exposure scenarios evaluated small areas (e.g., port or mine assessment unit), which would be comparable to the lower end of the home range size for muskox. For example, Jingfors (1984) reports a core area, or home range, of 330 square km for a muskox herd inhabiting the Sadlerochit River in Northern Alaska. Also, in the Arctic National Wildlife Refuge, radio-collared muskoxen used an average core area of 223 square km in the summer and 27 to 70 square km in the winter (Reynolds et al. 2002). These studies indicate that muskox home range is not extremely small, and is comparable in size to the assessment units evaluated in this risk assessment. Thus, based on similar assumptions about dietary composition and home range size, the caribou is an appropriate indicator species for muskox in this ERA, and conclusions regarding risk to caribou are protective of risk to muskox.

Recommended Revision

Replace the cited passage with the following: "In addition, because muskoxen occur along the road and are relatively sedentary, they may also be at risk of exposure to contaminants. However, as noted above, in the risk assessment for the DMTS (Exponent 2007), the caribou serves as an appropriate indicator species for muskox, as the diet of the caribou is modeled as consisting of 80 percent nonvascular plants. Furthermore, caribou exposure scenarios evaluated small areas (e.g., port or mine assessment unit), which would be comparable to the lower end of the home range size for muskox. Thus, based on similar assumptions about dietary composition and home range size, the caribou is an appropriate indicator species for muskox in this ERA, and conclusions regarding risk to caribou are protective of risk to muskox."



Comment ID: 10.103

Response

The text in the draft SEIS captures the main conclusions from the caribou study. However, a sentence has been added to the end of the paragraph to refer the reader to Appendix H of Exponent 2007 for additional details on the caribou tissue studies.

Comment 91

Section 3.9, p. 3-119, Paragraph 2.

“Subsequently, as part of a fugitive dust risk assessment, 10 caribou were harvested in 2002 by ADF&G biologists along the DMTS corridor, 6 of which were 14 miles from the port and 4 of which were approximately a mile from the mine airstrip (Exponent 2005). These caribou were analyzed for lead, zinc, cadmium, and arsenic levels in muscle, liver, and kidney tissues. The results were compared to the data in O’Hara et al. (2003). The mean concentration of lead in caribou livers from the Red Dog Mine (2.7 mg/kg wet weight) was greater than the mean concentrations of lead in caribou livers from the other Alaska locations (0.19 to 1.42 mg/kg wet weight) evaluated in O’Hara et al. (2003). Comparisons of the remaining data indicated that the mean concentrations of metals in the Red Dog Mine samples were in the range of the data presented in O’Hara et al. (2003). The presence of metals in caribou was reevaluated in the 2007 risk assessment, which concluded that the risk of exposure to high levels of contaminants by caribou are low, given that caribou are highly mobile and forage over larger spatial areas with varying chemical concentrations in food.”

There is additional information in the Exponent (2002) caribou study (cited in the SEIS as Exponent 2005; also available in Appendix H of Exponent 2007a) that would enhance the discussion of caribou metals concentrations and provide a more complete context for these studies.

Recommended Revision

Revise the cited passage as follows:

“Subsequently, as part of a fugitive dust risk assessment, 10 caribou were harvested in spring 2002 by Subsistence Committee members for ADF&G biologists along the DMTS corridor, 6 of which were 14 miles from the port and 4 of which were approximately a mile from the mine airstrip (Exponent 2002; Garry et al. 2004). These caribou had overwintered near the DMTS and, thus, were harvested during a period of time when any metals exposure related to the site would have still been reflected in their soft tissues. Caribou muscle, liver, and kidney tissue were analyzed for lead, zinc, cadmium, and arsenic. Metals concentrations were compared with those from other areas in Northern Alaska (from ADPH 2001, later reported in O’Hara et al. 2003) and with metals concentrations identified in Canadian caribou and Scandinavian reindeer. By comparison with Northern Alaska caribou metals concentrations, there were no apparent significant elevations in tissue metals concentrations in the 2002 Red Dog caribou samples. Although lead appeared slightly higher in the liver of animals harvested near the DMTS relative to the other Northern Alaska herds (Mean=2.7±1.7 vs. 0.9±0.3 mg/kg, respectively), it was lower in muscle tissue (0.1±0.08 vs. 0.4±0.3mg/kg, respectively). Zinc was lower for the Red Dog samples in all tissues sampled. Cadmium and arsenic were similar between all groups in all tissues sampled. Statistical analysis was not conducted because the raw data for the comparison groups was not available. However, even if the apparent differences are real, the biological relevance and/or importance for human health is unclear at these concentrations. For example, although lead is one of the two primary constituents of the concentrates produced at the mine, in caribou muscle, lead concentrations were similar to the typical lead concentrations in meat, fish, and

10.103

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(cont)

poultry in the United States, which range from 0.002 to 0.159 mg/kg (ATSDR 1999a). The DMTS risk assessment showed little or no risk associated with consumption of the caribou harvested near Red Dog.”

Comment 92

Section 3.9.2.4, p. 3-124, Last Paragraph.

“The 2007 risk assessment indicated that contaminants resulting from fugitive dust posed a low level of risk to waterbirds (Exponent 2007).”

Recommended Revision

“The 2007 risk assessment indicated that the likelihood of adverse population-level effects to wildlife foraging in streams, including waterbirds, is considered to be very low (Exponent 2007a).”

Comment 93

Section 3.9.2.4, p. 3-125, Paragraph 2

“The project area does not have any fish-bearing lakes and is therefore unlikely to support nesting yellow-billed loons.”

The Bons reservoir is a fish-bearing lake, but is not habitat for the yellow-billed loon. The above statement should be changed to specify inland low-lying tundra lakes.

Recommended Revision

“The project area does not have any fish-bearing lakes associated with inland low-lying tundra habitat, and is, therefore, unlikely to support nesting yellow-billed loons.”

Comment 94

Section 3.9.2.5, p. 3-126, Paragraph 2.

“As discussed above, the risk assessment indicated that the willow ptarmigan may be at slight risk of adverse effects from exposure to barium, lead, and zinc at the mine site; barium along the DMTS; and lead, mercury, and zinc at the port. The risk assessment concludes that barium is unlikely to be a risk to willow ptarmigan due to barium’s low biological availability and the conservative toxicity value that was used in the risk calculation.”

Recommended Revision

A more accurate reflection of the assessment findings is as follows: “As discussed above, the risk assessment indicated that the willow ptarmigan may be at slight risk of adverse effects from exposure to lead at the mine site and at the port. The risk assessment concludes that barium is unlikely to be a risk to willow ptarmigan due to barium’s low biological availability and the conservative toxicity value that was used in the risk calculation.”

Comment ID: 10.104

Response

The text in the final SEIS has been changed accordingly.

Comment ID: 10.105

Response

The text in the final SEIS has been changed accordingly.

Comment ID: 10.106

Response

The text has been revised to reflect that barium, mercury, and zinc are unlikely to cause a risk to willow ptarmigan.



Comment 95

Section 3.9.3.3, p. 3-132.

“Under Alternative B, mining activities would be extended to the Aqqaluk Deposit and would continue until 2031. The development of the Aqqaluk Deposit would increase the disturbance footprint from 1,919 acres to 2,246 acres, with approximately 245 acres associated with the open pit and buffer zones and approximately 142 acres associated with increasing the level of water in the tailings impoundment. Alternative B would have a long-term adverse impact on approximately 2,388 acres of habitat. Section 3.5 summarizes impacts on individual habitat types.”

The disturbance acreages presented above do not add up to the referenced total disturbance. The disturbance acreages should be corrected.

Comment 96

Section 3.10.2.1., p. 3-143, Paragraph 3.

“The risk assessment (Exponent 2007) evaluated the risk to aquatic and terrestrial organisms from elevated metals concentrations resulting from fugitive dust within the environment surrounding the Red Dog Mine and DMTS. The highest levels of cadmium (0.308 mg/kg), lead (0.612 mg/kg), and selenium (2.01 mg/kg) in Dolly Varden char, within Anxiety Ridge Creek, were found near or downstream of the DMTS. These levels were compared to critical tissue concentrations that are associated with adverse effects in various freshwater fish (Jarvinen and Ankley 1999). The results from this comparison were mixed, with the concentrations of cadmium, lead, and selenium in Anxiety Ridge Creek being within the effects range for some of the tissue threshold concentrations reported in Jarvinen and Ankley (1999), but below the effects range from other sources (Exponent 2007a). In addition, fish collected upstream of the road had cadmium and selenium levels above the lowest ends of the effects threshold range. Zinc levels were below the lowest ends of the effects range for all samples. Exponent (2007a) concluded that levels of cadmium, lead, and selenium were high enough to suggest potential adverse effects, however, as these concentrations were below the maximum no-effects concentrations, effects could not be conclusively predicted. In addition, the sensitivity levels of Dolly Varden char compared to the test species used in Jarvinen and Ankley (1999) are unknown. Yet, fish that have been sampled have appeared healthy over multiple years and tissue concentrations in most of the areas sampled are in the range of the concentrations in other similar Alaska systems (Ott and Morris 2004). The overall conclusion by Exponent (2007) was that exposure to metals at stream crossings was unlikely to be having adverse effects on abundance of fish.”

Exponent did not conclude that levels of cadmium, lead, and selenium were high enough to suggest potential adverse effects due to the overlap of the no-effects and effects concentrations. In addition, Exponent used additional lines of evidence for the risk characterization, including prey concentrations compared between site and reference areas, and the concentrations were within the ranges of those at the reference stations. It should also be noted that the drainage basin of Anxiety Creek contains known outcropping lead and zinc mineralization and the creek has naturally high level of zinc, lead and cadmium.”

Recommended Revision

Replace the above quoted paragraph with the following two paragraphs:

Comment ID: 10.107

Response

The acreage numbers in Section 3.9.3.3 have been reconciled in the final SEIS.

Comment ID: 10.108

Response

This portion of the text in Section 3.10.2.1 has been revised to clarify the conclusions regarding risks to fish that were in Teck’s risk assessment (Exponent 2007) and to add that Anxiety Ridge Creek has mineralized areas.

10.107

10.108



Comment ID: 10.109

Response

A short discussion of the grounding incident has been included in Section 3.10.2.2.

10.108
(cont)

“The risk assessment (Exponent 2007a) evaluated the risk to aquatic and terrestrial organisms from elevated metals concentrations resulting from fugitive dust within the environment surrounding the Red Dog Mine and DMTS. The highest levels of cadmium (0.308 mg/kg), lead (0.612 mg/kg), and selenium (2.01 mg/kg) in Dolly Varden char, within Anxiety Ridge Creek, were found near or downstream of the DMTS. The Anxiety Ridge Creek drainage basin contains many outcroppings of lead and zinc mineralization which result in naturally elevated metal concentrations. These levels were compared against no-effect and lowest adverse-effect tissue concentrations that are associated with adverse effects in various freshwater fish (Jarvinen and Ankley 1999). The results from this comparison were mixed, with the concentrations of cadmium, lead, and selenium in Anxiety Ridge Creek being greater than the lowest reported effects thresholds, but also within the ranges of reported no-effects thresholds reported in Jarvinen and Ankley (1999), according to Exponent (2007a). In addition, fish collected upstream of the road had cadmium and selenium levels above the lowest ends of the effects threshold range. Zinc levels were below the lowest ends of the effects range for all samples.

Ranges of the no-effects and effects concentrations overlap considerably, and the sensitivity levels of Dolly Varden char compared to the test species used in Jarvinen and Ankley (1999) are unknown. Therefore, the comparisons to effects thresholds do not necessarily suggest a likelihood of unacceptable risk to fish. However, fish that have been sampled have appeared healthy over multiple years, and tissue concentrations in most of the areas sampled are in the range of the concentrations in other similar Alaska systems (Ott and Morris 2004). Also, prey concentrations were within the concentrations ranges in invertebrate composites at the two reference stations. The overall conclusion by Exponent (2007a) was that exposure to metals at stream crossings was unlikely to be causing adverse effects on abundance of fish.”

Comment 97

Section 3.10.2.2, p. 3-150.

“Scoping comments reported the occurrence of a fish kill in the vicinity of the port during operations; however, there is no evidence that the mortality event was related to port activities.”

Further details of this incident should be provided if the event is going to be characterized as fact.

10.109

From a review of the scoping comments, Teck believes the commenter was referring to the beaching of spawning capelin that occurred on July 18, 2006. This incident was fully investigated and reported by Teck to the Subsistence Committee, local communities, and the State. The stranding was determined to be a naturally occurring and common event along the coast. The capelin beaching was the result of a tidal surge that occurred while the fish were spawning in the near-shore surf. Teck can provide further details of this incident if requested. If this is the event referenced in the document, it should be referred to as a naturally-occurring spawning mortality and not a fish kill.

Comment 98

Section 3.10.3.4, p. 3-157, Second Paragraph.

10.110 "...However some metals in the past have apparently entered streams. While some fish in streams crossed by the road have had higher than typical levels of some metals, adverse effects to fish are not apparent and current risk to fish and other aquatic resources appears to be slight (see Alternative A). The elimination of concentrate and fuel truck traffic would reduce the risk of metals or diesel entering streams from a vehicle accident, however, this reduction is unlikely to change conditions for aquatic resources in freshwater streams crossed by the DMTS relative to current conditions."

Little, if any, of the water quality impacts are due to dust. Most are due to natural mineralization within the drainage area. A discussion on the source of the naturally occurring metals is needed.

Comment 99

Section 3.10.3.4, p. 3-157, Fourth Paragraph.

10.111 "Effects to aquatic organisms in the Mainstem of Red Dog Creek would be less because of dilution than because of changes in water quality conditions from the South Fork flow."

Recommended Revision

"Effects to aquatic organisms in the mainstem of Red Dog Creek would be less because of dilution than because of changes in water quality conditions from the Middle Fork flow."

Comment 100

Section 3.11.1.2, p. 3-160.

10.112 "**Mining.** Mineral exploration activities in the vicinity of the mine began in the 1970s with passage of the Alaska Native Claim Settlement Act (ANCSA), which started an evaluation of the area's mineral resources."

The passage of ANCSA was not the cause or beginning of mineral exploration in the Red Dog vicinity. There were numerous mineral claims in the area prior to ANCSA. The cause of increased mineral exploration state-wide in the 1970s was the result of an increase in mineral prices.

Comment 101

Section 3.11, p. 3-162, Figure 3.23.

10.113 The location of the Resource Development and Transportation districts on the figure are not correct. The figure should be corrected to avoid any confusion over the locations of the districts.

Comment ID: 10.110

Response

The text within Section 3.10.3.4 has been modified to be consistent with the modified water quality data discussion in Section 3.5.2.2, which states the data do not suggest impacts to water quality in DMTS streams from the road.

Comment ID: 10.111

Response

The suggested revision has been included in the final SEIS.

Comment ID: 10.112

Response

The text in question was taken from the 1984 EIS. We have no doubt that there were mineral claims in the area prior to ANCSA; however, ANCSA would have settled some of the uncertainty regarding land status.

Comment ID: 10.113

Response

Figure 3.24, which shows the Resource Development and Transportation districts, is correct based on the map provided to us by the NWAB. Without additional detail we cannot comment on requested changes.

Comment 102**Section 3.11.2.2, General Comment.**

10.114 Based on observations from Teck field personnel, the estimated number of recreational visitors to the area is greatly overestimated.

Comment 103**Section 3.12.1.1, p. 3-178, General Comment.**

It is unfortunate that the authors of the SRB&A study did not interview concentrate truck drivers, who drive the DMTS several times a day, every day, to get their opinion on the effects of the DMTS on caribou migration. Based on the time they spend driving the DMTS, the drivers are extremely knowledgeable concerning the movement of caribou in the vicinity of the road.

10.115 Figure 3.27: 1998-2007 and Lifetime Subsistence Use Areas Kivalina, Caribou map shows high overlapping use of the DMTS road as a hunting area. The report fails to mention that the DMTS has increased access to the area for hunters on four-wheelers. On the afternoon of September 11, 2007, hunters from Kivalina on four-wheelers drove past concentrate trucks, which were stopped waiting for migrating caribou near the MS-6 turnout. The hunters stampeded the caribou by driving down the DMTS into the herd. This was witnessed by the NPS Park Superintendent. The map and observations by drivers contradict the statement on page 3-198 that hunters no longer hunt along the road for fear of contamination.

Hunting activities (four-wheelers, plus shooting) can result in a higher level of disturbance to caribou movement than that caused by road traffic. This should be addressed in the SEIS.

To provide a broader and more balanced review of the caribou movement, the responses to the current subsistence survey should be compared to the subsistence survey conducted in 1982 by Stephen R. Braund & Associates (Braund 1982). In this report, the residents of Kivalina confirm that caribou movement only occasionally comes near the village, as the migration patterns of the caribou are highly variable and subject to changes related to weather and population size.

Comment 104**Section 3.12.2, pg. 3-192, Paragraph 3.**

“Somewhat higher levels of lead, copper, and arsenic were found in caribou harvested in the vicinity of the Red Dog Mine...”

10.116 There were no consistent trends in metals concentrations in caribou tissues associated with proximity to Red Dog Mine (Exponent 2002). Some metals concentrations appeared lower in animals that overwintered near the mine compared to caribou from elsewhere in Alaska (e.g., zinc, arsenic), while other metals appeared higher (e.g., lead). None of the metals analyzed were consistently higher or lower in all tissues sampled (muscle, kidney, liver).

Comment ID: 10.114**Response**

The recreational use levels presented in the SEIS, including an estimated 20 to 30 nonresidents that visit Cape Krusenstern National Monument annually, are estimates provided by the National Park Service. Without additional data sources to indicate otherwise, these data remain the basis for the impact analysis.

Comment ID: 10.115**Response**

It is important to keep in mind that active harvesters, including at least one who had been employed as a DMTS truck driver, recognize that there is an existing policy to reduce the effect of truck traffic on caribou movements. Their experience has been that there are problems with the policy's implementation and that a modification of the implementation strategy could significantly mitigate the problem as experienced by Kivalina hunters. The text in Section 3.12.3.1 has been modified to reflect the assessment's basis, which is a combination of the findings in the wildlife section (Section 3.9) and interviews of active harvesters in Kivalina.

The SEIS noted a high number of overlapping use areas along the DMTS in Section 3.12.2.2: “The highest number of overlapping use areas occur along the Kivalina and Wulik rivers, DMTS, and coastline from Rabbit Creek to Kisimilok Creek.” In the same section, the SEIS addresses the problem of residents hunting along the DMTS as follows: “Hunters from Kivalina, Noatak, and Kotzebue have reported changes in caribou movement during multiple studies, indicating that the caribou sometimes follow the road rather than cross it directly (SRB&A 2005), or that traffic along the DMTS, including all-terrain vehicle traffic from young local hunters, disrupts caribou movements and diverts them farther from local hunting grounds (SRB&A 2000 and 2005; Corps 2005).” If four-wheeler traffic along the DMTS is contributing to disruption of caribou, the impact's ultimate cause is still the DMTS; therefore, changes to the SEIS's conclusions are not necessary.

Regarding the statement that “The map and observations by drivers contradict the statement on page 3-198 of the draft SEIS that hunters no longer hunt along the road for fear of contamination,” the full statement on page 3-198 is as follows: “...a number of residents have reported that they no longer hunt in certain areas, such as along the DMTS, due to concerns of contamination.... Thus, fear of contamination or perceived contamination due to mine activities has affected subsistence for some local hunters.” At no point does the SEIS state that residents no longer hunt along the DMTS.

The Braund and Burnham (1982) report states that caribou are more likely to be in the Kivalina area when the caribou population is high. Thus, the statement in Section 3.9 that the caribou population has steadily grown since the mine began and was estimated at 490,000 in 2003, the “largest size documented for this herd,” actually suggests that caribou should be more available in the Kivalina area. While the 1982 report does describe large year-to-year variations in caribou availability, it also states “Nonetheless, the hunters of Kivalina and Noatak expect caribou movement in the study area each year and, in fact, for at least the past five years, 1977-1982, a fair number of caribou have migrated through, and/or overwintered in, the Kivalina and Noatak hunting areas.” While it is true that caribou availability changes from year to year, residents' observations as well as the steadily declining harvests of caribou since the 1980s indicate a trend of decreasing availability rather than year-to-year variations. Additional clarification has been included in Section 3.12.2.2 Harvest Trends, Caribou.

Comment ID: 10.116**Response**

The sentence in question has been deleted from Section 3.12.2 because contaminant-related risks to caribou are discussed elsewhere in the document (Sections 3.9.2.1 and 3.9.2.2). However, we do not think that additional edits to the text are needed because lead has been shown to be elevated in some caribou tissues. It is stated in Section 3.9.2.2 that “The mean concentration of lead in caribou livers from the Red Dog Mine (2.7 mg/kg wet wt) was greater than the mean concentrations of lead in caribou livers from the other Alaska locations (0.19 to 1.42 mg/kg wet wt) evaluated in O'Hara et al. (2003).” In addition, the mean concentration of lead in caribou kidneys from the Red Dog Mine area in 1996 (10 mg/kg wet wt) was well above the concentrations for other locations in northern Alaska (see Exponent 2007, Appendix H, Figure 1).



10.116
(cont)

Recommended Revision

Remove the sentence and all other passages in the SEIS that suggest there is a difference in metals concentrations between caribou harvested near the mine relative to caribou from elsewhere.

Comment 105

Section 3.12.2, p. 3-192, Last Paragraph.

“Although changes in caribou related to the Red Dog Mine from a biological standpoint may be viewed as minimal, resulting effects of localized changes in resources on subsistence uses are more obvious.”

AND

Section 3.13.2, p. 3-239, Last Paragraph.

“The subsistence discussion in Section 3.12.2 indicates that mining operations have had an effect on subsistence. Other information sources, including the scoping process, identify other potential sources of effects or concerns related to the Red Dog Mine. The following discussion provides additional detail.”

There is not data to support a conclusion that mining operations have had an effect on the overall availability and quality of subsistence resources. Section 3.12.2 provides two types of information collected as part of the SRB&A (2008) survey: 1) subjective observations of local residents about differences in location or availability of subsistence resources over the last 20 years, and 2) perceptions of local residents about why those changes occur. For both types of information there are no scientific data provided that support causation from any source, including mining operations. That the survey results represent a compilation of individual perceptions is demonstrated by the wide range of observations selected for caribou resource changes, with no single observation selected by more than 25% of respondents (Table 3.12.5). Even for the observation selected most often (“migration changed or diverted”), the change was attributed most commonly with “Sport Hunting Methods Disturbing Migration Routes.”

The survey did point to differences in perceptions between respondents from Kivalina relative to those from Noatak. For example, Table 3.12-6 indicates that 53% of surveyed individuals from Kivalina, but only 16% from Noatak, perceive mine-related activities of any sort as a reason for changes in caribou migration patterns. However, it is difficult to know whether the differing opinions are representative of their respective communities without information about how the approximately 40 survey respondents from each community (out of a total population of 389 for Kivalina and 489 for Noatak) were selected for participation and without the authors addressing the potential for selection bias.

The SRB&A survey is not designed as a tool for identifying whether real changes have occurred with respect to the availability or quality of subsistence resources. Nor could it attribute causation if there were identifiable changes. Therefore, any suggestion in the SEIS that subsistence resources have been affected and/or that effects can be attributed to any cause should be removed. In reality, there does not appear to be any clear changes in the caribou resource over time, as noted on page 43 of Appendix D to the SEIS:

Annual caribou harvests are subject to large variations in caribou distribution and hunting conditions and therefore are themselves highly variable. As shown in Table 14, for example, per capita harvests of caribou by Kivalina harvesters was 209 pounds per capita

Comment ID: 10.117

Response

The SEIS does not state that the overall availability of subsistence resources has been affected and instead makes a distinction between the overall availability of caribou (which is high), and the local availability of caribou. The impacts on subsistence for residents of Kivalina are related to the local availability of caribou. Local availability can be affected when resource movement and behavior is less predictable and there are local changes in caribou distribution. The subsistence chapter of the SEIS acknowledges that the caribou population is high and that no overall changes have occurred. However, Section 3.9 (Wildlife) does state that the DMTS has had localized effects on caribou movement and distribution. These findings support the conclusion that the decline in caribou harvests is due to something other than natural variations in abundance and migration.

Regarding the comment that Noatak and Kivalina observations contradict one another, descriptions of experiences and observations are likely to be different for two communities with two separate hunting areas and hunting patterns. For example, sport hunting is common along the Noatak River, where Noatak residents hunt during the summer and fall, but not as common in the Kivalina area, and therefore the difference in experiences are to be expected.

Interviews with active hunters constitute a valid source of scientific data. The presented results document the diversity of observations by active hunters. While it is technically correct to call these observations “perceptions,” respondents were deliberately selected for their active experience in harvesting activities. Their perceptions are therefore likely to be strongly influenced by on-the-ground personal experiences. An ongoing monitoring program involving observations of hunters, truck drivers, and higher resolution data on caribou movements could have provided a more comprehensive basis for assessing effects of past mining activities and projecting impacts of continued mining activities.

Section 3.12.2, has been modified to cross-reference Section 3.9.2.2, which describes the effects of the activity along the DMTS road on caribou. Section 3.12.2 has been modified to provide additional detail on the findings in the subsistence section.



Comment ID: 10.118

Response

Section 3.12.2.6 has been revised to include a discussion the risks associated with consumption of sourdock and berries.

in 1964-65 and 830 pounds per capita the next year, 1965-66. With just nine harvest observation years in the last 50 years it is difficult to conclusively discern a trend within this large interannual variation.

Local observations and perceptions are an important first step in identifying issues of concern. However, they do not replace scientific studies designed to test whether individual observations and perceptions represent an actual change. They do not provide data that can either support or refute a hypothesis of causation. While individual perceptions can affect people’s subsistence activities, the passages, as stated, give the mistaken impression that mine-related activities have been shown to affect the availability or quality of subsistence resources.

The scientific data available suggests there is no effect from the mine on caribou population size or migration patterns. As noted in Section 3.9.2.2 of the SEIS, the most recent data from Jim Dau of Alaska Department of Fish and Game (ADF&G) indicates the Western Arctic Caribou Herd is at its largest documented size. Tracking studies by ADF&G do not show an impact of the mine on caribou migration patterns (Dau 2008). The SEIS concludes in Section 3.9.2.2:

While some caribou winter range has been lost as a result of mining operations, it is a comparatively small amount of the available winter range for the WAH. The loss would generally not affect the carrying capacity of the area since only a small number of the WAH wintered in the project area prior to or since mine construction. (p. 3-118, paragraph 6)

Variations in caribou herd size and migration patterns would be expected over time, even from year-to-year, as have been documented by ADF&G. However, over the life of the mine and DMTS corridor, no trends of movement of migration patterns away from the DMTS have been identified.

Recommended Revision

1) Remove the sentence cited from Section 3.12.2, as well as any other statements in the SEIS that imply there is a change in the availability or quality of subsistence resources, unless they are supported by a specific scientific study or studies designed to measure actual changes in the resource. Any statements identifying causation should likewise be supported by scientific studies. In particular, the statement that “...localized changes in resources on subsistence uses [due to Red Dog Mine] are more obvious” is subjective and should be removed.

2) Replace the cited passage from Section 3.13.2 with: “Section 3.12.2 discusses local residents’ observations about changes in availability and use of subsistence resources, and perceptions about the reasons for those changes. The following discussion provides additional detail.”

Comment 106

Section 3.12.2.6, pp. 3-222 and 3-224, General Comment.

As discussed in other comments, the results of the SRB&A (2008) survey represent important perceptions about resource availability and quality. It is also important to provide the perspective of actual data on metals

10.117 (cont)

10.118

10.118
(cont)

concentrations in vegetation. To this end, text should be added to this section discussing the results of the berry and sourdock monitoring studies conducted in the past.

Recommended Revision

Add text discussing prior subsistence foods studies on sourdock and berries, as well as the associated risk analyses for consumption of these foods. This information is summarized in the DMTS Fugitive Dust Risk Assessment (Exponent 2007a) and described in detail in the appendices to the risk assessment.

Comment 107

Section 3.12.3.2, p. 3-229, Table 3.12-25.

10.119

The table is missing 2007 and pre-1987 harvest data. The current year and the premining harvest data should be added to the table.

Comment 108

Section 3.13.2, p. 3-238, Paragraph 2.

“The subsistence discussion in Section 3.12.2 indicates that mining operations have had an effect on subsistence.”

10.120

This statement is, at best, misleading and, in the context of the availability and quality of subsistence resources, incorrect. Section 3.12.2 presents the results of a survey of local residents’ subjective observations on changes in subsistence resources and perceptions about the causes. There are no objective scientific data that attribute a change in the overall availability or quality of subsistence resources to any cause (including mine-related activities), or even that a change has occurred. See Comment 105 for additional discussion.

Recommended Revision

Remove the cited sentence, as well as any other statements in the SEIS that imply there is a change in the availability or quality of subsistence resources, unless they are supported by a specific scientific study or studies designed to measure actual changes in the resource. Any statements identifying causation should likewise be supported by scientific studies.

Comment 109

Section 3.12.3.4, p. 3-232, Fish.

10.121

This section should address the possibility that fish in the Red Dog and Ikalukrok Creeks may be exposed to higher metal concentrations should the discharge be removed from the system.

Comment ID: 10.119

Response

Pre-1987 and 2007 beluga harvest data for Kivalina is shown in Table 3.12-11 and for Kotzebue and Noatak in Table 3.12-12. The study team did not have pre-1987 and 2007 beluga harvest data for Point Lay. The purpose of Table 3.12-25 is to depict harvests from the Chukchi Sea (summer) stock, for four communities (Kivalina, Kotzebue/Noatak, and Point Lay). Because the table was included for comparative purposes between the four communities, only data from study years with data from all four communities was included in this table. See tables 3.12-11 and 3.12-12 for Kivalina, Noatak, and Kotzebue beluga harvests pre-1987 and during 2007.

Comment ID: 10.120

Response

This statement is based on the conclusions reached in the subsistence chapter of the SEIS. The justification for those findings is presented in the response to Comment ID 10.117 above.

Comment ID: 10.121

Response

Red Dog Creek is not identified as a subsistence use area for fishing. Potential impacts to fish in that stream reach are discussed as part of aquatic resources (Section 3.10.3.4).

Comment 110**Section 3.13.2, pg. 3-240, Paragraph 2.**

“The subsistence analysis found in particular that mine-related activities have contributed to decreasing harvest of caribou and beluga in Kivalina. Therefore it is reasonable to postulate that these decreased harvests have had an impact on diet. The effect of the decreased harvests on diet is unknown and the SEIS recommends that a dietary survey be developed and implemented for residents of Kivalina. . . .The agencies are evaluating ways to require this survey in their permits and/or decisions.”

The first sentence gives the mistaken impression that mine-related activities have been shown to affect the availability or quality of caribou and beluga resources when no data is provided to support this conclusion. As noted in Comment 105, the methods used in SRB&A (2008) cannot identify whether actual changes in subsistence resources have occurred over time, nor can they attribute causation. *See* Comment 105 for additional discussion.

The second sentence illustrates the faulty premise on which much of the HIA is predicated. The implication, both because of the juxtaposition with the previous sentence and because it is included in a site-specific SEIS for expansion of the mine, is that mine-related activities have had an impact on changes in diet because of changes in the availability or quality of the resource. As discussed above, there is no objective scientific evidence that mine-related activities have affected the availability or quality of subsistence foods. Similarly, there is no scientific data presented that indicate mine-related activities are associated with negative impacts on public health. To the contrary, some data indicate that there are unlikely to be negative impacts (e.g., the DMTS HHRA results). Nevertheless, the considerable amount of text included that deals with health endpoints unrelated to the site gives an erroneous impression that these effects would be associated with the mine.

Most of the information presented in the HIA is not site-specific. Rather, it pertains to health statistics for Alaska Natives as a whole, or more generally about the relationship between economic development, cultural changes, and health demographics. This general information has not been connected in any meaningful way to site-related activities, and has little or no relevance to the site or the SEIS process. The fact that obesity, cancer, and diabetes rates are increasing is important public health information requiring appropriate actions by public health agencies. However, the fact that economic development raises incomes and makes consumption of non-healthy foods possible does not take responsibility for consumption of those foods out of the hands of the consumer, nor does it take responsibility for general public health issues from the public health agencies that serve these consumers.

The types of health impacts discussed in the available HIA guidance can be broadly categorized as follows: 1) health impacts related to environmental impacts (e.g., chemical releases, metals in the food chain, decrease in subsistence area or resource because of direct effects from operations, etc.); and 2) health impacts related to economic development (e.g., diseases of affluence, increased use of snowmobiles or consumption of purchased foods associated with greater economic resources). It is critical to distinguish these two categories of impacts at any site, but particularly at Red Dog because of the nature of stakeholder ownership in the development.

The category into which a potential impact falls has ramifications for proper forum of assessment, the type of mitigation measures, if any, and the party responsible for both assessment and mitigation. Evaluation of

Comment ID: 10.122**Response**

The quoted statement is based on the conclusions reached in the subsistence chapter of the SEIS (specifically that wildlife disturbance from mine activities has resulted in a reduced harvest of caribou and beluga for the village of Kivalina.) No studies have been undertaken to determine whether these changes in harvest have affected the diet. The text has been revised in response to the comment.

Sections 3.13.1 through 3.13.3 have not been deleted from the text since both Maniilaq and a number of commenters have expressed concerns about health-related issues; these sections address those concerns.

10.122



health impacts related to environmental impact is clearly the responsibility of the developer. Should environmental impacts occur, mitigation measures would also be the responsibility of the developer. Assessment of environmental impacts has been properly addressed as part of the risk assessment process and will continue to be a part of the risk management process.

In contrast, individuals and local public health agencies bear responsibility for health impacts related to economic development. As noted in the mission statement on their web site, Maniilaq “provides comprehensive health care to all the people in our service area while promoting prevention, fitness, wellness, holistic strategies, and incorporating local traditional core values and beliefs.” As such, Maniilaq is responsible for monitoring health trends in their community and providing intervention when needed. It may be that diseases such as diabetes, coronary heart disease, and obesity are increasing, and that decreased reliance on subsistence foods and a more sedentary lifestyle are risk factors for those diseases. Nevertheless, if, for example, people choose to eat fewer subsistence foods because they have increased economic resources, then they must also bear responsibility for the health consequences, and Maniilaq bears responsibility for providing monitoring and intervention. The proper forum for addressing these public health issues that are not directly relatable to the potential environmental impacts associated with the mine is not in the SEIS, but rather in Maniilaq publications and actions.

10.122
(cont)

Recommended Revision

1) Remove the following complete subsections from Section 3.13.1, 3.13.2, 3.13.3 and 3.13.4 because they provide no information directly relevant to the site through the EIS process: “General Health Status,” “Social and Psychological Health,” and “Cancer.” Any passages retained from these subsections must relate directly to the site, citing scientific data that supports that relationship (e.g., discussion of the economic impacts using data on income), or simply state that there is no data to support a relationship between the mine and these health endpoints.

2) Replace the passage cited at the top of this comment with the following: “The subsistence survey identified subjective observations about changes in subsistence resources and perceptions about the reasons for those changes. For example, 53% and 96% of respondents from Kivalina attributed perceived changes in migration of caribou and beluga, respectively, to mine-related activities. Whereas, 16% and 0% of respondents from Noatak attributed perceived changes in migration of caribou and beluga, respectively, to mine-related activities.”

Comment 111

Section 3.13.2, p. 3-240, Paragraph 4.

“Teck’s human health risk assessment (discussed in more detail below in the environmental contaminants subsection) did not show contaminant levels warranting concern in the Wulik River or subsistence resources in the immediate vicinity of the DMTS and port (Exponent 2007a). It should be noted that the risk assessment procedure uses a set of assumptions, and the results of the risk assessment have not been validated through direct studies.”

The last sentence quoted above notes that the risk assessment procedures use “a set of assumptions.” However, it does not identify that they are conservative assumptions designed to overestimate actual exposure

10.123

Comment ID: 10.123

Response

The discussion of blood lead levels is presented in the section on environmental contaminants and is not relevant to the discussion of the effects on subsistence, nutrition, and diet-related diseases. The text regarding the nature of uncertainty under the risk assessment procedure has been modified to partially address the comment. While many of the assumptions used in the risk assessment were conservative, the fractional intake value for caribou was not conservative.

10.123
(cont)

where there are uncertainties about the actual exposure. In addition, it is not entirely correct that the results of the risk assessment have not been validated. It is unusual that a risk assessment would be “validated,” since they consider hypothetical exposures that could potentially occur, rather than actual exposures that have occurred or are occurring. However, in at least one case, actual data does exist to validate the conservative nature of the risk assessment. Specifically, the conservative exposure assumptions used in the DMTS risk assessment resulted in blood lead estimates consistently higher than actual blood lead data for residents of Kivalina and Noatak. Thus, the conservative exposure assumptions used in the risk assessment overestimated actual exposure.

Recommended Revision

Modify the last sentence of the cited passage as follows: “It should be noted that the risk assessment procedure uses a set of conservative assumptions designed to overestimate actual exposure where there are uncertainties about the actual exposure. The results of recent blood lead surveys conducted in Kivalina and Noatak consistently show actual blood lead levels lower than those estimated in the risk assessment, thus demonstrating that the conservative assumptions used in the risk assessment overestimate exposure.”

Comment 112

Section 3.13.2, p. 3-245, Paragraph 5.

“The percent of persons with blood cadmium levels over 1.0 µg/L in Kivalina and Noatak is somewhat higher than the percentage in the general U.S. population. Small sample sizes, particularly as was seen in Kivalina, make it very difficult to determine if the data accurately reflect levels in the entire population. Additionally, the higher percentage of persons with detectable blood cadmium levels may reflect high smoking rates among Alaska Natives, since tobacco is a common source of cadmium exposure (CDC 2005). In studies from the mid-1980s, concentrations of cadmium in blood in normal populations range from about 0.4 to 1.0 µg/L for nonsmokers and 1.4 to 4.0 µg/L for smokers (ATSDR 1999b).”

As noted in the text, the small sample size makes it difficult to determine whether the data reflect the entire population. This is an important point that is appropriately included. Other important points that should be added include:

10.124

- 1) Based on the information presented, it is not possible to determine whether these are true differences. Have statistics been done that show a significant difference? It is unlikely, given the small sample size, that a statistically significant difference could be demonstrated, particularly in Kivalina, where only one person had a detectable level of cadmium in their blood. If not, it cannot be concluded that blood cadmium levels are higher in Noatak and Kivalina than the general U.S. population and should not be stated as such.
- 2) Text should be added explaining that any differences in cadmium blood levels as compared to the general U.S. population, should they exist, could be due to a number of factors, in addition to smoking, including a) higher than average background exposure from living in an area with naturally-enriched cadmium; and b) greater dietary exposure from substantially higher consumption of organ meats and shellfish with background levels of cadmium. Given these factors, it would not be surprising if Kivalina and Noatak residents did turn out to have higher levels of blood cadmium.

Comment ID: 10.124

Response

Text in Section 3.13.2 has been modified similarly to the suggested text.

The available data on serum cadmium levels is based on sampling a small percentage of Kivalina and Noatak residents. Consequently, given the small sample size and lack of information about differences between village residents who participated in the study and those who did not, it is not possible to know whether these levels reflect the village populations as a whole, nor to conclude whether the percent of persons with blood cadmium levels over 1.0 µg/L in Kivalina and Noatak is significantly different than the general U.S. population. In addition, differences in blood cadmium levels between people from the region and the U.S. general population, should they exist, could be a result of factors other than mining, including: 1) higher smoking rates among Alaska Natives, since tobacco is a common source of cadmium exposure (CDC 2005). In studies from the mid-1980s, blood cadmium concentrations ranged from about 0.4 to 1.0 µg/L for nonsmokers and 1.4 to 4.0 µg/L for smokers (ATSDR 1999b); 2) greater dietary exposure from substantially higher consumption of organ meats and shellfish with background levels of cadmium. Finally, the blood cadmium levels are felt to be indicative of more recent or acute exposure, whereas urinary cadmium levels reflect longer-term exposure or total-body burden of cadmium. Consequently, the significance of blood levels of cadmium mildly elevated is not clear.

3) While blood cadmium levels may be a biomarker of exposure, they are uninformative as a biomarker of effects. Unlike for blood lead levels, there is relatively little regulatory or scientific consensus on the meaning of blood cadmium levels, particularly at this low range. The SEIS should clearly state that the blood cadmium levels detected have not been associated with any health effects.

Recommended Revision

10.124 (cont) *Modify the cited passage as follows: "The percent of persons with blood cadmium levels over 1.0 µg/L in Kivalina and Noatak is not significantly different than the general U.S. population. In addition, given the small sample size and lack of information about differences between village residents who participated in the study and those who did not, it is not possible to know whether these levels reflect the village populations as a whole. Any differences in blood cadmium levels between people from the region and the U.S. general population, should they exist, could be a result of: 1) higher smoking rates among Alaska Natives, since tobacco is a common source of cadmium exposure (CDC 2005). In studies from the mid-1980s, blood cadmium concentrations ranged from about 0.4 to 1.0 µg/L for nonsmokers and 1.4 to 4.0 µg/L for smokers (ATSDR 1999b)¹; 2) higher than average background exposure from living in an area with naturally enriched cadmium; and 3) greater dietary exposure from substantially higher consumption of organ meats and shellfish with background levels of cadmium. Finally, the blood cadmium levels detected in these populations have not been associated with any health effects."*

Comment 113

Section 3.13.2, p. 3-247, Paragraph 4.

"The results showed that the estimated BLL concentrations were below 5 µg/dL."

10.125 The highest predicted mean blood lead level for children was 1.6 µg/dL. This is important, particularly in comparison with the information in Table 3.13-3, which shows that it is similar to U.S. background and similar to the actual measured levels.

Recommended Revision

Modify the cited sentence as follows: "The highest predicted mean blood lead level for children was 1.6 µg/dL."

Comment 114

Section 3.13.2, p. 3-247, Paragraph 7.

10.126 "The modeled BLLs for the fetus were below 10 µg/dL."

As with the previous comment, it is useful and important to provide an idea of the actual results, rather than just that they were less than 10 µg/dL.

¹ The original citation from the draft SEIS was retained here, but the information should be verified in the updated Draft Toxicological Profile for Cadmium (ATSDR 2008) and the citation updated.

Comment ID: 10.125

Response

The use of the "alternative caribou fractional intake" results in a slightly higher BLL, so for completeness we think this value should be cited as the maximum geometric mean BLL. We have incorporated the mean blood lead information by revising the sentence as follows: "The modeled BLLs for children were below 10 µg/dL; the highest geometric mean BLL modeled was 1.9 µg/dL."

Comment ID: 10.126

Response

The use of the "alternative caribou fractional intake" results in a slightly higher BLL, so for completeness we think this value should be cited as the maximum geometric mean BLL. We have incorporated the mean blood lead information by revising the sentence as follows: "The modeled BLLs for the fetus were below 10µg/dL; the highest geometric mean BLL modeled was 2.7 µg/dL."



Comment ID: 10.127
Response
TBD

10.126
(cont)

Recommended Revision

Modify the cited sentence as follows: "The highest predicted mean blood lead level for the fetus of an adult worker was 2.6 µg/dL."

Comment 115

Section 3.13.2, p. 3-248, Paragraph 1.

"The previous subsection reviewed the HHRA findings as prepared by Exponent. In its review of the HHRA, EPA generally agreed with the findings with one notable exception. EPA's assessment of the data concluded that health risks from caribou consumption were underestimated by an order of magnitude. EPA determined that health risks represented by measured levels of metals in caribou incur HQs above a level of concern (e.g., hazard indices of 2.9 for children and 1.1 for adults). The HHRA calculated risks based on estimates of metals attributable to the DMTS (estimated at 9 percent of the total measured values), but the sources of the metals in caribou tissue have not been determined. EPA's approach uses the measured concentrations of metals in caribou (rather than the estimated concentrations) to represent the best estimate of exposure to people who consume caribou, regardless of the sources of the metals. EPA recognizes the nutritional and cultural value of caribou consumption, as well as the potential for substituting less healthful replacements, and is not recommending avoiding caribou consumption as a result of this analysis."

It is unclear to which assessment the text is referring when it states "EPA's assessment of the data concluded..." The only other publicly-available risk calculations are those presented in the Supplemental Assessment, also prepared by Exponent (2008), in consultation with EPA Region 10 and DEC. If the text is referring to this document, the risks cited ("hazard indices of 2.9 for children and 1.1 for adults") are incorrect. If there is another assessment, it should be made available for review and comment before it is cited in the SEIS.

10.127

Recommended Revision

*Please clarify which assessment is being cited. If it is Exponent (2008), correct the hazard indices cited in the text, indicate there was **less than** an order of magnitude difference between the results presented in HHRA and those in the Supplemental Assessment, and provide the appropriate context for why the SA was conducted:*

"This supplemental assessment does not impact the findings of the DMTS risk assessment that "risks associated with continued harvesting of subsistence foods from the site, including in unrestricted areas near the DMTS, are not significantly elevated." The DMTS risk assessment evaluated the best estimate of site-related exposure to metals and the associated risk. This supplemental assessment addresses the uncertainty in the relative contribution of the site to metals concentrations in caribou tissue. Specifically, the supplemental assessment provides risk estimates that address the possibility that the site contributes a higher percentage of caribou tissue metals than estimated using the site fractional intake of 0.09 (i.e., 9 percent) or the alternative fractional intake of 0.2 (i.e., 20 percent) that were applied in the DMTS risk assessment. Although less than 100 percent of the metals in caribou tissue are derived from the site (caribou range widely and would not spend 100 percent of their time foraging and living on the site), the supplemental assessment makes this assumption as a way to understand the absolute upper limit of

10.127
(cont)

uncertainty for caribou site use and the contribution of site metals to caribou tissue metals concentrations. Studies to address this area of uncertainty will be conducted as part of the ongoing risk management process and explicitly included in the risk management plan.” (Exponent 2008)

If there is another risk assessment conducted by EPA Region 10, please submit it for public review and comment before it is relied upon for citation in the SEIS.

Comment 116**Section 3.13.2, pg. 3-251, paragraph 1**

“Blood lead sample data from approximately 2,000 Teck employees from 1995 to 2007 show that 434 of 8,706 BLLs (5 percent) were above 25 µg/dl and 31 (0.4 percent of workers) were at or above 40 µg/dl. Of 1,627 blood lead measurements of approximately 750 Teck contractor employees and visitors, 91 (5.6 percent) were above 25 µg/dl and 11 (0.7 percent) of these were at or above 40 µg/dl. Note that the individual number of employees is actually lower than the percentages would indicate since employees with elevated BLLs are sampled more frequently until those levels drop below 25 µg/dl.”

10.128

The passage correctly notes that “employees with elevated BLLs are sampled more frequently” so “the individual number of employees [with elevated BLLs] is actually lower than the percentages would indicate.” However, the parenthetical percentages in the first and second sentences imply/indicate it is a percentage of workers. Inclusion of the percentages does not provide useful information because it is unknown how many individual workers were affected and/or how many tests represent the same worker.

Recommended Revision

Remove the percentages.

Comment 117**Section 3.13.2, p. 3-251, Paragraph 3.**

“According to a recent report by the Alaska Department of Health and Social Services (ADHSS), 308 of 2,710 Alaskan workers whose blood lead was tested between 1995 and 2006 exceeded the CDC adult health criteria for lead of 25 µg/dl. More than 90 percent of these workers were employed in the mining industry. Thirty-nine workers had BLLs above 40 µg/dl while the median blood lead concentration was 9 µg/dl. The state epidemiologist who prepared the report noted that most of the blood test results were from Red Dog Mine workers (ADHSS 2008).”

10.129

It would be expected that most of the blood lead test results would be from Red Dog Mine workers, since Red Dog is by far the biggest lead producer in the State of Alaska. Omission of this information gives the impression that the worker health program is lacking at Red Dog when the opposite is true; Red Dog health and safety policies go beyond industry practices and regulatory requirements.

Comment ID: 10.128**Response**

Comment noted. The percentages have been removed from the text in Section 3.12.2.

Comment ID: 10.129**Response**

Comment noted. The text in Section 3.12.2 has been revised to indicate that Red Dog is the largest lead producer in the state and therefore would have a greater number of workers in the test program.

10.129
(cont)

Recommended Revision

Add the following sentence to the end of the paragraph: “This would be expected because Red Dog is by far the largest lead producer in the State of Alaska. The predominance of blood lead results from Red Dog in the State of Alaska database reflects the size of the operation, number of employees, and the aggressiveness of Red Dog worker health protection and monitoring policies.”

Comment 118

Section 3.13.3, p. 3-251, Paragraphs 6 and 7.

“OSHA recognizes that although the BLL is a good index of current or recent lead absorption into the human body, it does not necessarily indicate the total body burden of lead and is not an adequate measure of past exposure. This is because lead has a high affinity for bone and up to 90 percent of the body’s total lead is deposited there. The BLL also does not fully reflect the biologically active lead deposited in soft tissues such as the liver, kidney, and brain. Therefore, a low BLL does not exclude an elevated total body burden of lead. Consequently, OSHA requires that lead-exposed workers receive a blood test for the zinc protoporphyrin enzyme along with the BLL. Blood zinc protoporphyrin is thus a better indicator of lead toxicity than the level of blood lead itself. An elevation in the level of circulating zinc protoporphyrin may occur at BLLs as low as 20-30 µg/100 g in some workers. OSHA maintains the enzyme disturbances measured by the zinc protoporphyrin test are early stages of a disease process that may eventually result in the clinical symptoms of lead poisoning and are in themselves considered to be a material impairment of health.

Teck could bolster its medical surveillance program for mine workers by adding blood zinc protoporphyrin testing to its procedures. This approach is considered by occupational health professionals to be a best practice in addition to an OSHA lead program requirement.”

Teck fully follows the OSHA lead program requirements, and the testing for zinc protoporphyrin is included in the current blood lead monitoring program.

Recommended Revision

Revise the text to indicate that Teck is performing the zinc protoporphyrin analysis.

Comment 119

Section 3.13.2, p. 3-251, Paragraph 7.

“Since cadmium is classified as a probable human carcinogen by EPA...”

This should be clarified to indicate that EPA considers cadmium a probable carcinogen by the inhalation route, but not the oral route.

Comment ID: 10.130

Response

The text in Section 3.12.2 has been revised to indicate that Teck’s monitoring program includes testing for zinc protoporphyrin. The suggestion that this monitoring be implemented was deleted.

Comment ID: 10.131

Response

The text in Section 3.12.2 has been clarified to reflect cadmium as one of EPA’s probable carcinogens by the inhalation route only.



10.131
(cont)

Recommended Revision

Revise the cited sentence as follows: "Since cadmium is classified as a probable human carcinogen by inhalation exposure (but not oral exposure) by EPA..."

Comment 120

Section 3.13.3, p. 3-254, Paragraph 2.

"Mine activities have likely contributed to a localized effect on diet, reflected in the reduction in the amount of caribou and beluga harvested and concerns about the effects of dust contamination on other resources used primarily by Kivalina residents. Furthermore, residents' concerns about contamination of caribou and other subsistence resources would continue and possibly worsen over the length of mine operations. Displacement of caribou could continue to decrease the success of subsistence hunts by Kivalina residents and alteration of the migration of caribou near the DMTS could result in decreased harvests over time. The reduction in harvest could contribute to effects on the nutritional system and increase the risks of diabetes and metabolic disorders. A dietary survey was recommended under the description of the baseline conditions (Section 3.13.2) to provide additional information on the relationship between subsistence resource changes and diet."

10.132

Please see Comment 105, Comment 108, and Comment 110. There are numerous statements in the cited paragraph that erroneously imply there are measurable changes in overall subsistence resource availability and/or quality that are attributable to mine-related activities. As noted in previous comments, this is not the case.

Recommended Revision

Revise the paragraph to avoid the incorrect implication that measurable changes have occurred and/or that they can be attributed to mine-related activities. It is appropriate, however, to summarize the perceptions of change identified in the SRB&A survey, and how those perceptions might be affected by the different alternatives if that information is available or can be reasonably hypothesized. The following passage in the first paragraph of page 3-256 is a good example of phrasing that frames the issue in terms of the importance of how perceptions can affect health: "The change in the water treatment system to reduce TDS levels could improve perceptions about the discharge. If perceptions about the discharge changed, it could help address some village concerns about the safety of drinking water and subsistence fishing."

Comment 121

Section 3.13.3, p. 3-254, Paragraph 3.

10.133

"Under all alternatives, prolonged absences of family members employed at the mine would continue to affect family dynamics through the duration of operations. Children of mine workers would have less interaction with the employed parent. Social service personnel at Maniilaq Association have commented that the prolonged absence of men who work at the mine creates a deficit of role models for male children. The stress associated with re-integrating families when mine employees return home may, in individual cases, exacerbate problems such as domestic violence and alcohol use (although villages in the NWAB outside Kotzebue are dry)."

Comment ID: 10.132

Response

The SEIS consistently discusses the effects of mining operations on subsistence as contributing to harvest reductions based on information in the wildlife section and subsistence section. Data presented in the Corps DEIS on navigation improvements and the survey conducted by SRB&A in support of this project support those findings. See also responses to comments 10.117, 10.120, and comment 10.122. The text in Section 3.13.3 has been clarified to identify the sources of the information presented.

Comment ID: 10.133

Response

The text states that problems related to absences of family members while working at the mine "may" create the described problems, "in individual cases." The text also cites positive effects from the mine related to income and employment. While the discussion has not been further substantiated through more rigorous investigation, the text cites the professional observations of counseling staff at Maniilaq Association, a valid source of information.

10.133
(cont)

The discussion on the prolonged absences is biased and unsubstantiated. Were any employees of Red Dog interviewed to verify these conclusions, or were a couple of off-hand remarks made in an unknown context taken as fact and expanded to represent the entire Red Dog work force? As stated earlier, this type of speculation does not belong in an unbiased EIS and should be removed from the document.

Comment 122

Section 3.15, p. 3-272, General Comment.

10.134

The DMTS is a multiple use facility and should be noted as such. To date, it has been utilized for non-Red Dog shipments on several occasions. This includes home construction materials for two Noatak homes, fuel for Noatak, several boats for the region, and supplies for Kivalina.

Comment 123

Section 3.15.2.2, p. 3-275, Paragraph 3.

“Efforts have been taken to reduce fugitive concentrate dust that collects on the exterior of concentrate trucks during loading and unloading, or that is tracked out by the concentrate trucks from the CSBs at the mine and the port. At the port, an “air wash” dust control system was installed at the truck unloading building which uses a 55,000 cubic feet per minute (cfm) baghouse to draw dust laden air from the truck unloading hopper, and uses positive airflow to minimize the potential of dust adhering to the concentrate trucks. A truck wash installed at the mine is used in the summer to remove concentrate from the outside of trucks prior to exiting the mine site. The truck wash is not used during the winter months because of the possibility of creating driving hazards, such as freezing brakes and hydraulic lines.”

10.135

The discussion on the efforts to reduce fugitive concentrate dust should include:

- (1) The addition of a separate loading area to the mine CSB that isolates the trucks from the loader and stored concentrate (1992);
- (2) Dust control system installation completed for the mine CSB truck loading bay. The system is comprised of a stilling shed and curtains to contain any entrained dust during loading operations and fans to draw the entrained dust back into the mine CSB and away from the concentrate trucks and trailers; and
- (3) Installation of a baghouse on the mine CSB that keeps the building under negative pressure (2008).

Comment 124

Section 3.16, p. 3-279, General Comment.

10.136

Based on observations from Teck field personnel, the noise estimates are greatly overestimated.

Comment ID: 10.134

Response

Section 3.15.1 states that Teck has priority, non-exclusive use of the DMTS. This statement implies that other uses of the facility are possible. The text has not been revised.

Comment ID: 10.135

Response

Section 3.15.2.2. has been revised to identify some of the dust control measures that have been implemented in the mine site CSB.

Comment ID: 10.136

Response

Comment noted. The lack of localized data results in the noise analysis being theoretical, which by nature limits the extent of attenuation imposed by features such as topography and weather.

Response

Comment 125

Section 3.17.2.1, p. 3-288, Table 3.17-4.

10.137

The listing of Red Dog Mine CDP with a population of 32 or 33 is incorrect.

Red Dog has no permanent residents. Some employees choose to use it as their mailing address and this is probably the source of the number. This is misleading and the entire row should be deleted.

Comment 126

Section 3.17.2.2, p. 3-296, Table 3.17-13.

10.138

NANA Regional Corporation, Inc. is missing from the table. It is a significant employer in the region, and should be listed.

Comment 127

Section 3.17.2.3, p. 3-302, Paragraph 4.

10.139

“The NWAB was incorporated two years before Red Dog Mine began operations in 1988.”

It should be noted that Red Dog was the reason that the Borough was formed. With Cominco’s commitment to construct the mine and develop a taxable entity, the Borough was formed to provide services for the people in the region.

Comment 128

Section 3.17.2.4, p. 3-309, Paragraph 3.

10.140

“The majority of these royalty revenues are actually distributed to other ANCSA regional corporations.”

Recommended Revision

“The majority of these royalty revenues are actually distributed to other ANCSA Regional and Village corporations.”

Comment 129

Section 3.17.2.4, p. 3-310, Paragraph 2.

10.141

“In addition to quarterly base payments from Teck, which will span 15 years starting in 1999, the NWAB receives “zinc price escalator payments” when the London Metal Exchange 12-month average price per pound for zinc exceeds \$0.60 per pound. These payments are set at \$50,000 per \$0.01 over the \$0.60 base price.

Comment ID: 10.137

Response

The Red Dog Mine CDP has been removed from 3.17-4 and the NWAB total population numbers recalculated.

Comment ID: 10.138

Response

The employment data for NANA Regional Corporation are reported to the Alaska Department of Labor for Anchorage and therefore data for employees working within the NWAB are unavailable.

Comment ID: 10.139

Response

Section 3.17.2.3. has been revised to indicate the NWAB was formed to provide services to the residents using revenue generated from Red Dog operations.

Comment ID: 10.140

Response

The suggested language was incorporated into 3.17.2.4 of the final SEIS.

Comment ID: 10.141

Response

The text in Section 3.17.2.4 has been revised to show initial payments began in 1988 and will span the duration of mining activities.

Response

10.141 (cont) The dates and time periods are incorrect. Initial payments were made in 1988, and are expected to be made over the life of the mine. Additionally, the payment schedule is subject to renegotiation on a periodic basis. Teck can provide additional details on the PILT if requested.

Comment 130

Section 3.17.3.2, pp. 3-319 – 3-320.

10.142 The discussion under Alternative A does not account for the costs of mine closure and reclamation. The estimated payments to NANA over the remaining life of the main pit are substantially overstated and misrepresent the financial impact on NANA should the mine permanently close in 2011/2012.

Comment 131

Section 3.19, p. 3-328, Cumulative Effects.

10.143 As noted earlier in Comment 27, the marine pipeline should be identified as a reasonably foreseeable action. The project is memorialized in a consent decree, and Teck is obligated to pursue the project in good faith. The water pipeline project should be evaluated in the short list of projects, and its potential effects should be evaluated and integrated into the cumulative effects discussion in Section 3.19.3.

Comment 132

Section 3.19.2.4, p. 3-335.

10.144 “The adjacent Su Deposit is 100 percent controlled by Teck, and is also undergoing the initial phases of exploration in the early 1980s.”

Recommended Revision

“The adjacent Su Deposit is 100 percent controlled by Teck, and the initial phases of exploration were undertaken in the 1980s.”

Comment 133

Section 3.19.3, p. 3-337, Air Quality.

10.145 This section should include a discussion on the air quality impact of the natural gas development. Natural gas development would allow for the replacement of 14 million gallons of diesel a year, thereby reducing particulate, NO_x, SO_x emissions.

Comment 134

Section 3.20, p. 3-343, Geochemistry/Geology.

10.146 Mining of the deposits in the Red Dog area will not be a permanent loss of the resources. In modern society, metals are recycled. Lead is the most recycled metal. Silver is recycled, and the recycling of zinc has

Comment ID: 10.142

Response

The entire cost of mine closure and reclamation will be paid by Teck. NANA is only expected to share a portion of the closure and reclamation costs that exceed the amount saved by Teck for reclamation. Unless closure and reclamation costs are significantly higher than expected, they will have no effect on the region beyond continued local labor requirements and services demanded of local vendors.

The labor requirements are likely to be the primary local impact of mine closure and reclamation. The final paragraph of Section 3.17.3.2 (pp. 3-321) discusses labor requirement of reclamation. No itemized cost information was supplied so the amount local vendors’ services demanded for closure and reclamation is unknown.

Comment ID: 10.143

Response

The wastewater pipeline has been added to the long list and short list of reasonably foreseeable projects and has been included in the cumulative effects analysis (Section 3.19). Additionally, the discussion of potential incremental cumulative impacts has been added to resource area discussions where appropriate.

Comment ID: 10.144

Response

The description of the Su Deposit in Section 3.19.2.5 has been revised to state that initial phases of exploration were conducted in the 1980s.

Comment ID: 10.145

Response

Based on the data presented in the baseline information, natural gas activities are currently in the exploration phase. Therefore, the analysis considers continued exploration to be reasonably foreseeable but does not consider the benefit of production in reducing diesel emissions.

Comment ID: 10.146

Response

Metal recycling would indeed ensure that the resources extracted from the Red Dog and Aqqaluk deposits would continue to be reused. However, the deposits themselves are nonrenewable and therefore identified in the table.



10.146 (cont) increased in recent years. As long as recycling continues, a portion of the metals mined will always be with us.

Comment 135

Appendix D, p. 45, Paragraph 3.

“Somewhat higher levels of lead, copper, and arsenic were found in caribou harvested in the vicinity of the Red Dog mine; however, these findings were attributed to higher natural levels of minerals in that area and further studies are recommended to determine the relationship between mining activities and caribou health.”

10.147 There were no consistent trends in metals concentrations in caribou tissues associated with proximity to Red Dog Mine (Exponent 2002). Some metals concentrations appeared lower in animals that overwintered near the mine compared to caribou from elsewhere in Alaska (e.g., zinc, arsenic), while other metals appeared higher (e.g., lead). None of the metals analyzed were consistently higher or lower in all tissues sampled (muscle, kidney, liver).

Recommended Revision

Remove the sentence and all other passages in the SEIS that suggest there is a difference in metals concentrations between caribou harvested near the mine relative to caribou from elsewhere.

Comment 136

Appendix D, p. 45, Paragraph 4.

“Although changes in caribou related to the Red Dog Mine from a biological standpoint may be viewed as minimal, resulting effects of localized changes in resources on subsistence uses are greater. Because residents rely on only a portion of the expansive WAH range to harvest caribou, small changes in caribou availability can have large effects on subsistence uses. Subsistence users in the study communities have observed various changes in caribou since mine operations began, citing both mine-related and other causes.”

10.148 Please see Comment 105. There is no evidence that “localized changes in resources on subsistence uses are greater,” or that the availability of the resource in traditional hunting areas is reduced due to the mine. Data presented by Jim Dau from Alaska Department of Fish and Game does not indicate that the mine has impacted overall caribou health or migration patterns (Dau 2008). In addition, the SEIS concludes in Section 3.9:

While some caribou winter range has been lost as a result of mining operations, it is a comparatively small amount of the available winter range for the WAH. The loss would generally not affect the carrying capacity of the area since only a small number of the WAH wintered in the project area prior to or since mine construction. (p. 3-118, paragraph 6)

The survey of Kivalina and Noatak hunters is a valid indication of perceptions, but not a scientific study of actual changes or of causation. It is noteworthy in this regard that the perception of causation is different for residents of Kivalina compared to residents of Noatak. The results of the survey provide important

Comment ID: 10.147

Response

As noted in the response to Comment ID 10.116, lead has been shown to be elevated in some caribou tissues. It is stated in Section 3.9.2.2 that “The mean concentration of lead in caribou livers from the Red Dog Mine (2.7 mg/kg wet wt) was greater than the mean concentrations of lead in caribou livers from the other Alaska locations (0.19 to 1.42 mg/kg wet wt) evaluated in O’Hara et al. (2003).” In addition, the mean concentration of lead in caribou kidneys from the Red Dog Mine area in 1996 (10 mg/kg wet wt) was above the concentrations for other locations in northern Alaska (see Exponent 2007, Appendix H, Figure 1).

Comment ID: 10.148

Response

The comment that “localized changes in resources on subsistence uses are greater” is a general comment that is based on subsistence users’ experiences with development in Northwest Alaska and the North Slope. As discussed in the response to Comment ID 10.117, the authors acknowledge that the overall abundance and migration of caribou has not changed, and cite these conclusions in Section 3.12. Section 3.12 concludes that localized changes in movement and distribution have affected caribou harvests for Kivalina residents. Additional text has been added to Section 3.12.2.2 – Caribou Resource Change to clarify the point.

Regarding the comment that two residents’ observations about caribou migration contradict one another, because these two quotes are from residents from two different communities with different hunting patterns and areas, they are not contradictory. As described above, “descriptions of experiences and observations are likely to be different for two communities with two separate hunting areas and hunting patterns. For example, sport hunting is common along the Noatak River, where Noatak residents hunt during the summer and fall, but not as common in the Kivalina area, and therefore the difference in experiences are to be expected.” Furthermore, the two quotes do not refer to the time of year of the observed migratory changes; the two individuals may be describing migration patterns during two different times of the year.

As some of the above comments are similar to those under Comment ID 10.117, please see the response to Comment ID 10.117 for additional explanations.



10.148
(cont)

information about perceptions that should be addressed, but cannot provide a conclusion that “resulting effects [related to the Red Dog Mine]...of localized changes in resources on subsistence uses are greater.”

Personal accounts provide valuable information when designing scientific studies, but do not, in themselves, constitute scientific results on which to base conclusions. They are subject to individual perceptions and biases. One person’s account can often directly contradict another’s. For example, one account quoted from a Kivalina resident suggests that caribou migration has shifted further north, “going up toward Atqasuk and Nuiqsut and Kaktovik. A few would cross, but most go up behind the mine and head up that way.” (App. D, p. 48). Another personal account from a Noatak resident suggests migration has shifted south: “Usually, the [caribou hunting] success is further up... later, we heard that they were crossing the road, but they went further down, to Kotzebue area.”

Recommended Revision

Remove cited passage and all other statements in the SEIS that imply there is a change in the availability or quality of subsistence resources, unless they are supported by a specific scientific study or studies designed to measure actual changes in the resource. Any statements identifying causation should likewise be supported by scientific studies.

Comment 137

Appendix D, General Comments.

- 1) All comments referring to Section 3.12 also apply to Appendix D. Please ensure that all revisions to Section 3.12 are carried through to Appendix D.
- 2) The full methodology, protocols, and raw results used in the SRB&A (2008) survey should be made available for public review. At minimum, the full methodology and protocols should be included in the SEIS. Without this information, it is not possible to fully evaluate the study and, as a result, limits the conclusions that can be drawn from it.

10.149

Comment 138

Appendix E, General Comment.

Appendix E is very general and does not provide enough specific information explaining how the HIA presented in section 3.13 was conducted or the specific basis for the conclusions. Adequate methodology and details of the actual analysis should be provided so that a reviewer could follow the assessment completely from input, through the decision points, to results, and finally the conclusions. A reviewer should be able to reproduce the results based on the methodology and input provided, and this cannot be done with the level of detail provided. Without this level of detail, the conclusions presented in Section 3.13 appear subjective and without adequate scientific support.

10.150

Comment ID: 10.149

Response

Regarding item 1, please see the responses to previous comments.

Regarding item 2, the full report is forthcoming and will be made available to the public after its completion. The methodology and protocols will be available in the full report.

Comment ID: 10.150

Response

Appendix E describes the NEPA-based impact assessment process as applied to public health that was used in the SEIS. The Appendix cites a number of more specific guidance related to “health impact assessment,” a process which was relied upon for this section, to which the reader can refer for more specific information. The public health subsections do not rely on a single method, but rather on the process of impact assessment. Because there are a number of gaps in available data and no direct investigations of health effects related to the Red Dog Mine have been carried out to date, the text of the public health section makes clear at many points that more certain conclusions are not possible. Instead, the impact assessment for public health focuses on identifying evidence-based potential linkages between mine-related activities and health, on identifying data gaps, and on recommendations for studies, monitoring, and measures that could address issues identified through the process.



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Author Name: Forrester, Sean—Individual

Comment ID # 11.001

Response

Thank you for your comment.

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Monday, February 02, 2009 6:24 PM
To:
Subject: Fw: Red Dog Mine- Aqquluk Project S.E.I.S. Letter of Support
Follow Up Flag: Follow up
Flag Status: Red

----Forwarded by Patricia McGrath/R10/USEPA/US on 02/02/2009 05:19PM ----

To: Patricia McGrath/R10/USEPA/US@EPA
From: "OHSC Representative RDOG" <OHSCRep@teck.com>
Date: 02/02/2009 04:35PM
cc: "sean@seanreddogmine.com" <sean@seanreddogmine.com>
Subject: Red Dog Mine- Aqquluk Project S.E.I.S. Letter of Support

Patricia McGrath:

Hello my name is Sean Forrester and I am currently employed at Red Dog Mine. I've just completed my 12th year with Teck Cominco and I'm writing this letter to show my support for the Red Dog Mine Aqquluk Project.

I currently live in Anchorage, AK and commute to and from the mine on a 2 week on / 1 week off schedule. I am not a shareholder of the Nana region but my 9yr old son is. I've been involved in all aspects of the mine including environmental clean ups and such. I have never seen a "shady practice" at Red Dog involving safety, environmental issues or wildlife. These are all priorities that we adhere to. My commitment as an employee and as a father of a son who might one day work at Red Dog is one I take seriously. I work diligently to see that we minimize the impact to the environment for current residents of the region as well as the future residents of this land.

I started with Red Dog back in January of 1997 as just an entry level heavy equipment operator. With hard work, drive and determination I have obtained journeyman status as a heavy equipment operator. I am also the on site trainer for Alaska Airlines (we charter Alaska Airlines for our travel), I assist as a fill in supervisor for my 20 man crew, I'm a member of our Occupational Health & Safety Committee and was also selected to be trained as an instructor for our new safety system called "SafeStart".

Red Dog has given me such great opportunities to showcase my skills and they have rewarded me with excellent training, benefits and opportunities to further my career. Without Red Dog I would never of had a company motivate and support me as they have. Along with those benefits I've benefited financially as well, allowing me to provide a good home for my family. I'm also able to help donate money every year to local charities within the region around Red Dog.

Many of my co workers live in the region (Noatak, Kotzebue, Kiana and etc) and I see first hand what a positive effect Red Dog has had on them socially and economically. These people are able to purchase items such as stove oil or gas that can run around \$7-10 a gallon in a village and also help fellow villagers with their cost.

11.001

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Even if your not employed at Red Dog in some way you benefit from the mine. People don't consider Red Dog a mine they think of it as just another village, you never hear it called "Red Dog Mine" its just called "Red Dog". Red Dog donates money and services to villages to help with basketball tournaments, softball, fund drives and recently we allocated fuel to sell to a nearby village for half the cost of what it was being sold for in their own town.

We have a program here called "Job Shadow", where selected high school kids have the opportunity to come here to the mine and spend a few days learning different aspects of the operation. This could range from a geologist, to a mine engineer, or even a trade skill such as a millwright or h.e. mechanic. I've even seen a number of high school kids take advantage of the scholarship program for college and even seen a few return to work at the mine after they've received their degrees.

One of my responsibilities is maintaining the port road. I've been caught in quite a few caribou migrations and can honestly say that we here try our best to always give the right of way to the migration. I've been stuck on the road for up to 19hrs waiting for caribou to cross. Every year its always a encouraging sight to see hundreds of thousands of caribou crossing right in front of you.

I personally believe the Alternative B Proposed Action Plan is a proven method that has, is and will work. Our commitment and my commitment is to continue running this mine while improving the lives of people in and around Red Dog and promote a safe and environmentally friendly atmosphere.

I thank you for your time and hope that this letter will help in some way to ensure the future of Red Dog for me and everyone that is associated.

Sincerely

Sean Forrester



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Response

Author: Hawley, Millie—Maniilaq Association Tribal Environmental Program

Comment ID: 12.001

Response

The stability of the tailings impoundment is ensured by the proper design of the tailings dam in South Fork Red Dog Creek. The dam has been constructed in a number stages over native soils/materials, not bedrock alone. EPA apologizes for this confusion. These soils/materials were judged to be competent foundation materials at the time of dam construction. The continued loss of permafrost would not affect bedrock but can impact the soil conditions underlying the dam. As such, this may have caused settling of the existing dam and may cause additional settlement of future raises. As discussed in URS 2008, this settling potential has been taken into account in the design and stability calculations for the most recently proposed raises, Stages VIIIa and VIIIb (to 965 and 970 feet elevation respectively). The State of Alaska Dam Certification Programs is reviewing the designs and calculations as part of approving the proposed raises. Because of this, EPA assumes that the effects of permafrost thawing will be considered by Teck and the State in future raises to the proposed final elevation (986 feet). Additional text clarifying this point has been added to Section 3.4.2.5 of the final SEIS. **In addition, the State has committed to addressing the two stability issues identified in Section 3.4.2.5.**

With respect to affects of permafrost thawing on groundwater flow, additional text has also been added to Section 3.6.3 in the final SEIS. This text clarifies that data collected show limited ground water flow beneath the tailings impoundment. This is because of a low permeability shale layer that constrains ground water flow regardless of the presence or absence of permafrost. As the area of thawing increases with expansion of the tailings dam, EPA has assumed that the shale layer will continue to act as barrier. EPA has, however, recommended in the final SEIS that the State, through the solid waste and/or dam certification program, require continued monitoring of temperature and ground water underlying the impoundment.

Comment ID: 12.002

Response

The draft SEIS notes that subsistence harvests have changed and that Red Dog operations are likely to have had some effect on subsistence harvests for residents of Kivalina and to a much lesser extent, Noatak. The draft SEIS does not conclude that Red Dog operations are the sole source of changes in subsistence harvest and diet. There is no indication that effects of Red Dog operations would warrant a subsistence or dietary survey of the entire region. A subsistence use study for Noatak and Kivalina was completed for the draft SEIS. To determine the changes in diet that have occurred over time, the draft SEIS suggests that a dietary survey of local residents be undertaken. Such a survey could document the current dietary patterns and provide insight to the relationship between diet and health. However, as disclosed in the draft SEIS, such a requirement is beyond EPA's authority.

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Name: Millie Hawley, Environmental Manager
Organization: Maniilaq Association Tribal Environmental Program
Address: General Delivery
City, State Zip: Kivalina, Alaska 99750
Email: kipugan_2005@yahoo.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. (X)
Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

As the Maniilaq Association Tribal Environmental Program Cooperating Agency, I make the following comments for the Red Dog Mine SEIS draft permit:

12.001

Per our discussion at the public meeting held in Kivalina, AK, I voiced my concerns about the permafrost melt beneath the tailings pond. The answer I received was that the dam is going to be raised and that the tailings pond is on a solid bedrock. The permafrost studies that TeckCominco beneath the tailings pond shows that it is diminishing due to permafrost melt. I was reassured that the bedrock is solid and most likely will not allow the seepage from the tailings pond to leak any where. Although, this is expected, I still have concerns that as the permafrost melts and water begin to flow beneath the bedrock, the bedrock will begin to diminish as well. I am suggesting that TeckCominco and their counterparts begin the discussion of mitigating a possible alternative plan to address this concern. There needs to be a discussion on what will take place if the bedrock begin to give way to the weight of the tailings pond. Alternative plans needs to be developed to assure the safety of the natural resources surrounding the tailings pond.

12.002

The other concern that I have is that the permit was drafted and put out to public comments without properly addressing the subsistence and health studies due to time constraints. A subsistence harvesting and dietary study for the people of the nine villages that Maniilaq Association Tribal Environmental Program represents needs to take place in order to pursue further development of the Red Dog Mine Expansion. Recent studies show that the subsistence resources around the Red Dog Mine and the Delong Mountain Transportation System has been detrimentally affected.

Thank you and sincerely,

Millie Hawley, Manager
Tribal Environmental Program

Response



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Western Arctic National Parklands
P.O. Box 1029
Kotzebue, Alaska 99752

L76

February 02, 2009

Ms. Patty McGrath, Project Manager, Aqqaluk Project SEIS
United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

Dear Ms. McGrath:

Enclosed are the National Park Service's comments on the draft supplemental environmental impact statement for the permitting of Aqqaluk deposit. If you or your staff has any questions, please contact ecologist Peter Neitlich at 509-996-3917 or at peter_neitlich@nps.gov

Also, at the DSEIS public meeting in Noatak a resident asked about clean-up of the road between the mine and the port site. The final disposition of the twenty miles of road within Cape Krusenstern National Monument is described in Exhibit B of the June 1986 agreement between the NANA Regional Corporation and the United States of America. Exhibit B says that "NANA will assure reasonable rehabilitation of all lands disturbed by construction and operation of the [transportation] system."

As in the past, we appreciate the opportunity to be a cooperating agency on the SEIS.

Sincerely,

George Helfrich
Superintendent

Response

**Red Dog Mine Extension – Aqqaluk Project
Supplemental Environmental Impact Statement**

Draft Scoping Responsiveness Summary Comment Table

Page Number	Line Number(s)	Comment
13.001		There needs to be a discussion of the closure plans for the DMTS haul road in this document. Closure has thus far concentrated only on the mine site features, pipelines and wastewater treatment. It does not appear that closure of the DMTS will occur at all due to the requirements of continuing service and wastewater treatment. Other mining, both coal and mineral, make this equally unlikely. The DSEIS should address the reality of this situation.
13.002	Cover Letter	P1, L9 Change “Teck” to Teck-Cominco Alaska (Teck)
13.003	Abstract	P1, L2 Insert “Department of the Interior” after State of Alaska because about 20 miles of the DMTS Haul Road is located in an easement on Cape Krusenstern National Monument (CAKR) lands
13.004	ES-1	P1, L4 See comment above. The haul road is located on an easement granted to NANA in CAKR, but the lands otherwise belong to the U.S. Department of the Interior National Park Service.
13.005	ES-2	General Project Area map The map incorrectly shows the easement through CAKR as not part of the monument. The easement should be given a different color as in the land ownership map on page 3-162. NANA has rights to build and maintain a road on the easement, but otherwise no ownership of land. These lands were not counted against the regional corporation’s land selections quota.
13.006	1-1	P1, L5 See comment above for ES-1. Ownership of the land other than for easement purposes and the authority and requirement to monitor environmental effects from the road are precisely why the USDI-NPS is a cooperating agency in the EIS. The NPS is designated as the bureau representing the USDI in the Road

Author: Helfrich, George—National Park Service

Comment ID: 13.001

Response

No closure plan for the road has been submitted; therefore, the issue has not been addressed. The SEIS impact analysis considers the presence of the DMTS over the long-term along with the other remaining facilities in post-closure. Additional mining actions, other than Qanaiyaq, are not considered as reasonably foreseeable in the SEIS. It is unclear what is being requested by suggesting that the SEIS “should address the reality of this situation.”

Comment ID: 13.002

Response

EPA’s cover letter for the final is different from the cover letter in the draft. As a result of their recent name change, references are now to Teck Alaska Incorporated (Teck).

Comment ID: 13.003

Response

The suggested edit was incorporated into the Abstract.

Comment ID: 13.004

Response

The Executive Summary references facilities on National Park Service lands and notes that portions of the DMTS road are within an easement through the Cape Krusenstern National Monument granted to NANA.

Comment ID: 13.005

Response

The figure has been revised in the final SEIS to show the easement in a different manner that denotes it as part of Cape Krusenstern National Monument.

Comment ID: 13.006

Response

The text in Section 1.1 has been revised to include that support facilities are located on National Park Service lands.

Response

13.006 (cont)			Agreement.
13.007	1-2	Last P, L5	“Seat” should read “Sea” for Chukchi Sea.
13.008	1-3	Figure 1.1 General Project Area map	See comment for ES-2. This map is misleading and might lead a reader to assume NANA owns the lands to build pipelines across them through CAKR.
13.009	3-11	21	Fig 3.3 doesn’t compare soil values with State cleanup levels. Please remove reference to “arctic” cleanup levels as there are only statewide levels. There are obviously few samples in the mountains or beyond, or else an obvious divide should be present north vs. south of the Tahinichok Mountains. The large plume in values at the center of the figure also may be an artifact of sampling or interpolation method. Also, the legend of this figure appears to reverse the high and low values. This version did not appear previously but needs considerable revision. Currently, the relationship between actual soil values and modeled values appears to be low in many areas. One thing in this discussion is also misleading. The cleanup standard for soils relates to contaminants on bare ground. But if the ground is vegetated, doesn’t the standard pertain to the highest recorded value deposited—in this case, the values on moss, which do exceed the cleanup value. The soil values displayed in Fig 3.3 are for mineral soils—correct?—not for organic soils. I don’t think the use of subsurface soil horizons is relevant to the cleanup standard. Moreover, the discussion should indicate that the cleanup value is exceeded by terrestrial moss receptors.
13.010			
13.011	3-13	Figure 3.3 Modeled Lead Conc.’s in Soil	Source data for this model output should be provided. The output does not correspond well with data in figure 3.2.
13.012	3-28	P2, Section 3.3.2.4 Fugitive Dust	This section should clearly indicate ore concentrate is tracked and transported between the mine and port along the DMTS, where it is removed from ore truck and other vehicle surfaces and transported by winds. The current language is terse and unclear to

Comment ID: 13.007

Response
The typo was corrected in the final SEIS.

Comment ID: 13.008

Response
Please see the response to Comment ID 13.005.

Comment ID: 13.009

Response
The figure of lead concentrations has been modified to depict lead concentrations actually measured in moss samples.

Comment ID: 13.010

Response
Per comments from ADEC (see Comment ID 48.021) cleanup levels will be established as part of the fugitive dust risk management plan, which is not yet available. Since the relationship between the lead concentrations in moss versus soils has not been established, the discussion has been eliminated from the text. The discussion simply notes that the figure presents observed lead concentrations on moss.

Comment ID: 13.011

Response
The figure of lead concentrations has been modified to depict lead concentrations actually measured in moss samples. The figure based on modeling results has been deleted.

Comment ID: 13.012

Response
Section 3.3.2.4 has been revised to specifically note that concentrate is trucked between the mine and port on the DMTS. Tracking has been added to the list of sources.

Response

13.012 (cont)			the reader as to the source mechanism for fugitive dust.
13.013	3-87	P2	Does the soil pH here refer to organic horizons or mineral?
13.014	3-89	P1	<p>The ERA concludes that there are decreases in lichen community cover out to 1000 – 2000m from the DMTS. Dalton Hwy studies conclude that there are effects out to 50 m. There is a huge discrepancy in distance between these two findings. Sentence 2 of this paragraph states that conditions along the Dalton are “comparable” to the DMTS. This is not at all the case. NPS’s re-analysis of the lichen species data from Auerbach 1997 concludes that effects to species richness are limited to <50m. Along the DMTS effects to lichen species richness extend out to 1000m. Clearly, road dust has an effect at the close distances, but can’t explain the effects we are seeing beyond 50 m.</p> <p>The discussion of mosses and lichens on 3-91 does a good job presenting the data and potential effects. The earlier sections should be revised with this section’s findings in mind.</p>
13.015	3-89	P1, L16	The distances for road dust effects to lichens and mosses should read 164 feet (50 meters) as indicated in TT response to NPS and State comments on PDEIS
13.016	3-334-336	Section 3.19.2 Description of Selected Relevant Actions for Cumulative Effects Analyses	This section omits the addition of the description of the Construction and Use of a Road to Noatak, which was selected in the previous table on page 3-34 as relevant for the subject analyses. This description should probably precede the description of the Noatak Airport, as the order presented in the table.
13.017	3-336 to 341	Section 3.19.3	The additive effects of a Noatak Road should be considered for the following impact topics: air quality (fugitive dusts), vegetation, wetlands, wildlife, land use/recreation, subsistence, transportation, noise, and socioeconomics.

Comment ID: 13.013

Response

Teck’s risk assessment (Exponent 2007) identified the soil samples as “tundra soils” and does not provide additional details as to whether they are organic or mineral.

Comment ID: 13.014

Response

The text of the paragraph in question in Section 3.7.2 been revised in the final SEIS to specify that discussion is focused on the effects of road dust.

Comment ID: 13.015

Response

The clarification of 164 feet (50 meters) has been incorporated into the final SEIS.

Comment ID: 13.016

Response

The description of a road to Noatak was inadvertently omitted from the draft and has been included in the final SEIS.

Comment ID: 13.017

Response

The potential cumulative effects of the Noatak road has been incorporated into Section 3.19.3 Cumulative Effects.

Response

Comment ID: 13.018

Response

Thank you for your comment.



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Western Arctic National Parklands
P.O. Box 1029
Kotzebue, Alaska 99752

L76

February 03, 2009

Ms. Patty McGrath, Project Manager, Aqqualuk Project SEIS
United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

Dear Ms. McGrath:

Yesterday we sent you the National Park Service's comments on the draft supplemental environmental impact statement for the permitting of Aqqualuk deposit. In the comments, we failed to state which alternative the NPS prefers.

The NPS prefers Alternative C. Alternative C is the environmentally preferable alternative and as such "will promote the national environmental policy expressed in NEPA's Section 101."

Sincerely,

George Helfrich
Superintendent

13.018



Response

Author: Hemsath, James—Alaska Industrial Development and Export Authority

Comment ID: 14.001

Response

Thank you for your comment.

January 30, 2009

Patricia McGrath, Red Dog SEIS Project Manager
Office of Water & Watersheds
EPA Region 10
1200 Sixth Avenue, Suite 900, OWW-135
Seattle, WA 98101

Re: Comments on the DSEIS for Red Dog Mine

Dear Ms. McGrath:

The Alaska Industrial Development and Export Authority (AIDEA) would like to submit the following comments on the Draft Supplemental Environmental Impact Statement (DSEIS) for the Red Dog Mine Extension Aqqaluk Project. AIDEA is the owner of the DeLong Mountain Regional Transportation System (DMTS). The DMTS includes the 52-mile long road and the port facilities that are operated by Teck Cominco Alaska Incorporated (Teck), as part of the Red Dog Mine.

AIDEA supports EPA's Preferred Alternative, Alternate B, for Teck's proposed expansion of the Red Dog Mine to include the nearby Aqqaluk Deposit. This expansion is critical to the long-term operation of the mine and the continuation of the economic benefit Red Dog brings to the area over the next 20 years. Red Dog provides approximately 475 regular jobs with an additional 100 seasonal jobs which in 2007 resulted in \$45 million in wages and many jobs and opportunities for those who reside in the region.

14.001

The port and road developed as part of the Red Dog project are important regional infrastructure that could become part of future development opportunities, some we know and some that are still unknown. The ongoing operation of the mine assures that this infrastructure will remain operational and available for that development. Red Dog is an important long-term economic hub to the area and to the State of Alaska, now and into the future. We at AIDEA support the EPA's recommendation for the continued operation of this asset.

EPA acknowledges in the draft EIS that the Red Dog Mine main deposit will be depleted between 2011 and 2012. AIDEA appreciates EPA's effort to conduct this EIS and any other reviews required for the issuance of any necessary permits in accordance with a schedule that will allow uninterrupted operation of the mine and its infrastructure and will authorize the timely extension of operations to the Aqqaluk Deposit.

NPDES

AIDEA also supports the reissuance of the National Pollution Discharge Elimination Permit for the Red Dog Mine (Permit AK-003865-2), but has no comments on the terms and conditions of the permit.

Response

January 30, 2009
Patricia McGrath, EPA

Page 2 of 2

Sincerely,

ALASKA INDUSTRIAL DEVELOPMENT
AND EXPORT AUTHORITY

A handwritten signature in black ink, appearing to read "James R. Hemsath", with a long horizontal flourish extending to the right.

James R. Hemsath PE, PMP
Deputy Director - Development

cc: Ted Leonard, Executive Director, AIDEA
Mike Mitchell, Alaska Department of Law

Response

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name:	J.C. Hogenson
Organization:	WESCO Distribution
Address:	5760 Silverado Way
City, State Zip:	Anchorage, AK 99518
Email:	jhogenson@wesco.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

15.001

Teck Red Dog mine is an invaluable partner to the Alaskan community it serves. Red Dog provides local jobs, revenue to the Alaska businesses supporting it's operations, and tax income to the state of Alaska. It supports our world economy by supplying (in significant quantities) raw materials essential in the construction of thousands of products. I cannot imagine not supporting the Aqqaluk project expansion in light of what Red Dog provides and what our world economy will need in the coming years. Finally, Red Dog has achieved ISO14001(2004) – a remarkable commitment to the people and environment of Alaska.

We need to support Red Dog mine now and in the future, as the mine supports us. Thank you.

Regards,

J.C. Hogenson

Author: Hogenson, J.C.—WESCO Distribution

Comment ID: 15.001

Response

Thank you for your comment.

Response

February 2, 2009

Author: Hurd, Patrick—Individual

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101
E-mail: mcgrath.patricia@epa.gov
Fax: (206) 553-0165

Comment ID: 16.001
Response
Thank you for your comment.

16.001

I am a truck driver for NANA/Lynden and have been working at the Red Dog Mine for 15 years. I am a driver trainer at Red Dog my job is to not only drive trucks on the haul road from the mine to the port but train new drivers. I am also one of three people that do quarterly driver check rides with all drivers new or seasoned. This assures us that we have safe drivers. We have a company policy concerning caribou migration that is strictly followed. This is part of the training when a driver first comes onto the mine site and continues until he leaves.

Whenever I or any other driver on the road encounters caribou, we stop a good distance away and allow the caribou to continue there migration without interruption. There are no exceptions to this policy, and no driver violates it. Sometimes we are stopped for most of the day. This is done not just in the fall when the caribou herd is migrating, but also at other times of the year when small bands of caribou or single caribou are encountered. In my mind, the truck traffic on the haul road has not caused the caribou to avoid the road or the area, especially during migration.

Anyone who has grown up near caribou herds and spent time watching and hunting caribou knows that they don't always follow the same migration routes from year to year. They may use an area or path for a few years, and then change to a different way the next year and for a few years after that. There are many reasons why this may happen. The biologists have theories, but it seems that only the caribou know why.

In closing, I hope that permitting for Aqqaluk under proposed Alternative B will be approved in order to continue mining activities through 2031. Thank you for allowing me to add my comments on this matter.

Pat Hurd


**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Anton K. Johansen
Organization:
Address: 1887 Arctic Loon Circle
City, State Zip: Fairbanks, AK 99709
Email: tjohansen@grtnw.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

Rural northwest Alaska and the entire State of Alaska need the economic benefits provided by the Red Dog Mine. Those benefits are provided with minimal impact to the environment. In fact, your report notes that the operation of the mine has actually improved water quality, allowing fish to live where none lived before. The EPA's conclusion that the operation of the mine has resulted in diminished harvests of caribou and beluga whales by Kivalina residents is not supported by scientific analysis. Caribou and whale populations fluctuate greatly over time for no obvious reason. To attribute the fluctuation in caribou and beluga populations around Kivalina to the Red Dog development is not reasonable.

I strongly support the issuance of permits to allow the Red Dog mine to continue operating for another 20 years.

Sincerely,

Anton K. Johansen

Response

Author: Johansen, Anton—Individual

Comment ID: 17.001

Response

Thank you for your comment. See response to comment 10.117 in response to the comment that changes in caribou and beluga pollutions to Kivalina is not related to the Red Dog Mine operations.

17.001

Response

From: Mcgrath.Patricia@epamail.epa.gov [mailto:Mcgrath.Patricia@epamail.epa.gov]
Sent: Tuesday, February 03, 2009 7:23 PM
To:
Subject: Fw: RED DOG MINE EXTENSION - AQQALUK PROJECT

Author: Linn, Don—N C Machinery
Comment ID: 18.001
Response
Thank you for your comment.

-----Forwarded by Patricia McGrath/R10/USEPA/US on 02/03/2009 05:17PM -----

To: Patricia McGrath/R10/USEPA/US@EPA
From: "Linn, Don" <DLinn@ncmachinery.com>
Date: 02/03/2009 06:23AM
cc: <brian.beduz@teck.com>, "Harnish, John J" <JHarnish@HarnishGrp.com>,
"Field, Scott" <SField@NCMachinery.com>, "Scott, Jeff"
<JScott@NCMachinery.com>, "Hickey, Troy" <THickey@ncmachinery.com>,
"Norman, Rick" <RNorman@NCMachinery.com>
Subject: RED DOG MINE EXTENSION - AQQALUK PROJECT

Ms. Patty McGrath,

On behalf of N C Machinery, the Caterpillar Dealer for Alaska , and our nearly 200 Alaskan employees and their families, I am writing to voice our support for the Red Dog Mine Extension at Aqqaluk. Teck Cominco Alaska has been, and continues to be, one of N C Machinery's most important customers in terms of equipment sales and subsequent equipment maintenance. We commend Teck on their fine work in creating jobs and economic opportunities: at N C Machinery, within the Northwest Arctic Borough, within the Native Alaskan community, and across our entire state.

18.001

We have seen first-hand Teck's sincere commitment to environmental stewardship and local economic development, and feel confident that Teck will continue these simultaneous records of excellence at Aqqaluk.

With countless news stories these days highlighting an economy in trouble, it is heartening to see that, with this extension, environmentally responsible economic development can continue unabated at Aqqaluk until 2031. N C Machinery and many other support services and suppliers rely heavily on our partnerships with Teck Cominco Alaska . We look forward to continuing our journey together in responsibly developing Alaska 's vast natural resources.

Thank You
Don Linn
Vice President
Product Support
"Safety. Always the Right Choice."

N C Machinery Office: 425-251-5800
17025 W Valley Hwy Fax: 425-656-4617
Tukwila , WA 98188 Cell: 425-985-8904
https://tmail.tetrattech.com/owa/redirect.aspx?C=98079acac9da422291a8c7962ed5d6a2&URL=mailto%3adlinn%40ncmachinery.com

Response

Page 1 of 3

Author: McCann, Mike—Teck

Comment ID: 19.001

Response

Thank you for sharing your experiences while working for Teck at Red Dog.

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Saturday, January 31, 2009 6:01 PM
To:
Subject: Fw: Environmental Impact Statement (Draft SEIS) Aqqaluk Project Draft

-----Forwarded by Patricia McGrath/R10/USEPA/US on 01/31/2009 04:56PM -----

To: Patricia McGrath/R10/USEPA/US@EPA
From: "McCann Mike RDOG" <Mike.McCann@teck.com>
Date: 01/30/2009 07:01PM
Subject: Environmental Impact Statement (Draft SEIS) Aqqaluk Project Draft

Aqqaluk Project Draft Environmental Impact Statement (Draft SEIS) at the Red Dog Mine

I will be 65 years old next year and have had quite a ride with this thing called life.

If I have learned anything it is that people are more important than "things" and that is the reason I would have you know a little about the operation that goes on above the Arctic Circle at the place we call Red Dog.

The first clue I had back in 1990, about the way Teck operates was the fact that over half of the work force was local hire. That means every other person was an Inupiaq Eskimo.

The second clue I observed was the forgiving nature I noted from upper management. Having worked for more than my share of employers, It was not unusual to see someone fired for some times,

small infractions. (One such incident happened in Prudhoe bay when a newly hired person stepped off the plane and it was judged his hair was to long.) I noted that at Red Dog errors were met with

counseling and warnings but seldom was employment an issue. I figure this has to come from the upper structure of any corporation because history has shown me that mid management is often about

19.001

CYA. The third clue I got was the blending of the cultures. It's not just because we work together, we have a permanent integration of ideas and values and some of my best friends live in the villages of

the area. It was not difficult to come to the conclusion that I had found an employer that I wanted to make a career with.

As you can see my job title is "Trainer". In 2000 when I accepted this position, the task was to take the local hires and in four years develop them into a journeyman in one of the maintenance

occupations. (electrician, mechanic, powerhouse or millwright) With help and guidance from the US Dept. of Labor, Bureau of Apprenticeships, and support from our management team, I am proud to report

to you, we have the premier apprenticeship program in the state of Alaska and perhaps the nation. We have graduated dozens of apprentices who are now productive citizens in their respective communities,

whether it be Seattle Wa. or Ambler Ak. And remember these are indigenous peoples that many claim need all kinds of "special" grants etc. I have more than ample proof that all that is needed is the opportunity!

Ms McGrath, what I am trying to say is that this mine with its philosophy, values and operating experience has had an extremely positive impact on the environment, with the people and on the

economy in this area, the state of Alaska and in several countries around the world.

I know you have a grave responsibility to the people of this great country to protect and preserve the delicate balance between nature and industry. As an employee of this company for nearly 20

years, Having been both an hourly and a salaried employee, I am proud to report to you and the EPA that Teck is a responsible corporate member who takes their role as a steward of the environment very

seriously. This is demonstrated by our possession of an ISO 14001, I believe the first one to be issued in Alaska and one of the first in the US.

19.001
(cont)

19.001
(cont)

I feel confident that the authority which has been entrusted to you is well deserved and you will use all the resources at your disposal to make the recommendations we can all survive and prosper with.

Thank you for your consideration in these matters and it would be an honor to visit with you or some of your staff on these matters.

Mike McCann
Maintenance Trainer,
Red Dog Operations - Alaska
mike.mccann@teck.com
907/426-9378 Fax-2176
Visit: www.teck.com

Teck



"Training saves lives"

Response

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Jeff McKay
Organization: Metso Minerals Cisa
Address: 2513 W 11370 S
City, State Zip: South Jordan Utah 84095
Email: jeff.mckay@metso-cisa.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

20.001

I have visited Red Dog many times to perform optimizing control system work. This work helps Red Dog waste as little as possible and produce as much as possible from the existing ore deposit. This helps both economically and environmentally. As an environmentally concerned individual, I have been greatly impressed by the minimal footprint and impact of Red Dog on the surrounding environment. In my direct observation, the engineers there keep a very close watch on water usage, process containment and training. Red Dog has consistently demonstrated a responsible care for the environment while providing jobs for the indigenous people and goods that are vital for a healthy economy. I strongly believe it is in the best interest of Alaska, the United States and the environment to allow Teck to continue its responsible mining practices with the Aqqaluk project.

I appreciate you allowing me to voice my opinion.

Best regards,

Jeff McKay

Author: McKay, Jeff—Metso Minerals Cisa

Comment ID: 20.001

Response

Thank you for your comment.

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name:	Roger D. Mechon
Organization:	RLM Tech
Address:	P. O. Box 222209
City, State Zip:	Anchorage, AK 99522-2209
Email:	rlm@alaska.net

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

Ms. Patty McGrath
US EPA Region 10
1200 Sixth Avenue
Suite 900, OW-135
Seattle, WA 98101

RE: Red Dog Mine Extension – Aqqaluk Project

This letter is in support of the proposed Red Dog Mine Extension – Aqqaluk Project.

The Red Dog Mine has provided a strong economic base in the NANA Region, providing jobs for local shareholders as well as others. This opportunity for income producing jobs is important in a rural environment where few jobs exist. Annually, the Red Dog Mine contributes to the revenues of the NANA Regional Corporation which further assists in supporting the rural lifestyle in the form of goods and services. In addition to the job opportunities provided to native shareholders, the Red Dog Mine provides a great deal of social interaction between the company and the local population. This interaction gives the local rural population a great deal of pride and a sense of achievement in the development of the mine and the benefits brought to the region by the operation of the facility.

The Red Dog Mine is a great asset to the economy of the state of Alaska through the procurement of material and supplies required to support the operation of the mine. This procurement activity helps to support the local economy and creates employment for Alaskans not directly employed at the mine. The revenue produced by this procurement effort contributes to the economy of Alaska both directly and indirectly through the influx of cash into the local

21.001

Author: Mechon, Roger—RLM Tech

Comment ID: 21.001

Response

Thank you for your comment.

economic environment. The income produced by this procurement effort assists in the support of numerous businesses such as RLM Tech and other suppliers.

The Red Dog mine is a world class operation providing a very high percentage of strategic minerals required by the United States on an annual basis. The main deposit will be depleted in the future years; therefore, the Aqqaluk Project should be permitted in order to continue to provide minerals vital to the economic and strategic well-being of the country.

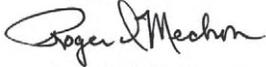
21.001
(cont)

The Red Dog Mine has proven to be managed and operated in an environmentally sound manner without adverse effect on the environment. Modern technology has proven that major mining efforts can be operated without pollution. The Red Dog Mine is an example of the engineering expertise available to produce major ore deposits without harm to the environment.

Based upon the economic and social factors involved with the continuation of the Red Dog Mine, we support the approval in permitting the extension known as the Aqqaluk Project.

Thank you for the opportunity to express my support for the Red Dog Mine Extension – Aqqaluk Project.

Sincerely,



Roger D. Mechon
RLM Tech

Response

Author: Merculieff, Robert—Individual

Comment ID: 22.001

Response

Thank you for your comment.

22.001

My name is Robert Merculieff and I have worked at Red Dog Mine for 13 years. My current position at Red Dog is Surface Crew supervisor, but I entered into this community as an entry level operator and worked my way up. I am not a NANA shareholder, but my wife and 3 children are. Over the years, I have seen firsthand the benefits of the Red Dog Mine. Red Dog offers unlimited opportunities for those with no industrial experience, and turns them into highly skilled employees through education and on-the-job training.

While working at Red Dog I was fortunate enough to be able to put my wife through college. She attended Montana Tech of the University of Montana, located in Butte, Montana. She received her degree in Environmental Engineering and now works for DOWL HKM in Anchorage. If I had not earned such a generous wage at Red Dog I would not been able to provide such an opportunity for my wife and kids.

While living in Butte, Montana, (Super fund site) So I have seen why people see mining negatively. Red Dog cannot be compared to any other mines in the world because of its location, and the indigenous people who work there. The people of the NANA region have an inherent commitment to their land and to their subsistence life style. The people of the region have trusted Teck to be good stewards of the land and its wildlife.

More than two hundred people of the region work at Red Dog, and they have a vested interest in assuring that Teck holds up its end of the bargain with respect to the environment. If you are looking for an honest opinion about stewardship of our land, listen to these people, their interest in the outcome of the Aqqualuk project is not about politics. It's about what is best for the NANA Region and its people. If Red Dog mine closes, it will because of the opinions of people that know nothing about Red Dog and the NANA region, and have not even been here to see it with their own eyes. Please listen to the people who actually care about the land, air, and animals. I am sure you have received more letters against Red Dog and I am sure a majority of them are from outside the Nana region. With that said, I would implore you to only consider Alternative B when deciding the fate of our land and people.

A Loyal steward to the Nana people,

Robert J. Merculieff



505 West Northern Lights, Suite 205
 Anchorage, Alaska 99503
 907.222.7714 (ph); 907.222-7715 (FAX)
www.akaction.org

Ms. Patricia McGrath
 Red Dog Mine SEIS Project Manager
 Environmental Protection Agency
 1200 Sixth Avenue, Suite 900, OW-135
 Seattle, Washington 98101

Dear Ms. McGrath:

Alaska Community Action on Toxics submits this letter on the Draft Environmental Impacts Statement for the Red Dog Mine Extension (Aqqaluk Project) and Draft NPDES Permit for Teck Cominco Alaska's Red Dog Mine and Draft State Section 401 Certification. Alaska Community Action on Toxics is a statewide non-profit public interest research and advocacy organization dedicated to protecting environmental health and achieving environmental justice. Alaska Community Action on Toxics mission: *to assure justice by advocating for environmental and community health. We believe that everyone has a right to clean air, clean water and toxic-free food.* We work to stop the production, proliferation, and release of toxic chemicals that may harm human health or the environment. We request that these comments and all of the documents cited herein be entered into the formal public record and that the Environmental Protection Agency acknowledge receipt of our comments (submitted prior to the due date of February 3, 2009).

With this letter we support comments provided by Trustees for Alaska (on behalf of the Native Village of Point Hope), Center on Race, Poverty and the Environment (on behalf of residents of the Native Village of Kivalina), Northern Alaska Environmental Center, and the Center for Science in Public Participation. The following comments supplement those cited above.

23.001 [Generally, we find that the EPA fails in its legal obligation to fully assess alternatives and associated impacts. Nor does the agency meet necessary requirements to consider cumulative and synergistic effects associated with the alternatives, particularly Alternative B. We find that the dSEIS fails to address viable precautionary and preventative measures that would adequately protect the health of local communities, subsistence, air and water resources. Alternative B is unacceptable in light of the pattern of violations of environmental regulations committed by Teck Cominco in its mining operations at the Red Dog Mine. We have no assurance that the EPA or ADEC will conduct proper oversight, compliance monitoring, regulation, or enforcement of existing or expanded mining operations. We believe that it is unacceptable for EPA or ADEC to issue permits for expansion of mining operations by Teck Cominco without requiring that the corporation clean up existing contamination, protect local communities and workers, comply with the Clean Water Act (including anti-degradation requirements), Clean Air Act, and other relevant environmental regulations.

23.002 [Inadequate Identification of Impacts to Health of Residents
 We concur with Trustees for Alaska that the dSEIS lacks scientific information on the health effects of current mining operations and does not provide an adequate assessment of potential health effects of the proposed Aqqaluk project.

Response

Author: Miller, Pamela—Alaska Community Action on Toxics (ACAT)

Comment ID: 23.001

Response

EPA evaluated a full range of alternatives and disclosed the anticipated impacts from those alternatives over a wide range of resources. Responses to the other issues raised in this comment are provided below in response to specific comments.

Comment ID: 23.002

Response

Since pre-mine baseline data was not collected for the region before mining operations began, it is a data set that is unavailable; the health assessment was based on data that is available. Responses to the general comment that the health assessment is inadequate are provided below in response to specific comments.

Response

23.002 (cont) The health assessment is based on inadequate baseline data and incomplete public health tracking data. The dSEIS does not have a basis to assess essential measures of environmental health that are relevant to contaminants associated with mining operations. The dSEIS should include a fate and effects assessment based on Toxics Release Inventory and existing monitoring data.

The dSEIS fails to conduct an adequate analysis of such potential health impacts of the following:

23.003 • Neurodevelopment effects of lead, mercury, and other heavy metals, particularly in children and other vulnerable populations. For example, lead exposures during infancy and childhood can cause attention problems, hyperactivity, impulsive behavior, reduced IQ, poor school performance, aggression, and delinquent behavior. There is sufficient evidence demonstrating that levels previously thought “safe” actually cause harm to the developing brain. In fact, research indicates that “there may be no threshold for the adverse consequences of lead exposure and that lead-associated impairments may be both persistent and irreversible.”¹

23.004 Elemental forms and speciations should be examined as separate analytes. It is especially important to assess the most toxic forms of compounds for presence and effects. For example, the dSEIS does not consider speciation of mercury, nor does it present testing methods and results for inorganic and methyl mercury. Mercury is extremely toxic and is ubiquitous in the environment. It is imperative that this risk assessment examine the environmental and human health effects of mercury in all of its forms.

23.005 • Potential effects of elevated cadmium on urinary tract disorders, particularly kidney disease. People in Kivalina and Point Hope have expressed concern about elevated levels of kidney disease among other health concerns. The dSEIS fails to adequately analyze the health effects of cadmium that might be associated with Red Dog mining operations.

23.006 • Assessment based on outdated science on bioavailability of lead and other metals. The dSEIS does not refer to or acknowledge recent scientific advancements in understanding metal bioavailability. Natural biological and chemical processes result in metals being more bioavailable in the environment than previous risk assessments have acknowledged. Standard methods to predict mineral speciation, the solubility of oxidized metals, and solubility products using Eh-pH stability diagrams were not used. Similarly, sequential extraction techniques to characterize the relative concentrations of the different forms of the metal compounds and the potential bioavailability were not used.

23.007 • Exposures to multiple metals with cumulative and/or synergistic effects are not addressed. Sampling sites (terrestrial and aquatic) demonstrate the presence of several heavy metals in combination. Scientific literature has documented that the toxicity of heavy metals interact in a number of ways. Metal mixtures can affect bioavailability and bioaccumulation.

23.008 “Binary metal combinations of copper and cadmium, copper and lead, and cadmium and lead produced three types of interactions: concentration additive, synergistic, and antagonistic.

¹ Canfield, R.L. et.al. 2003. Intellectual Impairment in Children with Blood Lead Concentrations Below 10 µg/dl. New England Journal of Medicine 348:517-526.

Comment ID: 23.003

Response

While information exists on the effects of heavy metals on the neurodevelopment of children, there is insufficient information for the SEIS to address the issue in a regionally-appropriate context for the impact assessment. Section 3.13.2.1 (p. 3-247) of the draft SEIS includes the statement that “CDC, ATSDR, and EPA have stated there is no safe BLL...” Teck’s HHRA concluded that lead does not pose an unacceptable risk to children in the study area based on current federal standards for lead exposure.

Comment ID: 23.004

Response

The commenter appears to mix the SEIS process with the risk assessment process, which are two totally separate activities. The SEIS makes use of the risk assessment (Exponent 2007) as one of many data sources used in developing the impact analysis. The SEIS is open for public comment at this time while the risk assessment process is not.

The risk assessment (Exponent 2007) did not identify mercury as a contaminant of potential concern (COPC) for human health in a selection process that included comparing mercury concentrations against conservative screening values based on ADEC methods. Since mercury was not identified as a contaminant of concern, then there is no reason to evaluate different forms of mercury in the human health analysis. Mercury was retained as a COPC for some ecological exposure media; the screening process for wildlife used toxicity reference values based on methyl mercury (as shown in Table 3-28 of Exponent 2007), which is the form of mercury that is most toxic to wildlife. A discussion of the results of the ecological risk assessment and the contribution of mercury to risk to wildlife is provided in SEIS Section 3.9.2.1.

The SEIS used this information, in part, in considering health-related effects. Beyond the methodology employed in the risk assessment, further analysis was not deemed necessary for the SEIS in terms of the presence of mercury. As noted in the previous comment, the amount of region-specific health data is limited. Further, the presence of a particular contaminant (such as mercury) does not indicate that the levels are causing or contributing to disease or illness. In this case a meaningful health analysis would need to (1) determine whether residents of the area are actually experiencing elevated rates of a particular disease or diseases (2) whether particular contaminants are responsible for the disease(s), and (3) whether operations at the mine are responsible for past, current, or future exposures resulting in the diseases. The data necessary to make these determinations are either difficult to obtain or unavailable. For example, health data for the region are limited and complicated by patient privacy issues, which become prominent in small populations. Even if the data were available and could be obtained, it is unlikely to be sufficient to make a statistical demonstration that diseases are out of proportion with other populations. Finally, the risk assessment results did not show an exposure pathway for mercury from mining operations. The health impact assessment (see Section 3.13 and Appendix E) presents a detailed discussion of the health effects that could be reasonably evaluated based on the data available for the region.

Comment ID: 23.005

Response

The text has been modified to address the comment. It is important to note that there are many causes of kidney disease, by far the most the most common of which in the U.S. are high blood pressure and diabetes mellitus. The HHRA and available biomonitoring data do not suggest that environmental cadmium exposure due to the mine is likely to be a major cause of kidney disease.

Comment ID: 23.006

Response

It is unclear as to what aspect of bioavailability the reviewer is referring to within the draft SEIS. The discussion of bioavailability within the geochemistry section (3.3) does cite or otherwise refer to “previous risk assessments.” Section 3.9.2.1 discusses the finding of Teck’s risk assessment (Exponent 2007a) and includes a lengthy discussion of bioavailability, including aluminum and barium and the recent bioavailability study by Shock et al. 2007. The risk assessment notes that the risk was conservatively estimated by assuming that 100 percent of the metals consumed were bioavailable. Using that assumption, the oxidation state and solubility of the metal becomes irrelevant. The focus of the SEIS was not to critique the methodology of the risk assessment and comments on the methodology of the risk assessment are beyond the scope of the SEIS.

Response

23.008 (cont) ... bioaccumulation of one metal was influenced by the presence of other metals in metal mixtures.²

23.009 These complex interactions increase the risk of toxicity to receptor species and organs. Although these interactions have not been quantified and captured in water and sediment quality criteria, their contribution to the overall environmental and human health toxicity must be acknowledged in the dSEIS.

23.010 • The history of occupational exposures at the Red Dog mine indicate that workers are not provided with adequate protection.

23.011 • The dSEIS fails to assess cumulative “life-cycle” effects of mining that includes effects on communities in proximity to smelting operations that process ore exported from the Red Dog Mine, as well as the ill-advised use of lead in products.

23.012 A 2007 report based on blood lead analyses in Kivalina (248 people tested) and Point Hope (451 people tested) by John F. Rosen, M.D., Chief of Environmental Sciences at Albert Einstein College of Medicine (New York City), as well as Clinical Director, Professor, and Attending Physician of Pediatrics found: “At present, the blood lead surveys do not indicate a public health problem from excessive exposure to lead in Kivalina and Point Hope. **However, for the future, it is impossible to rule out excessive lead exposure in either Village from newly established pathways from nearby mining sites.** Thus, from a public health standpoint, a follow up blood lead survey in both Villages is recommended to be implemented in a time frame of about three years from the time of the current survey. Point Hope blood lead levels were greater than Kivalina’s at p < 0.0004.” There are no provisions in the dSEIS to require regular monitoring and health tracking measures. The dSEIS fails to address long-term cumulative effects of existing and planned operations on the health of residents in Kivalina, Point Hope, and other local villages.

23.013 In summary, the dSEIS and draft NPDES permit do not provide sufficient assessment of alternatives that would protect public health and the environment. EPA does not meet requirements for government-to-government consultation or consideration of environmental justice implications.

23.014 Thank you for the opportunity to provide comments.

Sincerely,
Pamela Miller
Executive Director

² Youn-Joo, An, Kim Young-Mi, Kwon Tae-Im, and Jeong Seung-Woo 2004. Combined effect of copper, cadmium, and lead upon *Cucumis sativus* growth and bioaccumulation. Science of the Total Environment 326:85-93

Comment ID: 23.007

Response
The SEIS did not include an independent, exhaustive analysis of possible synergistic effects of metals activity within the vicinity of mining operations. The SEIS analysis in the document relied on a number of reports, including sampling and monitoring of environmental media and aquatic resources, and the risk assessment, developed by accomplished professionals and overseen (and in some cases led) by the State of Alaska. The results of the site-specific monitoring studies of aquatic and terrestrial environments were used in concert with the risk assessment to provide information on current and potential impacts of metals in the environment. The findings of the monitoring activities are consistent with the conclusions of the risk assessment and provide additional weight-of-evidence that impacts are generally low and consistent with the levels of observed metals. While scientific literature exists on the effects of combinations of various metals, EPA is confident that the site-specific data reviewed for and considered in the analysis provides an adequate characterization of potential risks and impacts to meet the needs of the decision-making process under NEPA. Further, EPA addresses this issue for the aquatic environment, by including a requirement within the NPDES permit for monitoring whole effluent toxicity at Outfall 001. Outfall 001 is the location where the concentrations of various metals discharged to the environment would be expected to be at their highest.

Comment ID: 23.008

Response
See the response to the previous comment.

Comment ID: 23.009

Response
As noted previously, the risk assessment and evaluation of contaminants in subsistence foods conducted in the vicinity of the operation have indicated that the operations at the Red Dog Mine have not created elevated risks except as noted in the text (e.g. voles and shrews along the DMTS road), although additional monitoring of caribou is recommended. EPA is unaware of any data that indicates that any emissions from the operation have resulted in the increased mortality of fish and wildlife species (the SEIS discloses adverse effects to vegetation). The health data reviewed in developing the health impact analysis are limited by the number of people in the region but likewise do not demonstrate obvious patterns of disease that would be attributed to toxicity from exposure to heavy metal complexes. While documentation exists on the increased risk related to complex combinations of elements or compounds in some settings; it would be speculative to suggest that this dynamic is occurring in the context of the SEIS analysis.

Comment ID: 23.010

Response
The Mine Safety and Health Administration (MSHA) has authority over health and safety at the mine. The discussion of Mine and Port Site Accident Statistics in SEIS Section 3.13.2.2 identifies citations that MSHA has issued to Teck for operations at the Red Dog Mine.

Comment ID: 23.011

Response
Addressing life-cycle effects for activities occurring at undisclosed locations throughout the world, including the “ill-advised used of lead is products” would be highly speculative and completely outside the scope of the analysis.

Comment ID: 23.012

Response
Please see also responses to Comment ID 23.003 and 23.005. The SEIS has identified potential mitigation to address this concern.

Teck’s HHRAs considers the potential pathways of exposure and concluded that lead does not pose an unacceptable risk under the subsistence use scenario for either adults or children. Further, the SEIS considers the lead concentrations observed in the region including the data that indicate BLL in Kivalina has decreased over time. Lead surveys within the villages could be conducted in conjunction with state and Maniilaq but EPA’s authority under NEPA and the NPDES permitting program does not extend to requiring health monitoring in the villages. Based on the information available, there is no indication that the project would contribute to long-term cumulative health effects.

Response

Comment ID: 23.013

Response

The Draft NPDES is not required to assess any alternatives. The SEIS includes a health assessment based on the information currently available and considers alternatives that would reduce the potential for exposure of contaminants known to exist at the site. The SEIS also suggests additional monitoring that would provide additional data that could be used to monitor health in the future.

Comment ID: 23.014

Response

The commenter provides insufficient information to provide a reasonable response to these issues. EPA offered (and conducted) government-to-government consultation to Alaska Native tribes in the region and included an assessment of environmental justice in the SEIS. See the environmental justice section of the SEIS (section 3.18).

From: Mcgrath.Patricia@epamail.epa.gov [mailto:Mcgrath.Patricia@epamail.epa.gov]
Sent: Monday, February 02, 2009 6:33 PM
To:
Subject: Fw: Red Dog Aqqaluk Project

-----Forwarded by Patricia McGrath/R10/USEPA/US on 02/02/2009 05:28PM -----

To: Patricia McGrath/R10/USEPA/US@EPA
From: "Rick Mohr" <rem@pacificjetting.com>
Date: 02/02/2009 05:17PM
Subject: Red Dog Aqqaluk Project

RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Comment Sheet

Name:
Rick Mohr
Organization:
Pacific Jetting
Address:
3501 Airport Road , Hangar Nine
City, State Zip:
Placerville , CA 95667
Email:
rem@pacificjetting.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

Response

24.001

We are pleased to see the EPA and Red Dog working together to extend the life of the site, and enable full utilization of available resources for the benefit of all. The totality of the positive ramifications of these efforts is not easy to calculate.

Obviously is the local economic effect. Not so obvious is the impact on economies far away, like the small town in Northern California where we are based.

Across the board, and across the land, extending the life of Red Dog Mine is extremely important, especially in these challenging economic times.

Sincerely,

Richard E. Mohr

Pacific Jetting

530.626.6658

www.pacificjetting.com

Author: Mohr, Rick—Pacific Jetting

Comment ID: 24.001

Response

Thank you for your comment.

Response

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Thursday, January 29, 2009 5:22 PM
To:
Subject: Fw: red dog comments

----- Forwarded by Patricia McGrath/R10/USEPA/US on 01/29/2009 04:23 PM -----

marlene
moto-karl
<ahnamarlene@gma
il.com> Patricia McGrath/R10/USEPA/US@EPA
To
cc
01/29/2009 04:18
PM Subject
red dog comments

hi,i don't have a fax machine or copier for deadline feb.4th 2009 deadline regarding upcoming Red Dog dredging on a future man made creek near kotzebue alaska.1)we need subsistence obserers at deering,shishmaref,point hope and kotzebue and Little Diomede.2) they rushing into this without going too all these 4 villages,Deering,Shishmaref,Point Hope and Little Diomede,these are whom are gonna get impacted in the long run If you look at the big picture.3) lead contaminated soil can pose a risk to direct ingestion,tundra vegetation,or tracking in homes.4)big drifted starfish,little crabs,and certain sea shells are hard to find on our beaches SINCE red dog started operating.5)we have puffins and other sea birds nest on out bluff 2 miles west of Deering every summer,now than i'm married to a Bethel area (FROM Toksook Bay)said THEY don't see puffins come around any more.6)cominco and nana been having there own talk on local radio and today was no exception,they had jim magdaz (only) put public comments and he referred to an article on red dogs-kivalina article,putting numbers on caribou subsistence since the 1960's,and rosie barr an employee with nana praising him for that,i tried calling in and THE radio station said they having technical problems,with people getting on air,now you see nana,cominco,fish and game,the local public radio and countless others are doing anything they can to make this future man made creek look good.7)Both nana and cominco every time they talk about red dog they brag about how getting dividends for nana shareholders,and giving monies to all the other native corporations thru out the state,Thats bribbing us to keep our mouths shut.8)Deering is located on the northern seward pennusula about 58 miles south of kotzebue.

- 1) 25.001
- 2) 25.002
- 3) 25.003
- 4) 25.004
- 5) 25.005
- 6) 25.006
- 7) 25.007
- 8) 25.008

Author: Moto-Karl, Marlene—Individual

Comment ID: 25.001

Response

The need for subsistence observers at the locations suggested is not supported by the findings in the SEIS. Based on the analysis, subsistence effects from the operation are limited to the areas in the vicinity of the port and access road.

Comment ID: 25.002

Response

There is no indication that any of the villages identified would be affected the project.

Comment ID: 25.003

Response

Lead contamination is discussed throughout the document. The basis for much of the detail presented in the SEIS comes from Teck's ecological and human health risk assessment (Exponent 2007).

Comment ID: 25.004

Response

A variety of starfish, crabs, and other invertebrates are present in the area of the DMTS (Section 3.10.2.2). Given that these species occur locally, it is unlikely that activities associated with either the mining operations or the DMTS port are affecting the same species over 100 miles away.

Comment ID: 25.005

Response

Seabird populations near Deering are outside of the scope of this SEIS as they would not be impacted by the project.

Comment ID: 25.006

Response

EPA has no control over the content of local radio. The SEIS contains EPA's formal analysis of impacts surrounding the project as currently proposed.

Comment ID: 25.007

Response

The EIS process is based on public participation. Through this process, EPA has asked for and received public input during both the scoping process and in these comments on the draft SEIS. Letters like yours show that people are willing to contribute.

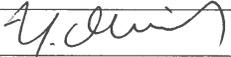
Comment ID: 25.008

Response

Comment noted.

Response

**RED DOG MINE EXTENSION- AQQALUK PROJECT - DRAFT
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT -
(RELEASED DECEMBER 2008)**

Comment Sheet	
Name: Ukallaysaaq Tom Okleasik, Planning Director	
Organization: Northwest Arctic Borough	Date: February 2, 2009
Address: P.O. Box 1110	
City, State Zip: Kotzebue, AK 99753	
Email: tokleasik@nwabor.org	

Summary

The Northwest Arctic Borough (Borough) supports the Red Dog Mine's continued operation and expansion to the Aqqualuk Deposit. Red Dog has proven to be a model partner with the Borough and a catalyst for economic development and growth in the region. Its continued operation will provide critical economic stimulus to the region's economy. The Borough supports Alternative B for immediate operations with the understanding that Teck is committed to building a discharge pipeline in the long-term that will resemble Alternative D or Alternative C (the pipeline will not only help alleviate water quality concerns shared by some residents, but it will also ensure that the tailings dam will not need to be continually raised due to discharge limitations forced by water quality standards).

The Borough Assembly recently passed Resolution 09-03 in support of Alternative B (attached as exhibit). While the Borough is supportive of Alternative B, the SEIS and continued Red Dog mining could benefit by addressing the concerns outlined below.

Page #	Comment
26.001 3-231 3-136	Marine Discharge. The impact to marine mammals resulting from the effluent discharge into the Chukchi Sea could benefit from an enhanced discussion of how the state water quality standards will ensure that no impact to marine mammals will result from the discharge. Perhaps a better explanation of the sea currents and the difference between marine discharges as compared to Red Dog Creek discharges would help address potential concerns regarding contamination and impact to subsistence resources that include marine mammals.
26.002 3-128	Additionally: - Is there a possibility of sedimentation and concentration of metals in certain locations or will the currents and mixing zone eliminate any concentrations of metals? - Does the discharge have the potential to disrupt Beluga whale migration
26.003	

Author: Okleasik, Ukallaysaaq—Northwest Arctic Borough

Comment ID: 26.001

Response

Section 3.5.3.4 does indicate that a marine discharge would meet Alaska Marine WQS. These standards are designed to be protective of fish, shell fish, invertebrates, marine mammals, as well as aquaculture. There is no expected impact to subsistence resources from a permitted discharge to the Chukchi Sea under Alternatives C or D.

Comment ID: 26.002

Response

The effluent discharge is very low in suspended solids or sediments. The current water treatment system sequesters (ties up) metals into a relatively insoluble, stable sludge that is removed prior to discharge and deposited in the tailings impoundment.

Comment ID: 26.003

Response

The discharge is not expected to disrupt the nearshore migration of beluga whales with the exception of the potential avoidance of the small (10-foot radius) mixing zone. Further, the outfall would be located in close proximity to the existing dock structures which would generally preclude a high level of use by beluga. Installation of the outfall pipe would occur outside of the migration period for this species. This information is included in Section 3.9.3.4 of the SEIS.

Comment ID: 26.004

Response

Installation of the outfall would require a Section 10 permit from the Corps. The Corps would likely include conditions on the permit that would limit the construction season to avoid beluga migrations. This is described in SEIS Section 3.9.3.4, marine mammals.

Response

Page #	Comment
26.003 (cont)	other than in the immediate area of the discharge; i.e., is there any information indicating the species sensitivity to chemical discharge?
26.004	- Construction of the outfall could be limited to exclude construction activities during periods of beluga migration in the vicinity of the port site to avoid additional avoidance due to noise.
26.005	<p>Geotechnical Stability. The SEIS does an adequate job of outlining the basic concerns associated with the tailing dam; however, the section could still benefit from an expanded discussion regarding the long-term safety of the tailings dam. The concern over geotechnical stability arises from 3 primary sources:</p> <p>(1) the alarming frequency of world-wide tailings dam failures;</p> <p>(2) the unplanned Red Dog tailings dam height increases; and</p> <p>(3) the loss of permafrost and the potential effect on dam stability and seepage.</p>
26.006	The section makes clear that the tailings dam has not behaved as expected since construction. It also declares the risk of failure to be low while noting that “the level of risk of failure from a higher-than-expected water level in the dam is moderate” (p.3-42 to 43). There is no doubt that the water level has been higher-than-expected. This information combined with the discussion of sub-permafrost in section 3.6.2 (see p. 3-77) lead a cautious person to question the continued and long-term integrity of the dam.
26.007	The same concerns arise for the tailings dam’s unexpected seepage that was dramatically higher than originally expected (3-40). The SEIS notes that the presence of the tailings beach reduces seepage but fails to cite any hard data or provide an adequate explanation of the current seepage rates. This concern is particularly amplified because of global climate change, expecting thawing, and heightened water levels in the tailings pond.
26.008	The geotechnical stability section would also benefit from an expanded discussion of the ADNR dam safety review and/or 2007 URS <i>Stability Analysis Report</i> or even an Internet link to access the document (if it is readily available). Additionally, the Borough recommends establishing an emergency management plan in the event that the tailings dam leaks or fails.
26.009	Loss of permafrost from global warming could affect long-term geotechnical stability as related to increased seepage. The discussion should mention loss of permafrost and include an expanded analysis of increased seepage risks and remedies.
26.010	Section 3.19.2.8 <i>Global Climate Change</i> notes that “increased thawing of permafrost in many [Arctic] regions is also projected to continue” while also stating that the Arctic region has experienced twice the impact of global climate change. This projected thawing could very likely effect the permafrost and stability of the Red Dog tailings dam and the DSEIS fails to adequately make that connection.
26.011	

Comment ID: 26.005

Response

As discussed in Section 3.4, EPA has reviewed all of the geotechnical monitoring data and other supporting information for the tailings dam to reach the conclusion that the dam has a low risk of failure. Two areas of concern were identified that will be addressed by the ADNR Dam Certification Program. Future raises will be reviewed for stability by the State’s Dam Certification program, which has primary responsibility for overseeing dam safety in the State. EPA believes that the summary in the final SEIS is an appropriate level of detail for the public in a NEPA analysis.

EPA is not aware of the specific “alarming frequency of tailings dam failures” cited by the commenter. Other dam failures, however, are not relevant to the Red Dog tailings impoundment where design modifications and stability monitoring are reviewed on an ongoing basis by the State. EPA is also unaware of any unplanned tailings dam height increases. As discussed in Section 3.5, the addition of barium hydroxide treatment in the short term and the implementation of the TDS control plan over the long term under Alternative B and the marine discharge under alternatives C and D will prevent future unplanned rises in the water levels in the impoundment. Finally, please see the response to Comment ID 12.001 related to permafrost’s effects on dam stability.

Comment ID: 26.006

Response

EPA disagrees with the commenter that, overall, the dam has not behaved as expected. To date, geotechnical monitoring has consistently shown that the dam is stable. It is the water balance that has not behaved as expected. However, the higher than anticipated water levels in the impoundment have not had an effect on dam stability. Seepage through the dam has been greater than originally anticipated but this has been accounted for in the design of each of the dam raises. The language regarding “the level of risk of failure from a higher than anticipated water level in the dam” relates to a specific condition, ferricrete formation, that could lead to future instability if it is not addressed through design changes. EPA has recommended a potential solution to this issue and EPA understands that it is being considered by ADNR as part of the Dam Certification process. Please see the response to Comment ID 12.001 related to permafrost’s effects on dam stability.

Comment ID: 26.007

Response

Section 3.4.2.2 cites the suspected reason--thawing in the upper bedrock below the liner--why seepage rates have been much higher than originally anticipated. As also discussed, these rates have been reduced by development of the tailings beach. As discussed in the response to Comment ID 26.006, the higher-than-anticipated seepage has been considered in the design of each raise and has not affected the dam’s stability. Please see the response to Comment ID 12.001 related to permafrost’s effects on dam stability.

Comment ID: 26.008

Response

EPA believes that the level of detail in the final SEIS is appropriate for the public in a NEPA analysis. Note that EPA has reviewed all of the dam stability analyses completed to date to reach the conclusion cited in Section 3.4. All of the supporting documents, including the URS 2007, Main Dam Stability Assessment are available in the Administrative Record for the final SEIS.

Comment ID: 26.009

Response

The establishment of an emergency management plan is beyond EPA’s authority. However, it would seem that this authority could reasonably reside within the NWAB’s Title 9 code intended to protect the public health and general welfare.

Comment ID: 26.010

Response

Please see the response to Comment ID 12.001 related to the effects of loss of permafrost. In summary, this will not change overall flow volumes in the impoundment and would not impact dam stability, although continued monitoring of permafrost and ground water conditions is recommended.

Response

Page #	Comment
26.012	<p>3-248 Caribou Health. <i>EPA HHRA Findings:</i> EPA’s determination that “health risks represented by measured levels of metals in caribou incur HQs (hazard quotients) above a level of concern (e.g., hazard indices of 2.9 for children and 1.1 for adults)” raises the need for continued monitoring and evaluation of the region’s caribou. EPA notes that additional sampling of caribou should be undertaken and the Borough would like to emphasize the importance of this measure.</p> <p>In addition, the DSEIS also notes that caribou harvested in the vicinity of the mine had higher levels of lead, copper, and arsenic and that these metals were attributed to the area’s naturally high mineral levels but that further studies are needed to determine the mine’s possible contribution (3-192 & 3-118). This concern is heightened because of the possible bioaccumulation of metals that could occur from an additional twenty years of mining operations.</p> <p>Again, the Borough extends its awareness and concern over elevated levels of metals in caribou and will work with Teck and the cooperating agencies to ensure the region’s caribou remain healthy and to make sure subsistence food sources continue to be safe for human consumption.</p>
26.013	
26.014	<p>3-9 et seq. Metals Concentration on Moss. The Fugitive Dust and Deposition section notes metal concentrations in mosses that are over 500 times the natural background concentrations and are approaching ADEC cleanup levels (400 mg/kg) for soil. There is no discussion of whether continued mine operations are expected to result in the increased deposition of lead along the DMTS that would result in exceeding the cleanup threshold for soil, mandating a cleanup.</p>
26.015	<p>What is the risk and potential for lead and zinc in the moss to leach through and deposit in the soil? What are the potential long-term effects of an additional 20 years of mining on moss and lichen – and could this lead to the risk of bioaccumulation in animals? Have fugitive dust reductions measures already enacted resulted in lower concentrations in the environment or do concentrations continue to accumulate despite lower levels of fugitive dust? Such an analysis and discussion would also benefit from the inclusion of a discussion of possible cleanup and remediation plan.</p>
26.016	
26.017	
26.018	<p>G-18 Correction to 1.7.1.2 – first paragraph. Planning commission members are appointed by the mayor and confirmed by the assembly (not voted upon by general election).</p>
26.019	<p>G-20 Correction to 1.7.1.4 – first paragraph. The NWAB provides municipal services in consultation with the Noatak tribal council for services not directly provided by the Noatak tribal council.</p>

Comment ID: 26.011

Response

The SEIS notes in Section 3.4.2.3 that the permafrost beneath the dam has already melted. The loss of permafrost has not affected the dam’s stability, which is addressed as part of the current geotechnical conditions.

Comment ID: 26.012

Response

Comment noted. EPA encourages NWAB and other interested parties to continue to participate in development of the fugitive dust management plan to ensure it meets the needs of local residents.

Comment ID: 26.013

Response

Comment noted. EPA encourages NWAB and other interested parties to continue to participate in development of the fugitive dust management plan to ensure it meets the needs of local residents.

Comment ID: 26.014

Response

None of the existing information provides a rate of deposition. This is an area of uncertainty within the SEIS but one that the risk management plan(s) are designed to address. The monitoring program proposed by Teck in response to the risk assessment will be approved by ADEC who will also review monitoring results. Through their participation in the process ADEC would determine whether thresholds were exceeded and the extent to which a cleanup would be necessary.

Comment ID: 26.015

Response

On the page cited, the narrative currently indicates that lead and zinc have leached through to the soil, although to different extents. Given the fullness of time, zinc and lead associated with dust that is deposited on moss can, under the simple influence of gravity, be expected to leach to the underlying soil.

Comment ID: 26.016

Response

The vegetation section of the SEIS (section 3.7.3) describes the potential effects of the alternatives on vegetation. Section 3.9.3 describes potential effects on wildlife. Some of the Alternatives being considered for future mining include methods for controlling and reducing dust emissions. This would result in a substantial reduction in loading of metals to the surrounding environment, and would reduce the risk of bioaccumulation in plants and animals above current levels. For example, Alternative C (concentrate pipeline) would go the farthest to reduce dust emissions. Alternative D would be more effective than Alternative B, but not as effective as Alternative C.

Comment ID: 26.017

Response

The effectiveness of dust reduction measures within the environment is another area of uncertainty because time series data to monitor deposition was not collected and therefore is unavailable. EPA believes this information is valuable and has recommended implementation of a monitoring program to evaluate effectiveness of dust control measures (see Table 2.5-2 and Section 3.2.3.1). Based on the risk assessment, a cleanup and remediation plan has not been required to date by ADEC. However, the risk management plan is still draft form and it is possible that the final risk management plan or its implementation plans will specify areas for cleanup.

Comment ID: 26.018

Response

Thank you for the clarification. The text in Appendix G regarding the planning commission has been revised.

Comment ID: 26.019

Response

Thank you for the clarification. The text in Appendix G regarding municipal services has been revised.

NORTHWEST ARCTIC BOROUGH ASSEMBLY

RESOLUTION 09-03

**A RESOLUTION OF THE NORTHWEST
ARCTIC BOROUGH IN SUPPORT OF TECK
ALASKA INCORPORATED PERMITTING OF
THE AQQALUK DEPOSIT AT THE RED DOG
MINE.**

WHEREAS: The Northwest Arctic Borough is a home rule borough chartered under the laws of Alaska, And as provided in Section 2.01 of the borough charter, the Assembly is the borough governing body that exercises all the borough's powers; and

WHEREAS: The Northwest Arctic Borough is a home of the Red Dog Mine, the largest zinc mine in the world, which is operate by Teck Alaska Incorporated ("TAK") on land owned by the NANA Regional Corporation ("NANA"); and

WHEREAS: NANA shares in the revenue from the Red Dog Mine, which enabled NANA to payout record dividends to its shareholders over the last several years and through ANCSA sharing, other Regional and Village Corporations have benefited as well; and

WHEREAS: The Red Dog Mine provides education, training and jobs to NANA Shareholders; and

WHEREAS: the Red Dog Mine is the economic engine for the Borough providing a base payment of over \$6 million in annual Borough revenue under an agreement for Payments in Lieu of Taxes ("PILOT" Agreement), which funds the borough's, local contribution to education and has also financed approximately \$75 million in general obligation bonds for schools renovation and construction; and

WHEREAS: the PILOT includes a zinc escalator provision that has further increased the Boroughs payments by almost nine million dollars in the last three years. The additional revenue was \$1.9M in FY2006, \$2.3 M in FY2007 and \$4.4M in FY2008; and

WHEREAS: the Red Dog Mine provides approximately 60% of the Borough's funding allowing for the servicing of their bonds obligation and enables them to provide important services to the residents of the Borough; and

WHEREAS: most residents of the Borough both of necessity and desire derive most of their food from the land and waters in and offshore from the Borough and live a still-traditional Inupiaq way of life, which is dependent on

maintain healthy land and water habitat throughout and adjacent to the borough for fish, animals and marine mammals; and

WHEREAS: the Environmental Protection Agency (EPA) is preparing a Supplemental Environmental Impact Statement (SEIS) under the National Environmental Policy Act (NEPA) for certain federal actions which , include the min's water discharge and wetlands permits; and

WHEREAS: through this SEIS process EPA is evaluating Red Dog Mine's proposal to mine the Aqqaluk deposit without, which mining at Red Dog would cease in 2011.

WHEREAS: the draft SEIS looked at three Alternative Actions in addition to Red Dog's proposed action (Alternative B) which is to continue to treat and discharge mine effluent to Red Dog Creek under stringent permit conditions in a manner that fully protects water quality; and

WHEREAS: Alternative B will allow for the continued economic benefit to the Region, protect the environment, allow for the timely development of the Aqqaluk Deposit; and

WHEREAS: Alternative B is EPA Preferred Alternative, but would not change TAK's existing agreement to build an alternative water discharge pipeline to the Chukchi Sea.

THEREFORE BIT IT RESOLVED THAT the Northwest Arctic Borough endorses Alternative B, the Preferred Alternative, because it is the Alternative, which most benefits the Region and the NWAB; and

BE IT FURTHER RESOLVED that NAB supports the Red Dog Mine and the development of the Aqqaluk Deposit and believes that it is critical to improve the economic condition of the borough's residents, while at the same time preserving the habitat necessary to the traditional, Inupiaq way of life and providing future revenue for borough services.

BE IT FURTHER RESOLVED, that the Northwest Arctic Borough supports TAK permitting for mining the Aqqaluk Deposit at Red Dog Mine under Alternative B.

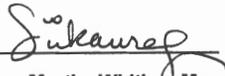
PASSED AND ADOPTED THIS 28TH DAY OF JANUARY, 2009.



Walter G. Sampson, Assembly President

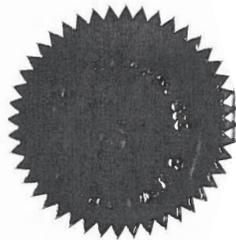
Response

PASSED AND APPROVED THIS 28TH DAY OF JANUARY, 2009.


Siikauraq Martha Whiting, Mayor

SIGNED AND ATTESTED TO THIS 28TH DAY OF JANUARY 2009.


Helena Hildreth, Borough Clerk



Response

FEB-03-2009 TUE 10:50 AM EPA OFFICE OF WATER

FAX NO. 2065530165

P. 01

JAN-30-2009 01:47 PM

P. 1/ 2

ALASKA STATE LEGISLATURE

SENATOR DONALD C. OLSON



ALASKA
STATE CAPITOL
ROOM 514
JUNEAU, ALASKA
99801-1182

(907) 465-3707
FAX (907) 465-4821

Fax

To: ms. Patty McGrath From: Senator Donald Olson
 Fax: 206 553 0165 Date: 1/30/09
 Phone _____ Pages: 2 Including cover _____
 Re: RED DOG MINE CC: _____

Urgent For Review Please Comment Please Reply

Comments:

OPTIONAL FORM 99 (7-99)

FAX TRANSMITTAL # of pages 2

To: <u>GENE WILKINSKI</u>	From: <u>PATTY MCGRATH</u>
Dept./Agency: <u>TERRA TECH</u>	Phone #: <u>206-553-0165</u>
Fax #: <u>363-217-5705</u>	Fax #: <u>206-553-0165</u>

NSM 7540-01-317-7308 5099-101 GENERAL SERVICES ADMINISTRATION

*To Erika/Gene
 907-264-6602
 Please forward info to Gene*

Response

FEB-03-2009 TUE 10:51 AM EPA OFFICE OF WATER
JAN-30-2009 01:48 PM

FAX NO. 2065530165

P. 02
P. 2 / 2

Author: Olson, Donald—Alaska State Legislature

Comment ID: 27.001

Response
Thank you for your comment.

Out of Session:
Legislative Information Office
P.O. Box 1630
Nome, AK 99762-1630
(907) 443-3707
(907) 443-2162 (Fax)



In Session:
State Capitol
Juneau, AK 99801-1182
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SENATOR
DONALD C. OLSON

Ms. Patty McGrath
US EPA Region 10
1200 Sixth Avenue, OWW-135
Seattle, WA 98101

Dear Ms. McGrath,

With regards to the Red Dog Mine Expansion-Aqaluk Project please accept this letter as my support for Alternative B in the Draft SEIS.

As the Alaska State Senator for the district in which Red Dog is located I am keenly aware of the importance of the mine to the people I represent. A key aspect of the operation is its agreement with the Northwest Arctic Borough to make a payment that provides 60% of the Borough's revenue. In 2007 this amounted to twelve million dollars. Over the years the Borough has been able to provide valuable services to the people in my district as well as fund bonds for the construction of new schools in the region. Red Dog is critical to regional education and this must not be jeopardized by actions taken on behalf of the SEIS.

Under the mine's proposed action they will be able to continue with uninterrupted mining. Alternative B is the alternative that is the least risky and will allow for the timely development of the Aqaluk deposit. Under this alternative the mine will discharge into the Red Dog Creek, a practice that your study shows has actually improved the stream's water quality. The mine is also developing a risk management plan to deal with the fugitive dust issue. They have done a draft closure plan that was developed with the involvement of people in the region. I see it as a positive process that created a well accepted plan. Alternatives that do not include this plan are deficient for their lack of public involvement.

In closing, I'd like to restate my support for Alternative B and reiterate the importance of Red Dog to my constituents.

Regards,

Senator Donald Olson
Alaska State Senator - District T

27.001

Response

Author: Onalik, Frank—Individual

Comment ID: 28.001

Response

To date, hazing has been successful in deterring animals such as caribou and moose from the tailings impoundment without resulting in injury or death. As stated in the draft SEIS (p. 3-119 and 3-120) since 1998 there have been 12 observations of caribou near the mine (including the tailings impoundment and the airstrip) and four observations of moose at the tailings impoundment, all of which were responded to with hazing. Hazing activities would continue to be implemented as a mitigation measure under all the alternatives.

Red Dog Mine Extension – Aqqaluk Project
Meeting on Draft Supplemental Environmental Impact Statement and
Draft National Pollutant Discharge Elimination System Permit

Name: Frank Onalik Sr

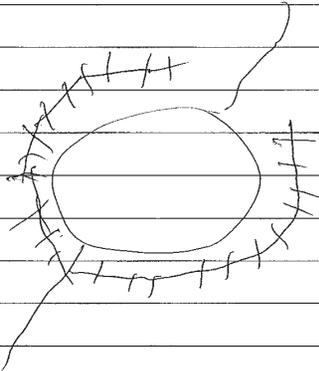
Date: 1-13-09

Organization: _____

Mailing Address: Box 5 Noatak Ak 99761

Email Address: _____

Comments: I would like to see A
Wooden Fence Around the tailings
pond, to keep Caribou + Moose
from going in on A hot Summer
Day



28.001

Return written comments at the meeting or send to the EPA by email or fax no later than
February 3, 2009.

Ms. Patty McGrath
US EPA Region 10
1200 Sixth Avenue, OWW-135
Seattle, WA 98101

Fax: (206) 553-0165
email: mcgrath.patricia@epa.gov



February 3, 2009

Ms. Patricia McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
OWW-135
Seattle, Washington 98101

RE: NANA Comments on Draft SEIS

Dear Ms. McGrath:

On behalf of NANA Regional Corporation, Inc., I am pleased to provide comments on the draft Supplemental Environmental Impact Statement on the Red Dog Mine. The renewal of the NPDES permit is critical for the operation of the Red Dog Mine.

29.001

At NANA, our philosophy has always been to protect the subsistence lifestyle of the Inupiat people and also to enter into businesses that would provide job opportunities for our shareholders. Red Dog Mine has indeed fit that model and has also allowed us to accomplish our mission of improving the quality of life for our shareholders.

Sincerely,



Marie N. Greene
President/CEO

Cc: File

Response

Author: Greene, Marie—NANA Regional Cooperation

Comment ID: 29.001

Response

Thank you for your comments.

**RED DOG MINE EXTENSION
AQQUALUK PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
NANA REGIONAL CORPORATION, INC.**

1.2 Purpose and Need

29.002 Chapter One of the DEIS accurately outlines the purpose of and need for the SEIS: to analyze the impacts of renewing the NPDES permit and issuing 404 permits to enable the development of the Aqqualuk deposit.

2.2 Overview of Project Alternatives

29.003 The alternatives analysis in Chapter Two is inconsistent with the purpose and need statements in Chapter One, because several of the alternatives (e.g. closure of the mine, dust control) are not alternatives to the proposed actions analyzed in the EIS. For instance, dust control is a mitigation measure, not an alternative to renewing the NPDES permit. Closure of the mine would not eliminate the need to renew the NPDES permit.

2.2.1 Alternative A: No Action Alternative

29.004 The surface impoundment will need to discharge in perpetuity, so the no action alternative should be defined as reissuing the existing permit without change. The existing permit is the 1998 permit, as modified by those 2003 amendments that were upheld by the EAB. Chapter Two erroneously states that the 2003 amendments are not in effect.

29.005 The underlying major federal action for the purposes of the Aqqualuk SEIS is the re-issuance of the NPDES permit for ongoing water discharge. It is appropriate to evaluate the impacts of Aqqualuk development in the SEIS only because the SEIS is evaluating various changes from the original footprint of the mine, and because the SEIS is the NEPA analysis document for issuance of 404 permits for Aqqualuk.

29.006 Page 2-5, "Upon completion of mining activities, the site would be reclaimed beginning in 2011 and the closure plan put in place."

In the event that required permits are not received, the site may be mothballed pending future permit applications and the future development of the Aqqualuk deposit.

Response

Comment ID: 29.002

Response

Thank you for your comment.

Comment ID: 29.003

Response

As noted in the text in Section 2.1, significant issues drove the development of different components of the alternatives. Since fugitive dust was identified as a concern throughout the scoping process, it is appropriate to incorporate components that would mitigate fugitive dust effects as part of an alternative. NEPA obligates agencies to look at all reasonable alternatives, not just those within its regulatory authority. Also see response to comment 10.008.

Comment ID: 29.004

Response

In a letter dated November 17, 2008 from Michael Gearheard, Director, Office of Water and Watersheds to John Egan, Acting General Manager, Teck Cominco, Alaska, EPA clarified that the currently effective NPDES permit conditions are those from the 1998 permit. The text in the final SEIS has not been modified. See response to comment 10.004 regarding the no action alternative.

Comment ID: 29.005

Response

Comment noted.

Comment ID: 29.006

Response

Comment noted. For the purposes of the impact analysis, the No Action Alternative is adequate as currently configured.

Response

2.2.2 Alternative B: Applicant's Proposed Action

Page 2-5, while these closure options are currently seen as the best alternatives for closure, this may not be the case in the future as the Mine Closure and Reclamation Plan is updated (every five years as required by the Solid Waste Permit).

29.007

The Red Dog Mine Closure and Reclamation Plan, which has been developed with extensive involvement from the regulatory agencies, non-governmental entities, local communities, NANA, Maniilaq and the Northwest Arctic Borough falls under the jurisdiction of the State of Alaska Solid Waste Permit. It is to be resubmitted to the State of Alaska every five years to allow for improvements or modifications to the plan from new technology or mine processing developments.

2.2.3 Alternative C: Concentrate Pipeline

Alternative C is inconsistent (non-compliant) with landowner's (NANA) reclamation plan for mine closure. The existing plan (as submitted to the State of Alaska under the Solid Waste Permit) calls for a clean water cover of the tailings pond. Page 2-10, "The water cover over the tailings would be drawn down and a dry cover placed over the tailings." The Red Dog Mine Closure and Reclamation plan reflects the local and technical expert's best case scenario for closure of the Red Dog mine. It is inappropriate to assume an alternative closure plan outside of the Mine Closure and Reclamation Plan process required by the State of Alaska. The existing closure plan took five years to complete and can not and should not be arbitrarily disregarded.

29.008

Page 2-10, "Beginning in 2031, the waste rock dump would be regraded to a 5:1 slope with excess material moved back into the Aqqaluk pit beginning in 2031." This will significantly reduce the holding capacity of the Aqqaluk pit as a reservoir for untreated water, as specified under the Mine Closure and Reclamation Plan. Under this Alternative the water pipeline (along with the concentrate slurry and fuel pipelines) would be removed at closure and wastewater discharge would resume into Red Dog Creek. As noted in the previous comments for Chapter 2 review, it is not clear that the calculations have been completed to confirm that the remaining capacity (if any) in the Aqqaluk Pit would be adequate for water storage. It is also not clear why this alternative requires the removal of the water discharge pipeline into the Chukchi Sea.

2.2.4 Alternative D: Enhanced Dust Control

The proposals for and discussions of "enhanced dust control" and a "subsistence component" have no logical connection to the stated purpose and need for the SEIS and should be removed. These are mitigation measures, not alternatives to renewing the NPDES permit. Page 2-13, states, "A subsistence component is incorporated into this alternative, requiring the closure of the port throughout the annual June beluga whale migration (through July 1) and closure of the DMTS during the fall caribou migration." Mitigation measures implemented during the Red Dog EIS process ensure that these protections already exist. The shipping season does not commence until July, after the

29.009

Comment ID: 29.007

Response

Thank you, comment noted.

Comment ID: 29.008

Response

The NEPA requires an evaluation of all reasonable alternatives regardless of whether or not they are within the lead federal agency's jurisdiction. The analysis of a dry closure alternative is completely appropriate for this NEPA analysis regardless of the processes involved in developing the current closure plan. See response to comment 10.011 regarding EPA's determination that wet closure is environmentally preferred over dry closure.

Regrading the waste rock dump to a 5:1 slope would still allow adequate storage capacity in the Aqqaluk Pit for untreated water based on a computer aided design (CAD) analysis of the material volumes and topography.

Removal of the pipelines under Alternative C was included to address contingencies, such as in the event that NPS required the pipelines' removal at the end of the easement's lease agreement, and to reduce long-term impacts on wetlands.

Comment ID: 29.009

Response

As noted in the response to Comment ID 29.003, significant issues, which include fugitive dust and subsistence, drove the development of different alternative components. Based on interviews with local residents for the subsistence change survey, and scoping comments for the draft SEIS, it is not clear to EPA that Red Dog's wildlife policy has ensured that caribou migration is not impacted by trucking activities.

Response

29.009 (cont) beluga have passed the port site en route to the Beaufort Sea and only after consultation with the Subsistence Committee that ocean hunting activities have ended in Kivalina. In addition, the Red Dog wildlife policy acts to ensure that the caribou migration is not impacted by trucking activities. The SEIS process needs to address actual impacts, not perceived impacts.

2.3.6.1 Alternative A

29.010 Page 2.20, Alternative A, the No Action Alternative, is mischaracterized. Alternative A would result in an immediate closure of the mine. The discharge requirements mandated by Alternative A cannot be met with the current water treatment system and the suggested capital expenditures required to upgrade the system to meet said requirements, e.g., reverse osmosis, increased generating capacity, etc. can not be economically justified with the remaining 18 to 24 month mine life of the Main Pit at current and forecast metal prices. The required installation of an additional of 10 megawatts of diesel-generated power would probably trigger the requirement for a new air quality permit as well.

2.3.9 Concentrate Transportation

29.011 Page 2-25, the suggestion that concentrate truck traffic could be increased from 36 to 54 trips per day for a 60 day period in order to accommodate closure of the DMTS during caribou migration is unrealistic. Traffic at the 54 trips per day level represents the transport of ~ 6480 tonnes of concentrate per day. This is unsustainable as the mine concentrator only produces concentrate at ~3500 tonnes per day.

2.3.18 Reclamation and Closure

29.012 Page 2-29, the statement is made that Alternatives A, B and D “reflect the reclamation and closure plans developed by the applicant. Alternative C involves minimizing the amount of water needing treatment over the long-term after closure.” There is no documentation offered that would substantiate the statement. The current closure plan is designed to reduce the amount of water needing treatment over time.

Page 2-31, the suggested use of a “dry cover” to encapsulate the tailings under Alternative C is not an accepted closure method for the Red Dog environment and will most certainly be compromised over time. In addition, the use of a dry cover is counter to the wet cover method that was adopted in the “Mine Closure Plan” following numerous public meetings and workshops in the NANA region.

Comment ID: 29.010

Response

Alternative A serves as a point of comparison to the other alternatives and is a requirement under NEPA. EPA acknowledges that construction of the reverse osmosis wastewater treatment system under Alternative A would be very costly, i.e., \$100-200 million to construct and \$10-20 million annually to operate. It is however, speculative and beyond the scope of this NEPA analysis to evaluate whether this would cause mining to cease. This would be dependant on a number of factors (e.g., the price of zinc) that are unrelated to the treatment system. Moreover, if Alternative A were selected, the treatment system would be needed regardless of whether mining ceases. That is, there would continue to be the need for a permitted discharge from the tailings impoundment, which would have meet the current TDS limits.

Comment ID: 29.011

Response

The increase in truck traffic is included to ensure that the mine site CSB would be empty at the beginning of the closure. The numbers assume a worse-case scenario in which the mine site CSB was full and would need to be completely emptied in addition to transporting the normal production throughput from the mill.

Comment ID: 29.012

Response

While it is true that under Alternatives A, B, and D, wet closure is intended to lead to improved water quality in the impoundment over time (as documented in Section 3.3), both Teck’s closure plan and the final SEIS indicate that discharge treatment will be required as long as can be predicted. As indicated in Section 3.5.3.3 of the final SEIS, dry closure, if effective, could reduce the total volume of water requiring treatment by up to 50 percent. This is based on eliminating long-term infiltration through the waste rock pile and tailings impoundment.

Comment noted related to the feasibility of the dry cover and the State’s process for selecting water closure, please see the response to Comment ID 48.043.

Response

2.4 Project Alternatives and Components Considered But Not Studied in Detail

29.013 NANA appreciates the efforts of the EPA to review all reasonable alternatives but wishes to reinforce the fact that the SEIS should remain focused upon the issuance/re-issuance of the NPDES permit and any new COE 404 permits. A number of the alternatives and/or components explored under Sec. 2.4 stray from that path.

3.11.1.1 Land Ownership and Management

29.014 3-160: SEIS States “Mine occupies approximately 4,000 acres of private land in 120 square miles of property owned by NANA.” This is incorrect. NANA owns the land on which the mine is located, and all NANA property, including and excluding the mine, is private property.

3.12.2.2 Land Mammals

29.015 Caribou Resource Change. All objective evidence indicates that the road is not impeding the migration of the caribou or the presence of any other species which contribute to the subsistence diet. There are many factors which influence the availability and location of caribou, including weather, snow conditions, migration routes, over winter areas, etc. As Stephen Braund noted in the Kivalina and Noatak Subsistence Use Patterns (November 1982, pg. 40), “Reliance on caribou, however, is sometimes tenuous. Although Kivalina and Noatak are both within the Western Arctic maximum range the actual migration routes and winter ranges is a result of changing weather conditions and population shifts from one area of the herd’s range to another (Lent, 1966). Therefore, the number, direction, and movement of caribou into and through the Kivalina and Noatak hunting area fluctuates, dramatically affecting the success of local hunters.” The study also notes extensive periods where there was a lack of caribou available to Kivalina hunters due to natural conditions. The caribou hunting range has for these reasons always been extensive, extending even to the headwaters of the Wulik River. Volume 2, Appendices, Map 40: 1998-2007, Lifetime Subsistence Use Areas Kivalina. Caribou, clearly indicates that pre-mine caribou subsistence use areas extended well beyond post-mine subsistence use areas.

29.016 According to Jim Magdanz, the Subsistence Resource Specialist with the ADF&G (Kotzebue) the 2007 Fish and Game Survey showed that the overall subsistence harvest has remained consistent in Kivalina from 1967 to 2007. The variation is in the percent attributable to different subsistence foods. Additionally, the per capita harvest has decreased, primarily because the population has grown and the eating habits have changed with the introduction of non-native foods. However, the per capita harvest per person in Kivalina for all subsistence foods (594 lbs) is still comparable to (and often exceeds) other villages within the NANA region. These villages include Noatak, which is closest to Red Dog, and villages hundreds of miles away such as Deering, Kiana and Shungnak.

Comment ID: 29.013

Response

Thank you for your comment. Section 2.4 is a NEPA requirement that again ensures that all reasonable alternatives are investigated, regardless of the lead agency’s permitting authority.

Comment ID: 29.014

Response

The text in Section 3.11.1.1 has been clarified to note that the mine occurs on 4,000 acres of private land owned by NANA.

Comment ID: 29.015

Response

Comment noted. The document does not claim that mining and DMTS activity impedes the large scale migration of caribou. As noted, lifetime hunting patterns encompass a broad area and the document acknowledges the natural variability in the presence of caribou in a particular area. However, past distribution patterns do not mean that the presence of truck traffic or other mine-related activities do not displace caribou on a localized basis.

Comment ID: 29.016

Response

Our conclusion about overall harvest trends in Kivalina is consistent with the above comment. The text states “Using Burch’s adjustments for dog consumption, per capita subsistence harvests in Kivalina were 710 (1965), 675 (1982), and 829 (1983). The 1992 harvest of 761 pounds per capita is within this range, although unadjusted for dog consumption. The 2007 figure of 594 pounds per capita is at the low end of the range of total Kivalina harvests and may reflect a decrease in harvest.” Note that we stated that the 1992 and 2007 harvest estimates are both “within this range”, meaning the range defined by the pre-mine harvest studies, taking into account sampling error.

The analysis of potential mine-related effects was driven by local observations, not relative distance to the mine. For example, Noatak residents were principally concerned about the effects of sport hunting on caribou harvests while Kivalina residents were more concerned about the displacement of caribou due to DMTS traffic. We concluded that the only potentially mine-related effect on harvest concerned caribou harvests in Kivalina. We noted, however, that, “With just nine harvest observation years in the last 50 years it is difficult to conclusively discern a trend within this large interannual variation.” We concluded, “As discussed below under Caribou Resource Change, the observed value of 85 pounds per capita (lower than any pre-mine study year) of caribou harvest in 2007 coupled with local observations of displacement of caribou by DMTS road activity and reports of a healthy caribou herd with no overall migratory changes (see Section 3.9.2) support the conclusion that there has been a decrease in caribou harvest not explained by natural variations in caribou distribution and hunting conditions.” We further noted that there is a way to potentially mitigate this effect: “Clearly, concerns have been identified about the effects of traffic and fugitive dust on subsistence resources since operations began. While the function of the Subsistence Committee is also outside the scope of the SEIS, the SEIS recommends that Teck and the Subsistence Committee review its policies and procedures, and potentially the way the committee interacts with the citizens of Kivalina and Noatak. The goal of the review should be to find ways to more effectively respond to locals’ concerns about mine related effects on subsistence in the future.”

Response

Pages 3-194 and 3-195 state, “Furthermore, the National Research Council’s (NRC) study on the cumulative effects of North Slope oil and gas activities reported that caribou have been found to avoid roads and other structures, and noted that “the presence of a road or pipeline alone, without vehicular or human activity, *can* elicit avoidance” (NRC 2003). However, other studies contradict this finding (CRONIN, et.al. 1998. Caribou distribution during the post-calving period in relation to infrastructure in the Prudhoe Bay oil field, Alaska) and indicate that infrastructure and road development have not impacted the migratory routes of caribou in the Prudhoe Bay area. Additionally, studies conducted in the Denali National Park (TRACY, M.D. 1977. Reactions of wildlife to human activity along Mount McKinley National Park Road) show that caribou were not avoiding the road and frequently traveled through the area. This corresponds to the Alaska Department of Fish and Game’s studies which show that the migratory route of the Western Arctic Herd has not been impacted by the DMTS.

29.017

According to Jim Dau, a wildlife biologist with the Alaska Department of Fish and Game who is based in Kotzebue (who spoke on the subject of the Western Arctic Herd caribou and their migration at the Red Dog Risk Management Plan workshop in Kotzebue this spring), there have been no impacts to the migration of the caribou from the operation of the DMTS.

In addition, a presentation made to the Western Arctic Herd Working Group by Jim Dau in December on the 2008 Western Arctic Herd Caribou Collar Locations clearly shows that caribou frequently crossed the DMTS during their migration. Brian Lawhead and Alex Pritchard, of ABR Environmental also presented during this session on the “Use of Telemetry in Impact Studies and Monitoring.” ABR has been monitoring caribou migrations near the DMTS and recorded this information in the Red Dog/DMTS surveys beginning in 1996, with the most recent completed in 2008. These reconnaissance surveys provide clear examples of caribou crossing the DMTS during their fall migration and also indicate seasonal variations in the number of animals observed.

29.018

NANA works closely with Teck to ensure that the subsistence harvest is not impacted by the operation of the DMTS. A principal concern of NANA is that the Operating and Maintenance Plan for the DMTS clearly states the procedures to ensure that this occurs. Teck requires that staff (including contractors) is fully aware of and responsive to this policy (3.2.3 Caribou Policy). The policy states: “When the location of migrating animals is observed by any person on the DMTS, that person shall notify Teck’s Port Road Supervisor and the NANA/Lynden base station. The NANA/Lynden base station will inform all DMTS traffic of the migrating animals’ location. When migrating caribou are on or approaching the road, all traffic must come to a stop when in sight of the crossing locations. Traffic shall not proceed until the group of animals has crossed and continued at least 300 feet from the road, or, have withdrawn from the road to a distance of over 300 feet away and are showing no signs of trying to cross. When migrating caribou are near the DMTS Road, emergency traffic will be limited to officially designated response trips, as specified by TCAK’s *Caribou Policy*. For the majority of the year, caribou in the vicinity of the DMTS Road will be grazing, not migrating. When dispersed non-migrating caribou are grazing next to the road, vehicle traffic shall stop until the caribou naturally move a safe distance from the road. When the animals are within 300 feet of the

Comment ID: 29.017

Response

The draft SEIS (p. 3-116 to 120) discusses caribou crossing of the DMTS, including information from Dau (2005) and Lawhead (2008), which indicated that these movements vary both seasonally and annually. Figure 3.19 shows a map from Dau (2005) that depicts the migratory movement of satellite-collared Western Arctic Herd caribou. Note that Dau (2005) states that mine, road, and port operations have had a limited, localized effect on caribou movement and distribution. Text has been added to the subsistence discussion (Section 3.12.2.2) of the final SEIS to reflect this.

Comment ID: 29.018

Response

EPA understands the policies in place regarding DMTS traffic and caribou. However, no documentation was provided from Teck regarding the frequency or duration of road closures. Input gathered from scoping comments indicate that the policy may not be implemented to the degree to which it is intended or that it is not always effective. For example, one commenter suggested removing the responsibility for closing the road from individual drivers since they receive bonuses based on the number of trips they complete and therefore have an incentive for not complying with the policy. Since there is no delineation of 300 feet from the road, it is possible that some drivers may err on the side of meeting their delivery quotas over observing the policy to stop or slow down. Further, the drivers may find it difficult to determine whether the speed of their vehicle is causing animals to be frightened or otherwise affected.

Response

29.018
(cont)

road, vehicle speed will be reduced to a level that does not frighten or otherwise affect the animals. If a slow or creeping vehicle does affect the animals, the vehicle shall stop until the animals move more than 300 feet away on their own volition.”

Section 3.12.2.3 Marine Mammals

Beluga Whales

29.019

Because protection of subsistence is the region’s highest priority, a subsistence committee, made up of elders from Noatak and Kivalina was formed as one of the mandates of the Red Dog agreement. NANA and TCAK rely on the Subsistence Committee for their traditional knowledge of subsistence issues related to Red Dog. This committee is comprised of four hunters from Kivalina and four hunters from Noatak. Shipping activities at the Port do not commence until the Subsistence Committee has indicated that the hunting season is over. Satellite data compiled for the Point Lay Beluga Satellite Tracking Project indicates that the Chukchi beluga is well in the Point Lay area by the first part of July.

29.020

The Subsistence Committee also meets quarterly and receives regular reports from Red Dog’s Environmental department on activities which would be of interest to the committee. Presentations are also given on the Marine Mammal Observation program. This information is compiled into the “Delong Mountain Regional Transportation System Port Facility Wildlife Observation Report.” In the 2005 report, Section 4.3, page 21, the report notes that “in addition to the seals, three whales were observed. A juvenile beluga was seen 20 meters from the ship loader dock on June 25, 2005. It stayed in the area for an extended period of time (over two hours). Two whales were seen on June 28, 2005. One of these was identified as a grey whale. It was seen briefly swimming 600 yards from the ship loader. The other whale was about 1 mile from the ship loader and was not identified.”

29.021

The Draft Environmental Impact Statement, Navigation Improvements DeLong Mountain Terminal (NIDMT), Alaska (Corps. 2005) notes on page 219:

“During the spring and summer 2000 surveys conducted for this EIS, a small number of beluga were observed migrating between Port site and Kivalina. On Sunday, May 12, 2000, several beluga whales were observed milling about in a closed lead about 3 miles offshore between Kivalina and Port site. Several females with calves were evident in this group. The Native guide explained that this group had stayed behind the main migration because the calves were not yet able to pass the distance under the ice to the next open lead.

A beluga was reported struck and lost along this same lead during several days of hunting effort after the May 12 sighting, but no other belugas arrived in the lead. Evidently, the main portion of the spring beluga migration had passed this lead by the time the hunters arrived. Hunters, however, harvested about 10 to 14 beluga north of Kivalina just prior to this sighting, leading some hunters to theorize that

Comment ID: 29.019

Response

Thank you for clarifying the situation with the Subsistence Committee. The clarification is incorporated into Section 3.12.3.1 of the final SEIS.

Comment ID: 29.020

Response

Please see the response to the next comment.

Comment ID: 29.021

Response

The draft SEIS (page 3-129) incorporates this beluga whale siting information from the Corps (2005) EIS for Navigational Improvements of the DeLong Mountain Terminal. The draft SEIS is correct in stating that noise and disturbance are primary impacts to marine mammals associated with construction and ongoing operation of the port and DMTS facilities, which may displace individual marine mammals using the coastal waters near the project area. Some animals may be more sensitive to noise whereas others may have more tolerance. The subsistence section of the draft SEIS (p. 3-211 to 212) provides information from subsistence hunters and others in the project area suggesting that some species (e.g., beluga whale) that swim up the coast during migration appear to avoid the area near the port. The draft SEIS (p. 3-127 and 129) notes that this has been attributed in part to noise associated with port operations and vessel traffic, but that changes in human hunting practices (e.g., the greater use of motorized boats in recent decades and the avoidance of these noise sources by hunted species) and changes in the climate and marine conditions of the Chukchi may confound these effects. Thus, beluga whales may not be occurring in the vicinity of the port site in numbers that they did historically, due to causes other than noise and/or industrial activity.

Response

Comment ID: 29.022

Response

Please see the response to the Comment ID 29.021.

29.021
(cont)

although the beluga had passed Kivalina; ice conditions farther north had forced them near the community.

In June during biological surveys at Port site, two belugas were observed passing near the DMT ship loader platform. The belugas, a female with a calf, swam around the outer loading cell and disappeared from sight to the northwest among ice floes.”

This information appears to contradict the assertion that beluga avoid the Port site due to noise. It is a well known fact that mammals are highly protective of their young and are more cautious during this time. Additionally, studies have indicated that beluga in the Beaufort Sea do not appear to be affected by development. They can distinguish between noises that they perceive to be a threat, such as outboard motors, and noises which are not a threat, such as industrial activity.

During the main migration period the noise levels at the Port site are very low. The DEIS for the Navigation Improvements DeLong Mountain Terminal, Alaska (Corps. 2005) also notes that:

“The sounds of Port site operations are faint on the ice offshore from the Port site on a calm day, but almost continuous. Generators run constantly to power the facilities and trucks are being operated. Sensitive sound-measuring instruments placed about 1,300 feet offshore from Port site could detect the steady operating sounds, but when they were moved to about 2,000 feet offshore, they could not detect the same steady operating sounds. Regardless of wind conditions experienced during our survey, airborne noise from Port site could not be detected beyond the nearest recording location at W1, approximately 700 feet from the barge loader (about, 1,300 feet from shore).” (Page 160, DEIS)

29.022

The activity levels are minimal and shipping does not commence until the Subsistence Committee has been consulted and indicates that the hunting season is over. The main migration of the Chukchi beluga is well past Kivalina prior to the commencement of the shipping season.

The Red Dog Mine Extension SEIS implies that the Chukchi beluga (and therefore the beluga catch) are affected by noise from the Port. However, this does not explain the reduction in harvest by Noatak hunters who traditionally hunt far south of the port site and any potential noise impacts that it may have. Other factors must also be considered in the reduction of the beluga harvest such as long term changes in ice conditions, changes to hunting practices and associated noises (such as outboard motors) and reductions in beluga populations.

Response

29.023 **3.13.3.3 Effects of Alternative B – Applicant’s Proposed Action**
EPA assumes that NANA has done nothing to prepare for the eventual shut down of Red Dog. This is incorrect. The NANA board spent considerable time over the past year discussing how to best use the Red Dog royalties and other NANA income to position both the corporation and shareholders to thrive in a post Red Dog world. On the corporate side, it involves growing our business income to replace and then exceed Red Dog royalties. On the shareholder side, it means providing funding for collegiate and vocational training, as well as encouraging and fostering regional economic development. If this was to be a topic discussed in the SEIS, EPA should have come and talked to NANA about our plans, rather than just assuming we were sitting on our hands and doing nothing.

29.024 **3.17.2.4 Effects of Existing Operations on Socioeconomics**
Page 309 states that Regional Corporations “may” distribute their 7(i) funds to village corporations. The correct word is “shall”. There is only one very limited exception which, to our knowledge, has never been used.

29.025 **3.17.3.2 Effects of Alternative A – No Action Alternative**
A mine shutdown would have a significant impact on the ability of the Northwest Arctic Borough to repay the school bonds it has issued. As the sole taxpayer in the NANA region, Red Dog comprises 60% of total borough revenue.

29.026 **Section 3.2.2.2 Fugitive Dust and Deposition**
Page 3-13, Figure 3.3 “Modeled Lead Concentrations in Soil” appears inconsistent with the empirical survey results that show the greater concentrations to occur north of the road.

29.027 **Section 3.3.2.3 Tailings**
Pages 3-24 to 3-26, the discussion in the text does not properly reference the figures. In Figure 3.9 the time axis is too compressed (graphically) and is therefore very difficult to read.

29.028 **Section 3.7.2 Vegetation – Baseline Conditions**
Page 3-87, the comment that “NPS data indicates that some airborne contaminants may be reaching vegetation in the Noatak National Preserve Wilderness” is based on speculation and has no basis for inclusion within the SEIS. If however, the statement is included, the proper science ethic requires that the other explanations for the reported elevated metal values at the referenced location be included as well.

Comment ID: 29.023
Response
EPA actually assumed that NANA would be taking actions to prepare for the eventual shutdown of the Red Dog Mine operation. EPA’s contractor Tetra Tech attempted to contact Kevin Thomas (NANA) to discuss the socioeconomic aspects of royalty payments and dividends in August 2008. The impact analysis assumes that closure of the mine in 2031 would not cause significant effects in terms of socioeconomics since there would be adequate time for both NANA and NWAB to prepare for the eventual loss of income from the operation. EPA has revised the final SEIS to note that part of NANA’s long-term business plan is to position the corporation and shareholders for economic stability following the closure of the Red Dog Mine.

Comment ID: 29.024
Response
The text in Section 3.17.2.4 has been revised to state that the regional corporations must distribute the 7(i) funds to the village corporations.

Comment ID: 29.025
Response
The text in Section 3.17.3.2 has been revised to include the inability of the NWAB to repay school bonds as an effect of mine closure in 2011.

Comment ID: 29.026
Response
The figures in Section 3.2.2.2 have been replaced with an individual figure that depicts observed lead concentrations from moss samples.

Comment ID: 29.027
Response
The references to the figures in Section 3.3.2.3 have been revised to refer to the correct figure. The reference to the data in Figure 3.9 is regarding the trends which are clear even if the individual data points are not; the figures have not been revised for the final SEIS.

Comment ID: 29.028
Response
The text in the final SEIS has been revised to note that other mineralized zones occur in the region.

Response

Author: Richardson, Michael—Arctic Office Products

Comment ID: 30.001

Response

Thank you for your comment.

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Michael Richardson
Organization: Arctic Office Products
Address: 100 West Fireweed Lane
City, State Zip: Anchorage, AK 99503
Email: mrichardson@arcticoffice.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

30.001

To whom it may concern,
I do not often participate in the public comment process but in these economic times I feel compelled to throw my support in favor of this project.
Red Dog Mine and Teck’s projects have a much greater economic impact on Alaska than one would see at first glance. Besides the desperately needed jobs (and job creation with a new project) they are very supportive of Alaskan Owned businesses... this means more dollars stay in Alaska benefiting us all. The creation of a new project means creation of jobs, wealth, and taxes both at the local and national level.
As one of the many Alaskan vendors Teck uses, I can attest to the very real economic impact it makes here. Another project of this size would mean more jobs in our industry, shipping, information systems, indeed a whole array of work needing to be done. In a time when we are hearing about lay-offs and budget cuts every day, the possibility of winning one of the battles in the War on the Economy is encouraging.
As a long time Alaskan, I can very much appreciate environmental considerations in your decisions. I am not aware of Teck (previously Cominco) having anything but a positive reputation on this front.
In closing, please consider the state of our economy and the huge positive impact this could make for all of us.

Thank you and kind regards,
Michael Richardson



Northern Alaska Environmental Center
Conservation's Northern Voice

February 3, 2008

Patty McGrath
Red Dog Mine SEIS Project Manager
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RE: Draft Supplemental Environmental Impact Statement (dsEIS) for the Red Dog Mine Extension Aqgaluk Project and draft National Pollutant Discharge Elimination System (NPDES) permit (AK 003865-2).

Dear Ms. McGrath;

This letter is in response to the release and the solicitation for public comment on the reissuance of Red Dog Mines' NPDES permit and subsequent dsEIS by the Environmental Protection Agency (EPA). By this letter, the Northern Alaska Environmental Center (NAEC) is submitting comments on behalf of the Center for Water Advocacy, and the Center for Biological Diversity concerning the reissuance of the NPDES permit (AK 003865-2) and the dsEIS for the Aqgaluk Project. To the extent that the other comments do not conflict with these comments, NAEC also joins in the comments made by the Trustees for Alaska on behalf of Becky Norton, the Center for Science in Public Participation, and the Center on Race, Poverty & the Environment on behalf of Enoch Adams, Jr., Leroy Adams, Andrew Koenig, Jerry Norton, and Joseph Swan, Sr., all residents of the Native Village of Kivalina.

On May 4, 2007, Teck-Cominco Alaska Incorporated (TCAK) submitted a request for an NPDES permit modification. Red Dog's NPDES permit authorizes the discharge of treated wastewater from the mine site tailings impoundment to Red Dog Creek pursuant to the Clean Water Act. With that request TCAK began the process to modify its NPDES permit so that the permit would account for the impacts created by expansion of the mine into the Aqgaluk deposit (i.e. extended mine life, increased footprint, and mitigation of impacts and risk to the environment for perpetuity, etc...). Since the 1984 EIS did not evaluate potential impacts from developing the Aqgaluk Deposit. EPA determined that a sEIS was necessary, in order to fully evaluate impacts from the Aqgaluk Project and their affects on the reissuance and content of the NPDES permit. Therefore, the primary decision resulting from the investigation of the sEIS will be whether to reissue the Red Dog Mine NPDES permit. As set forth in the dsEIS EPA proposes to re-issue a NPDES permit to Teck Cominco's Red Dog Mine.

Additionally the dsEIS is also intended to support permitting of the Aqgaluk Project by the U.S. Army Corps of Engineers (Corps) under CWA Section 404, and the CORPS will make decisions whether or not to issue new permits for fill activities associated with development of the Aqgaluk Project.

Both federal actions, the NPDES permit and the 404 permit, require compliance with NEPA. EPA is the lead federal agency for the SEIS process, and will issue a record of decision (ROD) documenting the SEIS conclusions and **EPA's decision regarding modification of the facility's NPDES permit**. As one of the cooperating agencies, the CORPS will issue its own ROD to document its permitting decision regarding fill activities in waters of the U.S., including jurisdictional wetlands under the CWA Section 404 permit.

A 501 (C) (3) NOT-FOR-PROFIT ORGANIZATION
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Response

The following comments in this letter are presented in three sections as outlined below.

Procedural Comments:

- 1. The dsEIS violates the plain-language mandate of NEPA and NEPA regulations because the decision making process of the agency is not readily understandable.
- 2. This dsEIS violates NEPA by presenting an invalid range of alternatives.
- 3. The dsEIS must be revised, not supplemented.
- 4. The dsEIS violates NEPA by not indicating an investigation into the avoidance of adverse environmental impacts.
- 5. The dsEIS violates NEPA by failing to provide a catalogue of past, present, and foreseeable future actions, with details on time, type, place and scale.

Substantive Comments:

- 1. Red Dog Creek Mixing Zone
- 2. Change in Bioassessment Monitoring Requirements

Policy Comments:

- 1. Fugitive Dust
- 2. Waste Material Disposal
- 3. Perpetuity (i.e. lasting for all time) aspects of Impacts and Risks to the Environment.

Procedural Comments

**COMMENT 1:
The dsEIS violates the plain-language mandate of NEPA and NEPA regulations because the decision making process of the agency is not readily understandable**

- 31.001 [The dsEIS is incomprehensible to a non-professional lay reader. The reader cannot readily grasp the nature of the decisions to be made, or the relevant issues.
- 31.002 [First, this is not truly a “supplemental” EIS – though it is titled and referred throughout as being supplemental – because it does not “supplement” any prior EIS. True, there is an earlier EIS and other NEPA documents. But the main proposal in this EIS is for reissuance of an NPDES permit, which is a standalone project (“the project is defined as a new source by the NPDES regulations,” p. 1-5). Either the permit is reissued, reissued with terms, or it is not. Nothing in this dsEIS builds on or supplements anything from any other EIS, at least that is apparent to the reader. Thus the title itself is misleading. If this EIS were truly “supplemental,” it would refer the reader to other EISs or other NEPA documents for relevant material. There are no such references apparent to the reader. While this is not a fatal error, perhaps, it throws the reader at the outset.
- 31.003 [The so-called “abstract” – following the “Dear Reviewer” letter – is not an abstract. An abstract would summarize all the salient points, which, for an EIS, would include a comparison between alternatives, possible mitigation measures, and the underlying need for action. None of this is present in this abstract. What is here is nothing more than a sketchy description of the process of EIS preparation (the involved parties), a description of the Red Dog Mine, and identification of 4 “issues” – with details about none of them. The only thing a reader learns about the

Author: Richter, Zachary—Northern Alaska Environmental Center

Comment ID: 31.001

Response

The decisions to be made are explained in Section 1.3 and clearly state that EPA will make a decision on whether or not to reissue the NPDES permit while the Corps will decide whether or not to authorize Section 404 permits for wetland fills. The significant issues are described in Section 1.5 and were based on the issues identified during the scoping process.

Comment ID: 31.002

Response

While the intent of this SEIS was for the document to be able to stand alone, making it easier on the reader, it is a supplement to the 1984 EIS. For example, review of the 1984 EIS provides insight to other alternatives that were considered at the onset of the project and describes predicted environmental effects, including adverse effects stemming from traffic and fugitive dust.

Comment ID: 31.003

Response

The SEIS is approximately 400 pages long. The abstract could not possibly summarize all salient points within the document. It describes, albeit briefly, the project, agencies involved, issues, alternatives, and impacts.

Response

31.003 (cont) environmental consequences of the alternatives is that "Impacts to various resources would occur under all alternatives." If this is a proper abstract of the contents to follow, then the contents of the dsEIS are completely deficient. If the dsEIS that follows has more content, then this is not an abstract of it.

31.004 The so-called "Executive Summary" – following the title page – should summarize all the salient points, even if the abstract did not. Again, the reader is looking for information such as a comparison between alternatives and possible mitigation measures. The Executive Summary does not provide this information. It says a concentrate pipeline would "reduce fugitive dust emissions" (p. ES-6) but there is no sense of what that trade-off would require. Even the table (pp. ES-8 to ES-14) gives bare facts about each alternative, without informing the reader of what the true comparisons really are. Is it better to pipe the wastewater to the port, or is it better to treat the wastewater on site and discharge into Red Dog Creek? If the concentrate is not piped to the port, is there any other way to further control the fugitive dust problem along the road? The Executive Summary does not tell the reader – possibly because the dsEIS will not tell the reader? These deficiencies foretell a deficient dsEIS.

31.005 What the reader should expect to readily comprehend, on the basis of the abstract and the executive summary, are the answers to these plain-language questions:

• **What action is proposed?** This is unclear. Alternative B was proposed by the applicant, and the lead agency will act on the application – so does this make Alternative B the proposal? EPA identifies Alternative B as the preferred alternative (p. ES-6) – so is that the same as the proposal? And does that mean no mitigation measures or additional terms are included in the proposal? EPA identifies Alternative C as being environmentally preferred (p. ES-6) because of its environmental advantages, so would that make Alternative C the proposal given the EPA's statutory mission? EPA then says it "has decided not to identify an Environmentally Preferable Alternative for mine closure at this time" (p. ES-6), and also says it "does not have the authority to require construction of the concentrate or wastewater pipeline" (p. ES-6) – which may mean it only has authority to adopt Alternative B as proposed by the applicant. But the dsEIS does not say this explicitly.

31.006 • **Why is that action being proposed?** This is unclear. Using the unnecessarily complicated phrase "purpose and need," EPA says the reason for the proposal is "to act" (p. ES-1) on the permit applications "and new information." What new information? There is no new information given here. And what permit application? There is no reference to permit applications. Have these already been made, and are copies available? What do they apply for, exactly? The dsEIS does not tell the reader.

31.007 • **What other actions would do the same thing?** This is unclear. If the reason for action is "to act," as the dsEIS says, then any alternative would meet that requirement. But if the EPA is only authorized to adopt Alternative B, as the dsEIS says, then the so-called Alternatives C and D are not really alternatives at all because they cannot be adopted. The reader cannot resolve this, given only the information in the dsEIS. What are the true options open to the EPA and Corps of Engineers? Do the agencies have authority to stipulate mitigation measures? What is the extent of their authority? The dsEIS does not tell the reader.

31.008 • **What is so bad about doing nothing?** This is unclear. Apparently the main argument for the permit reissuance and mine expansion are the economic benefits ("the continuance of operations under the other alternatives would provide economic benefit for an additional 20 years," Abstract). But if economic benefits are the reason for continuing operations, then the agencies should be investigating alternative means by which economic benefits could be generated. In other words, under Alternative A the region loses economic benefits and under Alternative B the region loses environmental quality. Which is the greater loss? The dsEIS does not tell the reader.

Comment ID: 31.004

Response

Again, the commenter seems to expect that an entire 400-page impact analysis could be distilled into a 14-page summary. Some level of detail will be lost in the process of summarizing; if not, the body of the document would be irrelevant. The executive summary, as written, is an appropriate summary of the SEIS. It identifies EPA's environmentally preferable alternative which answers some of the questions in the comment.

Comment ID: 31.005

Response

The executive summary clearly describes Alternative B and EPA's issuance of an NPDES permit for Alternative B as the proposed action. The executive summary clearly describes the difference between the preferred alternative (Alternative B) and the environmentally preferable alternative (Alternative C) and how EPA authorities impact the selection of the preferred alternative. We believe that the executive summary as written already answers the questions raised in the comment.

Comment ID: 31.006

Response

For those unfamiliar with the NEPA process, the "Purpose and Need" is a standard section in all NEPA documents, required by the Act itself. The commenter needs to read beyond the executive summary in order to get additional information about the questions raised in the comment. Chapter 1 of the SEIS provides background on the NPDES permitting and NEPA history and the permitting decision that EPA is now proposing.

Comment ID: 31.007

Response

The Council on Environmental Quality's "40 Most Frequently Asked Questions" clearly state that all reasonable alternatives must be considered in the analysis, including those outside the authority of the lead agency to implement. Alternatives outside of EPA's authorities were developed in response to the significant issues and concerns raised during scoping. Even though EPA cannot require the other alternatives or some of the mitigation measures, the results of the impact analysis can inform other agencies and the Applicant of approaches or measures that can be taken to lessen environmental impacts. The document identifies within the impact assessment which mitigation measures can be implemented (or required) and which cannot. Chapter 1 provides a brief discussion of agency authorities and responsibilities. A treatise on the bounds of authority of a lead agency is not normally included as part of a NEPA analysis.

Comment ID: 31.008

Response

The commenter needs to read beyond the abstract and executive summary to understand the complexities of the analysis. The SEIS discloses the effects of the proposed action and alternatives, including the economic benefits and the environmental impacts. NEPA does not require the agencies to arrive with "score" or make a determination if the loss outweighs the gain. The requirement is to evaluate alternatives, disclose effects, mitigate adverse effects to the extent possible, and make an informed decision based on the information available.

Response

31.009 • What are the comparisons between the alternatives? This is unclear. The dsEIS gives the reader facts about each alternative, and the facts are different for each alternative. That much is clear. But the reader cannot readily understand the trade-offs. Is it environmentally better to pipe the wastewater to a marine discharge, or to treat it for a fresh water discharge?

31.010 • On what basis will the decision be made? This is unclear. The dsEIS presents 4 so-called "significant issues" (p. ES-4). If these are the "issues" upon which the choice between alternatives will be made, then what is the importance of economic benefit – which is not one of the issues? Perpetual maintenance of the mine closure is not listed as an issue, but surely must be a component of the decision extending the operations. The reader simply cannot readily comprehend how the information in this dsEIS will inform the ultimate decision to be made.

31.011 • Have the agencies investigated further mitigation of adverse consequences? This is unclear. For example, even under Alternative D (enhanced dust control) there will still be fugitive dust and there will still be disruption to the local environment. The reader wants to know if any further mitigation is possible. To be specific, the reader wants to know whether the agencies investigated the possibility of further mitigation and then the results of such investigation. This is the "duty to investigate mitigation" inherent in the NEPA process. This is the duty of the agency, not the duty of the reader.

31.012 • Monitoring is unclear. There is reference to monitoring the health of workers at the mine (p. ES-13), for example, but not monitoring of the local environment and citizens. The fact that the mine closure requires perpetual maintenance appears as though it may be a candidate for perpetual monitoring, which is not mentioned. A number of monitoring measures are listed in Table 2.5-2 (p. 2-37), however.

31.013 The NEPA violation is that it must not be a burden on the reader to figure out exactly what the agency is proposing to do, and why. That is the job of the agency. The reader will have to fill in the blanks, which is a denial of the NEPA mandate to be borne by the agency to provide for informed public participation.

CITATIONS:

Conservation Congress v. U.S. Forest Service, 555 F.Supp.2d 1093, 1100 n. 7 (E.D. Cal. 2008) (EIS is adequate for the Pilgrim Vegetation Management Project on the Shasta-Trinity National Forest) ("much of the agency's record is far from comprehensible");

The danger of ambiguity is that it, in effect, permits the court to substitute its judgment for that of the agency. That fact suggests that at the least reasonable clarity is required. Here, where much of the agency's record is far from comprehensible, the court must resist the temptation to decide under the guise of interpretation.

Lockyer v. U.S. Forest Service, 465 F.Supp.2d 942, 947-48 (N.D. Cal. 2006) (companion case to 465 F.Supp.2d 917) (EIS is not adequate on plan for the Grand Sequoia National Monument) (proposed management plan is incomprehensible and not readily understandable);

Plaintiff's incomprehensibility (or "lack of discernible plan") argument asserts that the Monument Plan is vague, unintelligible, and fails to satisfy the Proclamation's mandate and NEPA's requirement to inform the public of, and properly analyze, the environmental impacts of the Monument. The Ninth Circuit has characterized this as the "readability" or "understandability" requirement. See Kunzman, 817 F.2d at 493 (holding that 40 C.F.R. section 1502.8 requires that "an EIS must be organized and written so as to be readily understandable by governmental decisionmakers and by interested non-professional laypersons likely to be affected by actions taken under the EIS"). The Court must make "a pragmatic judgment whether the EIS's form, content and preparation foster both informed decision-making and informed public participation." *Id.* at 492; see also *California v. Block*, 690 F.2d 753, 761 (9th Cir.1982). ***

*** The Court recognizes that the Forest Service need not establish a separate management plan; indeed, incorporating by reference and relying on other environmental impact statements or guidelines is encouraged to reduce paperwork. See 40 C.F.R. §1500.4. Yet where an agency is charged with interpreting and promulgating regulations and guidelines "pursuant to applicable legal authorities," it cannot satisfy its legal obligations under NEPA by relying on the very documents and direction it is charged with interpreting. Accordingly, the Court finds that the convoluted "overlay" of previous Forest Service analyses with the intent and strategy of the Proclamation is incomprehensible and not readily understandable. Moreover, the Forest Service fails to "clearly define" the "proposal." Thus, the Monument Plan broadly violates NEPA under *Kunzman* and the statute's implementing regulations.

Comment ID: 31.009

Response It is unclear what the commenter is seeking. Comparisons among the alternatives occur throughout the document. Determining whether it is environmentally better to pipe the wastewater to a marine discharge versus treating it and discharging it to Red Dog Creek is up to the individual reading the document based on the trade-offs. EPA has identified an environmentally preferred alternative that it believes represents the best balance in trade-offs; the Corps may select a different alternative and the commenter may disagree with both.

Comment ID: 31.010

Response As described in the Executive Summary and Chapter 2 of the SEIS, the significant issues were used to help develop the range of alternatives analyzed in the SEIS. Perpetual water treatment is included in the closure component of the alternatives. The alternatives analysis in the subsections of Chapter 3 compare the impact of the alternatives on the resources. All the questions asked in the comment are already addressed in the SEIS. The commenter needs to read beyond the Executive Summary.

Comment ID: 31.011

Response Roads are a source of dust and large trucks driving on the roads generate dust. Paving the road could reduce dust but is not feasible (Section 2.4.4 of the body of the document). The pipeline component of Alternative C would eliminate concentrate-truck related fugitive dust. The SEIS evaluated alternatives and mitigation measures to reduce dust along with measures to reduce other adverse environmental effects.

Comment ID: 31.012

Response Comment noted. ADNR is currently in the process of review and approval of the closure plan for the operation, which will include a monitoring program. Other monitoring requirements are being finalized as part of the fugitive dust risk management plan. Both of these processes are occurring outside the NEPA process, although we encourage the State to use the information in the NEPA document, including recommended monitoring and mitigation measures, in the State permits and approvals for the project.

Comment ID: 31.013

Response Chapter 1 of the body of the document explains the purpose and need for the action and agency authorities. Chapter 2 of the main body of the document explains the proposed action and alternatives. It is not clear from the preceding comments whether the commenter has reviewed the entire document. A judgment on the adequacy of the NEPA analysis cannot be based on the review of the abstract and executive summary.

Response

League of Wilderness Defenders v. Forsgren, 163 F.Supp.2d 1222, 1237 (D. Ore. 2001) (Forest Service EIS is adequate for Douglas-fir tussock moth aerial spraying on National Forests in Oregon and Washington) ("As to readability, the EIS must be organized and written so as to be readily understandable by governmental decision-makers and interested non-professional laypersons. Environmental Council v. Kunzman, 817 F.2d at 494.").

**COMMENT 2:
This dsEIS violates NEPA by presenting an invalid range of alternatives**

The EPA and the Corps have a basic choice to grant the permit applications, or to deny them. That is the choice between Alternative A (no-action) and Alternative B (the applicant's proposed action).

The agencies may also have the prerogative to specify mitigation in order to achieve environmental or social goals, consistent with the agencies' statutory missions. That is the essence of Alternatives C (a concentrate pipeline) and D (enhanced dust control).

This dsEIS confuses these simple choices by stating that the agencies have no authority to adopt any alternative other than the one proposed by the applicants ("EPA does not have the authority to require construction of the concentrate or wastewater pipeline," p. ES-6). This apparently invalidates Alternatives C and D. Yet the dsEIS also states that "EPA and the Corps will further identify any mitigation measures and monitoring requirements for this project that would be required through permit conditions," p. 1-5. Which is it?

NEPA §102(2)(C)(ii) requires that an EIS disclose "any adverse environmental effects which cannot be avoided should the proposal be implemented." An agency will not know if an adverse effect "cannot be avoided" unless the agency has investigated its avoidance. While NEPA does not require an agency to mitigate adverse impacts, because NEPA is essentially procedural, an agency can discharge its NEPA obligation by investigating the option of mitigation, or further mitigation, and considering the adoption of such mitigation at the time of decision. Mitigation that is not incorporated into the proposed action becomes a type of alternative in an EIS. 40 CFR §1508.25(b)(3).

This dsEIS violates the procedural approach to reaching NEPA's goal of protecting the human environment if the mitigation cannot in fact be adopted. These are simply not alternatives if they cannot be adopted at the time of decision. But the agencies may have statutory authorities in addition to NEPA. Various Executive Orders, for example, require agencies to minimize adverse environmental consequences (p. 1-12).

CITATIONS:

Idaho ex rel. Kempthorne v. U.S. Forest Service, 142 F.Supp.2d 1248, 1263 (D. Idaho 2001) (preliminary injunction granted; roadless rule EIS is not adequate where adverse impacts are not investigated for possible mitigation):
The duty to discuss cumulative impacts in an Environmental Impact Statement is mandatory. See 40 C.F.R. §1502.16. Similarly, the duty to discuss ways to mitigate adverse environmental impacts with regard to each alternative, if not already part of analyzing the comparative environmental effect of the various alternatives, is mandatory. Id.; 40 C.F.R. §1502.14.
The Forest Service recognized in the FEIS that "the Roadless Rule together with the other proposed and finalized rules and policies could have cumulative effects." FEIS, Vol. 1 at 3-396. Accordingly, the Forest Service was required to include a useful analysis of these projects. See *Carmel-by-the Sea*, 123 FM at 1160 (holding that an EIS must include a "useful analysis of the cumulative impacts of past, present and future projects."). A cursory and general discussion of the potential impacts will not do. Conclusory remarks are similarly insufficient.
Furthermore, despite the arguments of ICL, the Court agrees with Plaintiffs that the portions of the FEIS cited by ICL recognize negative consequences of designed alternatives but do not identify measures designed to minimize the impact of the identified consequences.
Northwest Ecosystem Alliance v. Rey, 380 F.Supp.2d 1175, 1195 (W.D. Wash. 2005) (Forest Service and BLM action to eliminate from management plan "survey and manage" standard used to protect certain rare and uncommon species on forested land) (EIS is not adequate where agencies did not give hard look to resolving other constraints that might have less environmental harm) (agencies did not satisfy duty to investigate mitigation):

Comment ID: 31.014

Response

The draft SEIS does not violate NEPA. The CEQ clearly acknowledges that reasonable alternatives considered within a NEPA analysis can be outside the jurisdiction of the lead agency ("An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable " see CEQ's compilation of the 40 most frequently asked questions). Even though some alternatives and mitigation measures are outside EPA's authority, they have been considered and the effects disclosed. See response to comment 31.007.

The analysis also discloses whether mitigation measures are within EPA's authority or that of the cooperating agencies; the likelihood of their being implemented; and the anticipated effects if they are not implemented. See Section 2.5 and the section references in the tables. Similar to the NEPA process, executive orders provide no means for EPA or the Corps to require measures to avoid or mitigate impacts outside their permitting authority.

Comment ID: 31.014a

Response

Also see the response to Comment ID 31.007

31.014

31.014a

Additionally, the 2004 SEIS failed to explore possible solutions to the budget, personnel, and other problems that prevented the Agencies from treating the 100,000 acres that are already available for such treatments. The Agencies failed to take a hard look at whether the 8,500 acre gain by eliminating the Survey and Manage standard would still be necessary if these other constraints were resolved. As such, the Agencies failed to provide sufficient information to the public and the decisionmakers to allow a reasoned decision. "The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a 'hard look' by the agency, and thereby to permit informed public comment on [the] proposed action and any choices or alternatives that might be pursued with less environmental harm." *Lands Council*, 395 F.3d at 1027.

Comment ID: 31.015

Response

Based on the preceding comments, it is unclear what the reviewer is using for the basis of the request. The details of the impact analysis are presented in the body of the document. We do not agree that the revisions to the SEIS in response to the comments are such that a revised draft SEIS be developed for public notice.

COMMENT 3:

The dsEIS must be revised, not supplemented

When an EIS is so incomplete that members of the interested and affected public cannot make an informed review, a revision is necessary. A revised EIS, if supplying the information lacking in this version of the EIS, will be necessary to achieve the public notice and comment provisions of NEPA as are necessary to carry out the intent of NEPA. A revised dsEIS would be a fresh start.

There are only 4 kinds of changes an agency can make between the draft and final supplemental EIS, one of which is to "[s]upplement, improve, or modify its analysis." 40 CFR 1503.4(a)(3). The defects in this version of the dsEIS, however, are beyond remediation because essential information is missing. If supplied for the first time in a final supplemental EIS there would be no opportunity for interested and affected members of the public to comment and express their concerns about this essential information.

CITATIONS:

Ecology Center v. Austin, 430 F.3d 1057, 1067-68 (9th Cir. 2005) (Forest Service EIS is not adequate for Post Burn Project on Lolo National Forest, which was designed in the aftermath of the 2000 wildfires) (EIS is "so incomplete or misleading" that revision may be necessary):

Where, as here, "the information in the ... EIS was so incomplete or misleading that the decisionmaker and the public could not make an informed comparison of the alternatives, revision of an EIS may be necessary to provide 'a reasonable, good faith, and objective presentation of the subjects required by NEPA.'" *Animal Def. Council v. Hodel*, 840 F.2d 1432, 1439 (9th Cir.1988) (quoting *Johnston v. Davis*, 698 F.2d 1088, 1095 (10th Cir.1983)), *amended by* 867 F.2d 1244 (9th Cir.1989); *see also Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1150 (9th Cir.1998) ("[A]llowing the Forest Service to rely on expert opinion without hard data either vitiates a plaintiff's ability to challenge an agency action or results in the courts second guessing an agency's scientific conclusions. As both of these results are unacceptable, we conclude that NEPA requires that the public receive the underlying environmental data from which a Forest Service expert derived her opinion.").

Center for Biological Diversity v. Bureau of Land Management, 422 F.Supp.2d 1115, 1161-62 (N.D. Cal. 2006) (EIS failed to adequately assess environmental consequences of OHV use on endemic invertebrates in the Imperial Sand Dunes Recreation Area; BLM should not have eliminated interim closures that have been in place since November 2000 from the reasonable range of alternatives) (IMA is a reasonable alternative and should have been included in the EIS; omission of this alternative obfuscated the fact that the preferred alternative provided less habitat protection than the IMA – which was already in place):

Finally, the Court concludes that the complete elimination of the interim closures from any alternative considered in the EIS runs contrary to NEPA's requirement that agencies "present complete and accurate information to decision makers and to the public to allow an informed comparison of the alternatives considered in the EIS." *Natural Res. Def. Council v. U.S. Forest Serv.*, 421 F.3d at 813. "Where the information contained in the initial EIS was so incomplete or misleading that the decision maker and the public could not make an informed comparison of the alternatives, revision of the EIS may be necessary to provide a reasonable, good faith, and objective presentation of the subjects required by NEPA." *Animal Def. Council v. Hodel*, 840 F.2d 1432, 1439 (9th Cir.1988), *amended by* 867 F.2d 1244 (9th Cir.1989) (internal citation and quotations omitted). As noted *supra*, by not including interim closures in the No Action Alternative, BLM was able to conclude (and represent to the public) that Alternative 2, its preferred alternative, provided greater protection for special status species and their habitat. Such a statement belies the fact that in reality Alternative 2 provides for considerably less protection for special status species in comparison to the actual status quo. Such obfuscation is compounded by the fact that BLM eliminated the IMA from the range of reasonable alternatives, and thus neither BLM nor the public could make an informed, objective comparison of the alternatives.

Western Watersheds Project v. Kraayenbrink, 538 F.Supp.2d 1302, 1314 (D. Id. 2008) (EIS is not adequate for Bureau of Land Management's (BLM) revisions to nationwide grazing regulations for federal lands) ("The FEIS violates NEPA because it improperly minimizes the negative side effects of limiting public input," at 1315):

When "the information in the ... EIS [is] so incomplete ... that the ... public could not make an informed comparison of the alternatives, revision of the EIS may be necessary...." *Ecology Center, Inc. v. Austin*, 430 F.3d 1057, 1067 (9th Cir., 2005). In this case, the FEIS does not contain enough information to allow decision-makers and the public to make an informed evaluation of the BLM's claim that efficiency compels these changes. 538 F.Supp.2d at 1319:

31.015

Where the EIS is "so incomplete or misleading that the decision-maker and the public could not make an informed comparison of the alternatives, revision of an EIS may be necessary...." *NRDC v. U.S. Forest Service*, 421 F.3d 797, 813 (9th Cir.2005) (quoting *Animal Def. Council v. Hodel*, 840 F.2d 1432, 1439 (9th Cir.1988), amended by 867 F.2d 1244 (9th Cir.1989)). When the agency is changing course, it must explain itself. *Motor Vehicle Manufacturers Assoc. v. State Farm*, 463 U.S. 29, 42, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983).

**COMMENT 4:
The dsEIS violates NEPA by not indicating an investigation into the avoidance of adverse environmental impacts**

NEPA §102(2)(C)(ii) requires that an EIS disclose "any adverse environmental effects which cannot be avoided should the proposal be implemented." An agency will not know if an adverse effect "cannot be avoided" unless the agency has investigated its avoidance. This may be referred to as the duty to investigate the possibility of mitigation. While NEPA does not require an agency to mitigate adverse impacts, because NEPA is essentially procedural, an agency can discharge its NEPA obligation by investigating the option of mitigation, or further mitigation, and considering the adoption of such mitigation at the time of decision. Mitigation that is not incorporated into the proposed action becomes a type of alternative in an EIS. 40 CFR §1508.25(b)(3).

31.016 Throughout the dsEIS, especially in Chapter 3, there are adverse impacts disclosed should the proposed action or alternative actions be implemented. There is no evidence in this dsEIS that any of these adverse impacts have been investigated for the possibility of mitigation, or further mitigation. This is a violation of an agency's duty to investigate the possibility of mitigation – which undermines the action-forcing goals of NEPA.

- Air quality, adverse effects from fugitive dust with non-specified efforts to make improvements (p. 3-16);
- Air quality, ongoing dust control measures will reduce but not eliminate future emissions (p. 3-18);
- Water quality, TDS levels would be reduced but not eliminated by wastewater treatment (p. 3-68);
- Subsistence harvests, decreased access to food sources (p. 3-230);
- Etc.

CITATIONS:
Carmel-By-The-Sea v. U.S. Dept. of Transp., 123 F.3d 1142, 1153-54 (9th Cir. 1997) (EIS/R on 3-mile stretch of improvement for California Hwy. 1 through city of Carmel is adequate for wetlands and Monterey pine mitigation).

Carmel next objects on the grounds that the Final Environmental Impact Statement/Report fails both to credit properly the difficulties involved in the proposed mitigation plan and to describe adequately the plan in sufficient detail to allow for proper evaluation. An Environmental Impact Statement must include a detailed statement regarding adverse environmental effects that cannot be avoided. 42 U.S.C. §4332(2)(C)(ii). This requirement entails a duty to discuss measures to mitigate adverse environmental requirements. 40 C.F.R. §1502.16(h); see *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52, 109 S.Ct. 1835, 1846-47, 104 L.Ed.2d 351 (1989). Mitigation must "be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Id.* at 353, 109 S.Ct. at 1847. An Environmental Impact Statement need not contain a "complete mitigation plan" that is "actually formulated and adopted." *Id.* at 352, 109 S.Ct. at 1846; see *Laguna Greenbelt* 42 F.3d at 528 ("[The National Environmental Policy Act] does not require a fully developed plan that will mitigate all environmental harm before an agency can act"). An Environmental Impact Statement cannot, however, omit a reasonably thorough discussion of mitigation measures because to do so would undermine the action-forcing goals of the National Environmental Policy Act. *Id.* at 529.

The Final Environmental Impact Statement/Report's Monterey pine mitigation plan is equally detailed. The Federal Highway Administration and Caltrans propose to replant 20.3 acres with contract-grown Monterey pine seedlings grown from the Hatton Canyon population. The Final Environmental Impact Statement/Report concludes that these replantings "would mitigate the impact to the native Monterey pine forest to a nonsignificant level through replacement of trees removed with planting of the same genetic stock." 25 SAR 7789.

Idaho ex rel. Kempthorne v. U.S. Forest Service, 142 F.Supp.2d 1248, 1263 (D. Idaho 2001) (preliminary injunction granted; roadless rule EIS is not adequate where adverse impacts are not investigated for possible mitigation):

The duty to discuss cumulative impacts in an Environmental Impact Statement is mandatory. See 40 C.F.R. §1502.16. Similarly, the duty to discuss ways to mitigate adverse environmental impacts with regard to each alternative, if not already part

Comment ID: 31.016

Response

Mitigation is discussed throughout the document, particularly in Chapter 3 and is summarized in Section 2.5. As a component of an alternative (Alternative C) the concentrate pipeline would dramatically reduce the amount of fugitive dust by eliminating the concentrate truck traffic. Alternative D includes truck washes that would substantially reduce concentrate dust as a component of the fugitive dust now associated with the DMTS road. Short of ceasing operations completely (considered as part of Alternative A), it would not be possible to eliminate all adverse effects from fugitive dust. TDS are naturally occurring substances; complete elimination from the wastewater discharge is not necessary to achieve compliance with NPDES permit limits. Mitigation measures to address subsistence are considered under Alternative C with the elimination of concentrate truck traffic and under Alternative D with closure of the DMTS road for the fall caribou migration and the closure of the DMTS port in for the beluga migration in the spring. Other mitigation measures for subsistence would apply to all the alternatives (see Section 3.12.3.1). Under Alternative A, mine-related effects on subsistence would be all but eliminated in 2012. It is unclear what the commenter means in stating that the agency has not investigated the possibility of mitigation.

of analyzing the comparative environmental effect of the various alternatives, is mandatory. Id., 40 C.F.R. §1502.14.
The Forest Service recognized in the FEIS that "the Roadless Rule together with the other proposed and finalized rules and policies could have cumulative effects." FEIS, Vol. 1 at 3-396. Accordingly, the Forest Service was required to include a useful analysis of these projects. See *Carmel-by-the Sea*, 123 FM at 1160 (holding that an EIS must include a "useful analysis of the cumulative impacts of past, present and future projects."). A cursory and general discussion of the potential impacts will not do. Conclusory remarks are similarly insufficient.
Furthermore, despite the arguments of ICL, the Court agrees with Plaintiffs that the portions of the FEIS cited by ICL recognize negative consequences of designed alternatives but do not identify measures designed to minimize the impact of the identified consequences.

Northwest Ecosystem Alliance v. Rey, 380 F.Supp.2d 1175, 1195 (W.D. Wash. 2005) (Forest Service and BLM action to eliminate from management plan "survey and manage" standard used to protect certain rare and uncommon species on forested land) (EIS is not adequate where agencies did not give hard look to resolving other constraints that might have less environmental harm) (agencies did not satisfy duty to investigate mitigation):

Additionally, the 2004 SEIS failed to explore possible solutions to the budget, personnel, and other problems that prevented the Agencies from treating the 100,000 acres that are already available for such treatments. The Agencies failed to take a hard look at whether the 8,500 acre gain by eliminating the Survey and Manage standard would still be necessary if these other constraints were resolved. As such, the Agencies failed to provide sufficient information to the public and the decisionmakers to allow a reasoned decision. "The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a 'hard look' by the agency, and thereby to permit informed public comment on [the] proposed action and any choices or alternatives that might be pursued with less environmental harm." *Lands Council*, 395 F.3d at 1027.

Natural Resources Defense Council v. Winter, 518 F.3d 658, 696 n. 58 (9th Cir. 2008) (preliminary injunction affirmed for Navy's use of high-intensity, mid-frequency active sonar in training exercises in southern California waters) (preliminary injunction granted 530 F.Supp.2d 1110) (in the context of duty to consider possible mitigation as an alternative):

The district court also concluded that NRDC had demonstrated probable success on the merits of its claims that the Navy violated NEPA by preparing an EA that failed to adequately consider reasonable alternatives to its proposed action, see, e.g., *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228 (9th Cir.1988) (explaining that under NEPA federal agencies must sufficiently study, develop, and describe alternatives as part of the "environmental decisionmaking process")

**COMMENT 5:
The dsEIS violates NEPA by failing to provide a catalogue of past, present, and foreseeable future actions, with details on time, type, place and scale**

The so-called "cumulative impacts" section (starting p. 3-329) does not provide evidence on incremental impacts – one environmental consequence adding to another – which would be the essence of a "cumulative impacts" analysis. The reader does not see the increment added by the proposed action (or other alternative actions) to any other actions. We don't see the grand sum total of all increments added together. The reader does not see the details of the increments of each contribution to the cumulative impact, which is required in the Ninth Circuit through the creation of a catalogue of such actions along with details on time, type, place, and scale.

- Air quality, cumulative effects are minor (p. 3-337);
- Water resources, cumulative effect are anticipated to be minor (p. 3-338);
- Vegetation, anticipated to be minor (p. 3-338);
- Wetlands, anticipated to be minimal (p. 3-338);
- Wildlife, minor (p. 3-339);
- Aquatic resources, minor (p. 3-339);
- Land use and recreation, minor (p. 3-339);
- Subsistence, moderate (p. 3-339);
- Public health, etc., etc.

What the reader should expect to find in the dsEIS is the incremental effect of the proposed action (Alternative B), added to whatever incremental effects are added by any other actions -- past, present, or reasonably foreseeable to occur to in the future -- for each of the issues identified in the dsEIS. For example, on the subject of air quality, the "cumulative effects" are said to be "minor," but the reader cannot determine how this assessment was made. What is the increment added by the proposed action, and what increments are added by other actions -- past, present, and future? What is the grand sum total of all increments? This kind of assessment is to be expected for each issue of concern, such as air quality, as well as all the

Comment ID: 31.017

Response

Relevant portions of Section 3.19 have been edited in the final SEIS with additional language discussing the types of cumulative effects anticipated for each resource area. Conclusions as to whether or not cumulative effects are significant have also been added.

31.017

31.017
(cont)

rest of the issues that are given analytic attention in the dsEIS.

31.018

This is to be expected for the proposed action (Alternative B) as well as each of the action alternatives (Alternatives C and D). As to future actions, it seems possible that nearby deposits will be mined in the future. These are the Aarraaq, Su, and Lik Deposits. If these future actions, or any others, will have incremental effects that may add to the effects of the proposed actions, these increments must of course be assessed with details on their time, type, place, and scale. Moreover, the fact of whether any other actions are reasonably foreseeable must itself be assessed. The reader of this dsEIS simply cannot know whether the agencies have even investigated the possibility that there may be reasonably foreseeable future actions that may have incremental effects added to the effects of the proposed actions and alternative actions in this dsEIS.

CITATIONS:

Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 809-10 (9th Cir. 1999) (Huckleberry Mountain Land Exchange on the Mt. Baker-Snoqualmie NF) (“cumulative impact” analysis in EIS not adequate for failure to consider past land exchanges and pending Plum Creek land exchange; tiering to Forest Plan EIS and to watershed analysis report is not adequate):

Regulations implementing NEPA require that a federal agency consider “[c]umulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” 40 C.F.R. §1508.25(a)(2).

In *City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142 (9th Cir.1997), we noted that an EIS must “catalogue adequately the relevant past projects in the area.” *Id.* at 1160. It must also include a “useful analysis of the cumulative impacts of past, present and future projects.” *Id.* This requires “discussion of how [future] projects together with the proposed ... project will affect [the environment].” *Id.* The EIS must analyze the combined effects of the actions in sufficient detail to be “useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.” *Id.* at 1160 (internal citations omitted). Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions. *Neighbors of Cuddy Mountain*, 137 F.3d at 1379; see also *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir.1998).

Lands Council v. Powell, 395 F.3d 1019, 1027-28 (9th Cir. 2005) (opinion at 379 F.3d 738 is amended and superseded) (Forest Service EIS is not adequate for timber harvest Iron Honey Project as part of a “watershed restoration” project on the Idaho Panhandle National Forest) (footnote 7 omitted):

When we consider the purposes that NEPA was designed by Congress to serve, what was done here is inadequate. Congress wanted each federal agency spearheading a major federal project to put on the table, for the deciding agency’s and for the public’s view, a sufficiently detailed statement of environmental impacts and alternatives so as to permit informed decision making. The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a “hard look” by the agency, and thereby to permit informed public comment on proposed action and any choices or alternatives that might be pursued with less environmental harm. To this end, we have previously held that NEPA requires adequate cataloging of relevant past projects in the area. *Muckleshoot Indian Tribe v. United States Forest Serv.*, 177 F.3d 800, 809-10 (9th Cir.1999) (“[A]n EIS must catalogue adequately the relevant past projects in the area.... Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions.” (internal citation and quotation marks omitted)). Stated differently, the general rule under NEPA is that, in assessing cumulative effects, the Environmental Impact Statement must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. See *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1379-80 (9th Cir.1998); *City of Carmel-By-The-Sea v. United States Dept. of Transp.*, 123 F.3d 1142, 1160-61 (9th Cir.1997).

The issue then is whether the description of past timber harvests and previous environmental harms caused by these past timber harvests was set forth in sufficient detail to promote an informed assessment of environmental considerations and policy choices by the public and agency personnel upon review of the Final Environmental Impact Statement.

Here, while the Final Environmental Impact Statement discloses tables with types of past harvesting, there was no inclusion of the specific projects that comprise the totals. Though the Forest Service asserts that the Final Environmental Impact Statement had a “comprehensive accounting” of past timber harvests, in fact the prior harvests from different projects were not separately discussed, neither as to their method of harvest, nor as to the consequences of each. Although the agency acknowledged broad environmental harms from prior harvesting, the data disclosed would not aid the public in assessing whether one form or another of harvest would assist the planned forest restoration with minimal environmental harm. For the public and agency personnel to adequately evaluate the cumulative effects of past timber harvests, the Final Environmental Impact Statement should have provided adequate data of the time, type, place, and scale of past timber harvests [FN6] and should have explained in sufficient detail how different project plans and harvest methods affected the environment. The Forest Service did not do this, and NEPA requires otherwise. *Muckleshoot*, 177 F.3d at 809-10.

[FN6] This was not difficult data to generate, as is apparent by the Forest Service’s response to the Freedom of Information Act request from the Lands Council.

Natural Resources Defense Council v. U.S. Forest Service, 421 F.3d 797, 815 (9th Cir. 2005) (Forest Service EIS is inadequate where NRDC claims that a Forest Service error that doubled the projected market demand for Tongass timber rendered the Plan for the Tongass National Forest arbitrary and capricious, in violation of the Administrative Procedure Act) (EIS is not adequate where there is no catalogue of past actions):

Comment ID: 31.018

Response

As discussed in the cumulative effects section, continued exploration activities at the Aarraaq, Su, and Lik deposits are considered reasonably foreseeable and are addressed. Since none of the companies associated with these deposits have applied for permits to develop the projects nor demonstrated the economic feasibility of developing them, any assumption that they would be developed is purely speculative; the effects of development, therefore, are not included in the analysis.

Response

Comment ID: 31.019

Response

Section 3.10.3.3 describes the impacts of the mixing zones in the mainstem of Red Dog Creek, including describing how it will not create a barrier for arctic grayling and other fish migration. It is important to emphasize that authorizing the mixing zones will not change the composition of the existing discharge to Red Dog Creek and current aquatic life conditions are expected to remain essentially the same under Alternative B. Under current conditions, there is no barrier to migration. The State of Alaska was specifically required to address fish migration in authorizing the mixing zones in the draft Clean Water Act certification of the NPDES permit. Aspects of this comments are also addressed in the responses to comments on the draft NPDES permit and Clean Water Act Section 401 certification which are part of the public record for the NPDES permit.

We hold that the EIS fails adequately to consider the cumulative effects of disproportionate high-volume logging on non-federal land because "there is no catalog of past projects and no discussion of how those projects (and differences between the projects) have harmed the environment.... Moreover, there is no discussion of the connection between individual [non-federal, high-volume] harvests and the prior environmental harms from those harvests." See *Lands Council*, 395 F.3d at 1027. The EIS is also inadequate because it does not assess the potential impacts of reasonably foreseeable, continued "highgrading" in the future. See *Muckleshoot Indian Tribe*, 177 F.3d at 811- 12.

Oregon Natural Resources Council Fund v. Goodman, 505 F.3d 884, 892-93 (9th Cir. 2007) (EIS is not adequate for Forest Service's approval of expansion of the Mount Ashland Ski Area (MASA), located in Oregon's Siskiyou Mountains within the Rogue River and Klamath National Forests) ("catalogue of past, present, and future projects"):

Turning to ONRC's second NEPA claim, federal law requires that an EIS must analyze "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. §1508.7; see also 40 C.F.R. §1508.25. A necessary component of NEPA's "hard look" is "a sufficiently detailed catalogue of past, present, and future projects, and [] adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment." *Lands Council*, 395 F.3d at 1027-28.

The Forest Service's 2004 FEIS violates the NEPA because it fails to adequately discuss the impact on the Pacific fisher of two future projects: (1) the construction of nine miles of new logging roads within three miles of the project area, which will require the cutting of approximately 4,250 acres on the south side of Mount Ashland and (2) a habitat restoration and fuel hazard reduction treatments, which include controlled fires. The FEIS simply states that "[n]o adverse cumulative effects are anticipated. The only future project[s] anticipated near the S[pecial] U[se] P[ermit] area are the Ashland Watershed Protection Project, and Ashland Forest Resiliency, which is [sic] not likely to affect fisher (minimal associated human use/disturbance)."

The Forest Service argues that it did not have to detail these projects' impact on the fisher because the ski area expansion is modest. We reject this justification. We have repeatedly explained that generalized, conclusory assertions from agency experts are not sufficient; the agency must provide the underlying data supporting the assertion in language intelligible to the public. See *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 864 (9th Cir.2005); *Klamath-Siskiyou Wildlands Cir. v. Bureau of Land Mgmt.*, 387 F.3d 989, 996 (9th Cir.2004). "[W]hile the conclusions of agency experts are surely entitled to deference, NEPA documents are inadequate if they contain only narratives of expert opinions." *Klamath-Siskiyou Wildlands Ctr.*, 387 F.3d at 996. More specifically, the NEPA explicitly requires a cumulative impact analysis. A particular action may seem unimportant in isolation, but that small action may have dire consequences when combined with other actions. As we observed in *Klamath-Siskiyou Wildlands Center*, "[s]ometimes the total impact from a set of actions may be greater than the sum of the parts. For example, the addition of a small amount of sediment to a creek may have only a limited impact on salmon survival, or perhaps no impact at all. But the addition of a small amount here, a small amount there, and still more at another point could add up to something with a much greater impact, until there comes a point where even a marginal increase will mean that no salmon survive." *Id.* at 994 (emphasis in original).

We cannot excuse the Forest Service from the NEPA requirement to include an adequate cumulative impact analysis in the 2004 FEIS. Two future projects, the Ashland Forest Resiliency Project (a logging project), and the Ashland Watershed Protection Project (a habitat restoration and fuel reduction project), are scheduled to occur in the vicinity of the proposed MASA expansion. Though the Forest Service generally addressed the impact of these projects elsewhere in the FEIS, it failed to discuss in detail their impact upon the fisher as part of the cumulative impact analysis required by NEPA. See *Earth Island Inst. v. U.S. Forest Serv.*, 351 F.3d 1291, 1306-07 (9th Cir.2003) (holding that a cumulative impact analysis violated NEPA when a FEIS did not assess the role of foreseeable future projects on remaining suitable spotted owl habitat in a nearby home range core area within close proximity to the project's area).

Substantive Comments

In general, we agree with, incorporate and adopt by reference the comments filed by the Center on Race, Poverty & the Environment, and the Center for Science in Public Participation regarding the US Environmental Agency Plans to Re-issue a Wastewater Discharge Permit (AK AK 003865-2) to Teck-Cominco Alaska, Red Dog Mine, December 5, 2008.

1. **Red Dog Creek Mixing Zone:** "It is not clear in either ADEC's authorization of the mixing zone in its 401 certification, or in EPA's Fact Sheet on the NPDES Permit, why the mixing zone across the North Fork of Red Dog Creek, which exceeds chronic standards for cyanide and ammonia, would not form an avoidance barrier to migration of grayling into the North Fork. Recommendation: ADEC and EPA should affirmatively demonstrate that the mixing zone for cyanide and ammonia would not form a barrier to migration to grayling, or the mixing zones should not be authorized."

2. **Change in Bioassessment Monitoring Requirements:** "EPA and ADEC make only regulatory arguments and justifications for the change in bioassessment monitoring requirements. As noted the proposed changes apparently delete biomonitoring requirements for the Wuluk River (Metals concentrations in Dolly Varden gill, liver, muscle, and kidney. Fall aerial survey of overwintering Dolly Varden), and for Anxiety Ridge, Evaingiknuk Creek and Buddy Creek (Fish presence and use). These changes should also be justified by science.

31.019

31.019
(cont)

EPA and ADEC may indeed have scientific justification for apparently deleting biomonitoring requirements for these streams, but it has not been adequately explained.
Recommendation: Either EPA and/or ADEC should give a scientific justification for changing the biomonitoring requirements for the Wuluk River, Anxiety Ridge, Evaingiknuk Creek and Buddy Creek. "

Policy Comments

1. Fugitive Dust:

a. Stemming from a compliance order by consent (COBC) for air quality permit violations in June, 1992 TCAK voluntarily entered into a Memorandum of Understanding (MOU)¹ with DEC. As a part of this MOU process TCAK was to develop a "... Risk Management Plan in the second quarter of 2007..." (ADEC – Teck Cominco Fugitive Dust MOU, p. 3) As of the date of these comments no Risk Management Plan has been published. The Risk Management Plan is cited in the dsEIS as a solution to the dust monitoring issues (Section 3.2.3.1, p. 3-16), but, as noted above, the Plan has not been published, or a draft released for public review.

In a letter to the Department of Environmental Conservation on December 16, 2008 EPA listed the following points be implemented in the Risk Management Plan.

- Install year around truck washes at both ends of the DMTS.
- Implement an operational monitoring program to evaluate the effectiveness of dust control measures.
- Evaluate the potential for changes in mobility and migration of metals from oxidation or other changes in forms of minerals.
- Monitor health of local populations of voles, shrews, and ptarmigan.
- Monitor the health of local populations of fish at DMTS crossings that tend to be resident in the area.
- Develop and implement a monitoring plan to determine whether dust deposition from the Red Dog Mine is occurring within Noatak National Preserve.
- Monitor changes in the vertical distribution of metals in surface tundra and underlying soils.
- Monitor tissue concentrations in shrubs, herbaceous plants, mosses, and lichens to track rate of changes (1 year frequency).
- Monitor composition of shrub, herbaceous, moss, and lichen communities to evaluate community health and identify changes in community composition.
- Monitor remediated or reclaimed areas to ensure long-term effectiveness (at rollover sites and sites covered in risk assessment).
- Monitor metals concentrations in caribou.
- Recommend safe levels of consumption based on results of the caribou studies.

31.020

b. Regarding fugitive dust issues identified in the dsEIS please consider and respond to the comments submitted by NAEC in a letter submitted to DEC dated October 14, 2008. (See attached letter: NAEC Comments RE: Management Plan for Red Dog Mine – Draft Fugitive Dust Risk). Specifically, TCAK in its Fugitive Dust Risk Management Plan submitted to DEC (August, 2008) intends to develop a "Dust Emissions reduction plan" with the stated goal - "To continue to evaluate, select, and implement effective dust control measures for reducing dust emissions at the mine, port, and along the road." Evidently, TCAK understands that loading of metals to the surrounding environment via

31.021

¹ Memorandum of Understanding Between the State of Alaska Department Of Environmental Conservation and Teck Cominco Alaska Incorporated Relating to Fugitive Dust at the Red Dog Mine (Restated and Amended Effective January 1,2007 through December 31, 2007), February, 2007.

Response

Comment ID: 31.020

Response

NAEC's comments in the attached letter are specific to the development of the fugitive dust risk management plan (RMP). The letter was sent to ADEC and ADEC is responsible for responding. The risk assessment is an entirely separate process driven by ADEC and is outside the NEPA process. We used information from the risk assessment and draft RMP in the SEIS and developed recommended mitigation and monitoring measures that we would like to see included in the final RMP and its implementation plans. Since the comments are directed specifically to ADEC and the risk management plan, they are outside the scope of responses for the SEIS.

Comment ID: 31.021

Response

EPA does not have the authority to require fugitive dust control measures as part of its NEPA Record of Decision. EPA's authority rests with reissuance of the NPDES permit which does not extend over fugitive dust sources. We would like to see the mitigation measures recommended in the SEIS implemented by Teck and the agencies that do have authority.

Response

31.021
(cont)

the release of fugitive dust is a significant issue and plans to implement additional mitigation measures. Dust emissions and hazardous metal (i.e. zinc, lead, and cadmium) loading to the surrounding environment was first identified as early as 1991² and has been evaluated since that time. The vectors by which fugitive dust is released into the environment have been clearly identified. The Fugitive Dust Background Document – DeLong Mountain Regional Transportation System, Alaska, May 17, 2002 states on p. ES-3 that “The primary sources and mechanisms of fugitive dust transport along the DMTS road include tracking (**adhering to the tires or other surfaces of the haul trucks, and subsequently being deposited onto the road**), and windblown dust from the road surface. **Dust on truck surfaces may be blown from those surfaces and carried onto the road or into the surrounding environment.** Surface water runoff from the road can carry metals containing dust from the surface of the road to the tundra just off the road shoulder (emphasis added).” Despite the so called “uncertainty” surrounding the long term effects of metal loading further mitigation measures (i.e. Slurry Pipeline, and Year-round truck washing stations) need to be incorporated in the Record of Decision (ROD) for this sEIS. Furthermore, considering the likely potential for the development of additional ore deposits in addition to the Aqqualuk deposit these mitigation measures make even more sense (see procedural comment 5 of this letter).

31.022

c. Considering the extended mine life from the development of the Aqqualuk deposit and the likely potential for the development of additional deposits (e.g. Paalaaq, Qanaiyaq, Anarraaq, Su, and Lik deposits) **NAEC recommends the building of a slurry pipeline** to transport ore concentrate from the mine site to the port. This request is further supported by the findings a USGS report entitled “Elements in Mud and Snow in the Vicinity of the DeLong Mountain Regional Transportation System Road, Red Dog Mine, and Cape Krusenstern National Monument, Alaska 2005-06”³ which state:

“Thus, as of 2005, dispersal of mine ore wastes or concentrates by vehicles appeared to remain a potential source of metals along the DMTS road.”

and;

“Although procedures have been implemented in recent years to reduce the quantities of metal-enriched fugitive dusts, particulates dispersed near the road during the winter of 2005–06 were enriched in metals and these particulates contributed considerable metal loadings to the nearby terrain.” (USGS Scientific Investigations Report 2008–5040, p. 23).

31.023

If a slurry pipeline is not built despite being a component of EPAs “preferred environmental alternative” in the dsEIS, **year-round truck washes should be built at the port and mine site.**

31.024

2. Waste Material Disposal
a. Please explain how metal leaching is defined and how the classification of the Waste Rock will be determined based on that potential.

31.025

3. Perpetuity (i.e. lasting for all time) aspects of Impacts and Risks to the Environment.
a. The use of language such as “long term” , “long as can be predicted”, and “foreseeable future” are found throughout the dsEIS and this word usage has the effect of diminishing the true duration of the environmental impacts and risks that must be

Comment ID: 31.022

Response

Additional language describing this potential effect has been added to resource area discussions of cumulative effects, where appropriate. As discussed in the SEIS, EPA agrees that the concentrate pipeline is environmentally preferable compared to truck transport. However we do not have authority to require the construction and use of a slurry pipeline to convey concentrate to DMT Port site.

Comment ID: 31.023

Response

Under the NPDES program EPA lacks the authority to require a slurry pipeline or year-round truck washes. EPA has identified truck washes and suggested that they be implemented as part of mitigation. The document clearly discloses that they cannot be required by EPA.

Comment ID: 31.024

Response

This comment is identified as a “policy” comment. It is not clear what the commenter means by this; however, EPA does not have a policy detailing how metals leaching is defined nor how waste rock is classified based on this potential. Please see the response to comment 6.005 for a description of Teck’s approach to waste rock characterization.

Comment ID: 31.025

Response

Long term and foreseeable future are accurate terms not intended to diminish the fact that the water treatment would need to occur for a long period of time. However, forever is inaccurate in that over geologic time, the conditions at the site are unpredictable and likely to be much different. Other risks and impacts (e.g., transportation of ore concentrate) would last for a much shorter period once mining ceased, from within a few years to perhaps a century depending on the success of revegetation activities and the speed of natural processes.

² ENSR. 1991. Port Site monitoring report—Fall 1990. Prepared for Cominco Alaska, Inc., Anchorage, AK. ENSR Consulting and Engineering, Anchorage, AK.

³ Scientific Investigations Report 2008–5040, “Elements in Mud and Snow in the Vicinity of the DeLong Mountain Regional Transportation System Road, Red Dog Mine, and Cape Krusenstern National Monument, Alaska, 2005–06,” William G. Brumbaugh and Thomas W. May, U.S. Department of the Interior, U.S. Geological Survey.

Response

31.025 (cont) mitigated. In Section 2.2.2 of the dsEIS it is stated that waste water from the tailings impoundment and from the Main Pit would be treated for perpetuity. Perpetuity communicates the full reality of "FOREVER" waste water treatment in addition to "FOREVER" environmental risks and impacts occurring from transport of ore concentrate, storage of waste rock, and operations the mine and port sites.

31.026 b. The following perpetual environmental impacts and risks must be more fully evaluated and both cumulative and secondary affects must be more fully explained in the dsEIS.

- Stability of the tailings dam.
- Metal loading in the surrounding environment
- Stability of the waste rock pile
- Exposure of wild life to hazardous tailings pond and pit water
- Financial ability to meet permit and closure requirements for perpetuity
- Subsistence impacts to caribou and beluga.
- Development of additional ore deposits in the region.
- The use of the DeLong Mountain Terminal for the export of coal.
- Acid mine drainage form the mine site.

31.027 c. The waste water discharge pipeline needs to be built and included in the ROD for this sEIS. The discharge should remain at the port site for perpetuity.

31.028 We commend EPA for including the general scope of the environmental analysis it has in this dsEIS. However, we have great concerns over the lack of clarity and confounding composition of the dsEIS (see procedural comments).

31.029 For the foregoing reasons, the EPA should address each of the comments raised above and by others in the public comment process, create a legally adequate SEIS and recirculate it for public comment. Failing that, the EPA should adopt Alternative D, including slurry and fuel pipelines from Alternative C, and require a wastewater pipeline as part of the NPDES permit.

We look forward to EPAs consideration of these comments and modification of the Red Dog Mine Extension dsEIS and NPDES permit as appropriate. Thank you for this opportunity to comment. If you have any questions, or wish to discuss any of the comments in this letter please feel free to contact me at (907)452-5021 or email zak@northern.org.

Sincerely,



Zachary Richter
Clean Water Program Director

Attachments:
NAEC Comments RE: Management Plan for Red Dog Mine – Draft Fugitive Dust Risk

Cc:
Cindi Godsey, EPA (via email)
Alice Edwards, DEC (via email)
Rich Sundet, DEC (via email)
Jack DiMarchi, DNR (via email)
Jim Kulas, Teck Cominco (via email)
Tim Pilon, DEC (via email)

Comment ID: 31.026

Response

The environmental impacts and risks associated with each of these topics are discussed within the body of the SEIS. The financial surety is discussed under agency responsibilities (Section 1.6). See geotechnical stability (Section 3.4) for discussions of the tailings dam and waste rock dump; wildlife hazards (including long-term hazing to keep wildlife from using the impoundment) are discussed in Section 3.9; subsistence effects are discussed in Section 3.12; the development of additional deposits and use of the DeLong Mountain terminal for coal are discussed as part of cumulative effects (Section 3.19). The effects of metals loadings and acid mine drainage are discussed in terms of geochemistry (Section 3.3), vegetation (Section 3.7) and risk to wildlife (Section 3.9). EPA is unclear about what additional information the commenter is seeking.

Comment ID: 31.027

Response

EPA does not have the authority under the NPDES permitting program to require construction of the marine wastewater discharge pipeline. Teck plans to submit an NPDES permit application for the marine discharge only after the Red Dog Creek NPDES discharge permit is issued, in effect, and no longer subject to appeal. If Teck submits an NPDES permit application for the marine discharge then EPA will work on developing an NPDES permit for the marine discharge.

Comment ID: 31.028

Response

Comment noted.

Comment ID: 31.029

Response

EPA has responded to public comments in this comment response appendix. There is no need to recirculate the SEIS as it does not include substantial new information. As noted previously, EPA does not have the authority to require Teck to install any of the pipelines as part of the NPDES permit.

October 14, 2008

Rich Sundet
Project Manager
DEC - Contaminated Sites Program
555 Cordova Street
Anchorage, AK 99501-2617
E-mail: rich.sundet@alaska.gov.

Dear Mr. Sundet;

RE: Management Plan for Red Dog Mine – Draft Fugitive Dust Risk

This letter is in response to the online public notice posted by the Alaska Department of Environmental Conservation (DEC) seeking comments on the draft Fugitive Dust Risk Management Plan for Red Dog Mine developed by Teck Cominco. The plan defines and will guide actions to minimize the potential for effects to human health and the environment from fugitive dust from the Red Dog operation, including the mine, road, and port.

The Northern Alaska Environmental Center (NAEC) has reviewed the draft Risk Management Plan, and our comments focus primarily on environmental issues related to the plan. NAEC believes that a healthy environment, enhanced quality of life, and a vibrant economy not only can exist; they must exist to remain viable over time. In order for Teck Cominco, the State of Alaska and all the Stakeholders in the risk management process to maintain a healthy environment, enhanced quality of life, and a vibrant economy, for all Alaskan's, we must begin treating the environment as it really exists; a single, interconnected ecosystem. The ecosystem surrounding the Red Dog Mine, road and port can only be safeguarded for future generations through a systemic, long-range plan of action which preserves the biological, physical, and chemical, characteristics of the habitats comprising that ecosystem. By preserving these features which contribute to those habitats capacity to support life we preserve the health (i.e. functional capacity) of the environment and a high quality life for future generations.

Furthermore, the Risk Management Plan must implement goals and objectives that provide for the sustainable use, development, and protection of natural and physical resources in a way, which enables people and communities to provide for their subsistence, social, economic, cultural well-being and for their health and safety while: (a) sustaining the potential of natural and physical resources to meet the reasonable and foreseeable needs of future generations; and (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems.

General Comments:

- 1. The ecological/environmental context within which the risk management planning will be completed and decisions will be made, is not included in section 2.3 *What is the context.*** A comprehensive discussion of the ecological/environmental context independent from impacts and risks is fundamental to the Risk Management Plan Development. This discussion must present a comprehensive understanding of the ecology of habitats, animal populations, and ecosystems present in the region.
- 2. Wilderness is an important value which has not been included in section 2.3.5.1.** The region can arguably be characterized as wilderness and habitats that exist at a wilderness level are essential for the animal populations in the region. In turn, these habitats and animal populations provide for the subsistence needs of local people. Based on the National Park Service moss studies, metal bioaccumulation in the Krusenstern ecosystem resulting from mining activities appears to be a significant potential long term threat to the viability of natural habitats and subsistence resources

3. NAEC has concerns about the length of time required to generate more plans in light of the expansion of the mining effort at Red Dog and the impacts to nonvascular plants, ptarmigan, and small mammals. We request that draft risk management plans including potential actions to be included in this document.

4. The overall goal of the Risk Management Plan should be to minimize risk and to mitigate effects of fugitive dust to human health and the environment. Since there have been documented impacts to ecological receptors efforts to minimize and mitigate these impacts is appropriate and should be stated in the overall goal.

Specific Comments: for several of the proposed risk management plans are listed below.

• **Dust Emissions reduction plan**

Goal: To continue to evaluate, select, and implement effective dust control measures for reducing dust emissions at the mine, port, and along the road.

Comments:

1. Build a concentrate pipeline as a dust reduction measure.
2. Also build a year-round truck washing station at both the mine site and port which washes all vehicles prior to traveling the DMTS as a dust reduction measure.

• **Remediation plan**

Goal: To define a consistent method for identifying and selecting affected areas and implementing remediation and/or reclamation.

Comments:

1. Establish action thresholds for metals. 1000 mg concentrations in Hylocomium could be used as a "critical load": the concentration beyond which damage to ecosystem components occurs.

• **Monitoring plan**

Goal: To monitor changes in dust emissions and deposition over time and space, using that information to: (1) assess the effectiveness of operational dust control actions, (2) evaluate the effects of the dust emissions on the environment and on human and ecological exposure, and (3) trigger additional actions where necessary.

Comments:

1. It is critical to develop monitoring plans amenable to long term management goals envisioned by the Park Service. This includes selection of relevant biota and endpoints as well as appropriate temporal and spatial sampling plans. This monitoring would also be useful in evaluating the success of dust management efforts.
2. Address the potential for increasing bioavailability of existing contaminants.
3. Measure the success of dust control efforts
4. The 2007 Risk Assessment included limited and questionable (having slightly enriched metals levels) reference sites that were used for comparisons.
5. Please include landscape-level spatial data reported by Hasselbach (2004) which was largely ignored in the 2007 RA.
6. Please adequately address lichens, which are particularly sensitive to metals exposure and are important food sources to many organisms, and have not been appropriately viewed as receptors.

Response

7. Adequately measure the loss of lichen cover to species level and at a great enough distances from the road to establish the full spatial extent of effects.
8. Include adequate sample sizes and spatial coverage for measures of metal residues in biota.
9. Whole-organisms have most often used for tissue analysis, which is a less sensitive means to identify exposure that "target" organs such as the liver, kidney, or bone.
10. Include actual measures of sub-lethal or chronic effects in animals.
11. Include measures of temporal (seasonal) variation, during snow melt for example, in acute metals exposure and bioavailability.

• **Uncertainty reduction plan**

Goal: To identify and prioritize prospective research or studies to reduce uncertainties in the assessment of effects of fugitive dust to humans and the environment.

Comments

1. A major uncertainty that exists is the oxidation and fate of metal sulfides, particularly in regard to potential toxic effects of sulfates to non-vascular vegetation.
2. Another uncertainty exists with regards to the lack of measures of soil characteristics and their effect on the bioavailability of metals to plants and terrestrial organisms.
3. The toxicity benchmarks used for modeling risks in the 2007 RA do not account for differences in sensitivity associated with organisms unique to the arctic tundra, potentially critical life stages, additive effects, nor cumulative risks of multiple stressors.
4. Assessment of contamination in Noatak National Preserve.
5. Investigate bioconcentration of cadmium in willows.
6. Investigate adverse effects of Fugitive Dust to Musk Oxen.
7. Investigate the potential that the addition of CaCl as a palliative can increase the availability of heavy metals.
8. Investigate sublethal affects to Flora and Fauna.

Thank you for this opportunity to comment. If you have any questions, or wish to discuss any of the comments in this letter please feel free to contact me at (907)452-5021 or email zak@northern.org.

Sincerely



Zachary Richter
Clean Water Program Director
Northern Alaska Environmental Center

Response

-----Forwarded by Patricia McGrath/R10/USEPA/US on 02/03/2009 05:42PM -----

To: Patricia McGrath/R10/USEPA/US@EPA
From: bob robinson <bfasthill@gmail.com>
Date: 02/03/2009 12:49PM
Subject: Red Dog Aqqaluk project

Author: Robinson, Bob—Individual

Comment ID: 32.001
Response
Thank you for your comment.

32.001

Dear Ms. McGrath-
I hope the Red Dog mine Aqqaluk project can be permitted in a timely and constructive way by the EPA. I feel the mine is a huge benefit to the residents of northwest Alaska, and to the state as a whole. The mine has always made great effort to operate in an environmentally commendable way, and to the benefit of local residents and employees who are the main stakeholders in the operation.

The U.S. is the greatest consumer of resources, and our workers should have every right to produce those resources. In many areas, mining is unsurpassed for providing living-wage jobs. I feel that the regulatory burden on the mining industry in the U.S. has almost forced the industry to be unsustainable. The agencies need to be reasonable and cooperative in permitting mining projects.

Operations of the resource industries will result in some amount of environmental impact. This is an inescapable fact based on our technology and financial realities. Some environmental degradation will result from providing the resources to maintain our way of life. The task of the EPA should be to minimize the environmental impact, taking into account the benefits of the operation and technological limitations.

From everything I know, the operators of Red Dog have gone to great effort and expense to minimize the impact of the mine. Teck has demonstrated that it is a company that is serious about their environmental performance, and this is reflected by the environmental record of the Red Dog mine. The Aqqaluk project should be permitted as a substantial benefit to residents of the NANA region, employees, and the state of Alaska.

I hope the EPA is able to expedite and improve the permitting process in order to get the Red Dog Aqqaluk project into production.

Sincerely, Bob Robinson

Bob Robinson
Box 163
Kingston, ID 83839

Response

Author: Roper, Dale—NANA Lynden Logistics

Comment ID: 33.001

Response

Thank you for your comment.



January 15, 2009

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101
E-mail: mcgrath.patricia@epa.gov
Fax: (206) 553-0165

Lynden has a vested interest in the continued operation and further development of Red Dog Mine. The NANA/Lynden Logistics JV has been in place for over 10 years providing transportation services for Teck at the Red Dog Mine.

NANA/Lynden Logistics directly employs more than 50 personnel at Red Dog Mine, with an annual payroll of more than \$4.2 Million. Of those employees, approximately 50% are local NANA shareholders and residents. Indirectly, Lynden and Nana employ an additional 500 personnel in Alaska and Washington State, that indirectly support the Marine, Air and truck transportation to, from and at the Red Dog Mine.

NANA/Lynden Logistics lends its full support to Alternative B of the Aqqaqak Draft SEIS. We believe that it is essential that Red Dog Mine be allowed to continue operations, the NPDES permit should be reissued, and permits should be issued for the Aqqaqak Deposit.

This mine is critical to the economic future of the region and we fully support Alternative B, and agree with EPA that this is the preferred alternative; therefore, we support moving quickly to finalize the EIS and issue the appropriate permits.

Best Regards,

Dale Roper
President

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Avurraq Schaeffer
Organization:
Address: PO Box 12
City, State Zip: Kiana, Alaska 99749
Email: mhschaeffer@inutek.net

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

- 34.001 [The caribou route is changing, they are not following the same routes they've taken for years. This is a hardship for many of us who rely of our natural resources. Ten smaller communities in the Northwest Arctic Region are either impoverished or at low income level.
- 34.002 [If one community is having several subsistence difficulties, that is one too many. Kivalina shares their coastal native food with surrounding villages.

Response

Author: Schaeffer, Avurraq—Individual

Comment ID: 34.001

Response

Thank you for your comment. The discussions of caribou in both wildlife (Section 3.9.2.2) and subsistence (Section 3.12.2.2) note variability of caribou migration and their distribution over time. Through the discussions of subsistence, health, and environmental justice, as well as the appendices on the social setting and village descriptions, the SEIS attempts to capture some of the hardships associated with the subsistence lifestyle.

Comment ID: 34.002

Response

Comment noted. EPA is aware that food sharing goes on within the region. This aspect was not assessed in detail due to the complexity of the issue surrounding changes in subsistence use, sharing patterns, and consumption.

Response

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Friday, January 30, 2009 6:39 PM
To:
Subject: Fw: Red Dog Mine permitting

Author: Schwind, Jason

Comment ID: 35.001
Response
Thank you for your comment.

-----Forwarded by Patricia McGrath/R10/USEPA/US on 01/30/2009 05:34PM -----

To: Patricia McGrath/R10/USEPA/US@EPA
From: "Schwind Jason RDOG" <Jason.Schwind@teck.com>
Date: 01/30/2009 02:15PM
Subject: Red Dog Mine permitting

Hi Patricia,

35.001

My Background: I am a NANA shareholder. I grew up in Kotzebue. I started truck driving when I was a junior in high school hauling gravel with dump trucks. I came to Red Dog and started here as a truck driver, worked my way up to driver trainer and now operations manager. I've been involved in the over the road trucking of the product from the mine to the port for 12-13 years and have seen many improvements during that time i.e hydraulically sealed lids rather than tarps on the trucks and dust collectors in the loading and unloading facilities that have greatly reduced fugitive dust. As far as Caribou are concerned- they have the right of way out there on the road when migrating. When they decide that they are going to go south, they go south. I've personally sat out on the road for more than 12 hours waiting for caribou to cross and have seen it happen to many others on numerous occasions. Hunting caribou in the area has not diminished if anything there's easier access to the caribou for the people of Kivilina because of the haul road. I've seen as many as seven four wheelers out there hunting up and down the road in the spring or fall. I can't speak about the ocean hunting as I have no experience with that. Red Dog creek is cleaner now than it was before the mine opened because it was naturally polluted back then because the creek ran right over the ore body. It was so naturally polluted back then that fish could not live in it. They live in it now and a fish weir had to be constructed to keep them out of the Mine. The economic benefits to the region are obvious which is why I hope that your agency will allow permitting for Aqqaluk under proposed Alternative B in order to continue mining activities through 2031. Thank you for taking my comments into consideration.

Jason J. Schwind

Operations Manager

NANA/Lynden Logistics LLC

Red Dog Mine (907)426-2160 Ext. 12

Response

Author: Silver, Keith—Individual

Comment ID: 36.001

Response

Thank you for your comment.

January 15, 2009

Re: renewal of NPDES permit and issuance of wetlands permit for Aqqaluk Deposit

My name is Keith Silver. I am a board member of the Resource Development Council and a 48 year resident of Alaska.

I am here to testify in favor of Alternative B- Applicants Proposed Action.

The NPDES permit should be reissued for the discharge of treated mine water into Red Dog creek. History has shown that this has protected the aquatic life of the stream and in fact has improved it. Prior to the development of Red Dog Mine by NANA and Tech-Cominco, Red Dog Creek supported almost no life. Now with the discharge from the mine, the treated mine water dilutes the naturally occurring mineralization of the creek to the point that the creek now sustains aquatic life that was not there before the mine.

The Army Corps of Engineers should then issue the permits for the Aqqaluk Deposit allowing the deposit to be mined. This will allow Red Dog to proceed with continuous operation until 2031.

The applicant also proposes to treat and discharge mine water into Red Dog Creek forever. As I understand it, Alternative B is also the EPA's preferred alternative.

Thank you for your time.

36.001

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: David Stone
Organization: EMCO
Address: 8754 Avator Circle
City, State Zip: Fair Oaks, TX 78015
Email: dave@emcomet.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

37.001

As a long-time vendor and contractor for the Mine, and the Port Site, and having been a visitor to both on a regular basis, since 1986, I can personally attest the to TeckCominco's attention to quality, safe operations, and their stewardship of their environmental responsibilities – all of our personnel who have worked at the Mine and Port, can attest to the training that is required by the Company, and the consistent attention to all matters of safe operations, and the need for constant vigilance to all tasks and exercises that involve hazardous materials – these are the “rules” not the exceptions. It would be our comment that TeckCominco's EIS merits an approval by virtue of their continuing efforts to operate a complex operation with a multitude of hazardous elements, in a safe manner consistent with a proactive mindset and sensitivity to deal with the challenges of minimizing their impact on the environment.

Author: Stone, David—EMCO

Comment ID: 37.001

Response

Thank you for your comment.

**RED DOG MINE EXTENSION – AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name: Anne Tisch
Organization:
Address 5757 Greece Drive
City, State Zip: Anchorage, Alaska 99516
Email: dog@alaska.net

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

38.001

I work for a large Industrial Supplier and have had the opportunity to work with Teck Cominco for the past 2 years. I have been out to the mine and am very impressed with the environmental and safety awareness training and policies they have in place. I have been working in the industrial arena for 30 years and am continually impressed by the mining and oil industry in the state of Alaska. They are so contentious of our environment, community development, and sustainability. I look forward to doing business with Teck Cominco and am excited to see the future development at the Red Dog mine site.

Sincerely,
Anne Tisch

Author: Tisch, Anne—Individual

Comment ID: 38.001

Response

Thank you for your comment.

Response

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Friday, January 30, 2009 11:31 AM
To:
Subject: Fw: Comment on Red Dog Mine draft SEIS

----- Forwarded by Patricia McGrath/R10/USEPA/US on 01/30/2009 10:31 AM

David Torney
<dtorney@valorne
t.com>
01/30/2009 10:21
AM
Patricia McGrath/R10/USEPA/US@EPA
cc
Subject
Comment on Red Dog Mine draft
SEIS

TWIMC:

- 39.001 If the mine operators aren't compelled to not disturb wildlife, then they will continue to -- and continue to deny any and all environmental impact. This is just money talking, but the price of doing business includes minimizing the environmental impact of the mine, and the statutes prohibit what went down. The world is nobody's dustbin.
39.002 Build numerous culverts under the road for animal crossings: ~ one every 1/4 mile. (I wager there are none.)
39.003 Impose a speed limit of, say, 5 MPH, for haul trucks, when they are near the places the caribou frequent. (Enforce this with fines and surveillance.)
39.004 Paint trucks tundra-camo color. Equip them with the best available mufflers, and make other upgrades so that their noise is minimized. If dust is an issue, then have them water the road.
39.005 Pollution of streams is unacceptable. Red Dog must build a lined settling pond and purify water to high standards before discharge.

Sincerely,
David Torney

David Torney
5 Sky High Way
Jemez Springs, NM 87025

Author: Torney, David—Individual

Comment ID: 39.001

Response

One of the purposes of the NEPA process is to identify environmental impacts; the proponent is not obligated to do so. The effects of the existing operation and impacts from future activities, including those to wildlife, are evaluated in the SEIS.

Comment ID: 39.002

Response

Typically underpass (culvert) or overpass crossings, involve the concurrent construction of fencing to redirect animal traffic in an effort to reduce the number of wildlife-vehicle collisions. The number of reported collisions along the DMTS over the last 10 years has resulted in an average of two collisions per year. This rate would be expected to continue under Alternatives A, B, and D, and would decrease under Alternative C (reduced truck traffic due to the transport of concentrate through the pipeline). Given that none of the wildlife species within the study area that may potentially cross the road exist at population levels that warrant consideration for listing as threatened or endangered, the loss of such a small number of individuals would not result in population-level effects.

The draft SEIS notes that the operation of the mine and port site facilities, including the DMTS, have resulted in localized effects on caribou movement and distribution, which may affect caribou harvests by Kivalina residents (p. 3-227). However, the DMTS has not been shown to impact overall caribou migration patterns. All alternatives would continue to employ mitigation measures identified by Teck and NANA to reduce traffic related effects on caribou by stopping traffic when caribou are present. Alternative D would enhance this by including a 1-month road closure during the fall caribou migration to reduce displacement of caribou from hunting areas. Therefore, fencing the entire road and installing culverts to facilitate animal crossing would be unlikely to provide additional benefit.

Comment ID: 39.003

Response

The transportation section of the draft SEIS (section 3.15) describes procedures implemented under the current Operations and Maintenance Plan for reducing activity on the haul road when caribou are in the vicinity. These include ceasing truck traffic when migrating caribou are in the vicinity, until the caribou have crossed the road and are at least 300 feet off the road. None of the agencies involved has the authority to conduct surveillance or issue fines for traffic-related infractions. The SEIS identifies mitigation measures in Section 3.12.3.1, such as use of an independent observer to improve the current procedures.

Comment ID: 39.004

Response

EPA is unaware of any studies that indicate the use of camouflage paint on vehicles minimizes disturbance to wildlife. While the best available mufflers may reduce engine noise somewhat, the truck noise is generated by the movement of the 46-wheeled trucks themselves. Therefore, it is unlikely that these measures would alleviate the effect of traffic on caribou. Dust control measures are currently in place, including the use of magnesium chloride as a dust suppressant and watering the roads during the summer.

Comment ID: 39.005

Response

As discussed within several sections of the final SEIS, the required NPDES permit would establish effluent limits and ambient monitoring requirements that would protect water quality with respect to Alaska WQS and in accordance with the CWA.

Response

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Friday, January 30, 2009 10:54 AM
To:
Subject: Fw: Red Dog Mine
Attachments: pic08549.jpg

Author: Tuckness, George—Neeser Construction, Inc

Comment ID: 40.001

Response

Thank you for your comment.



pic08549.jpg (4 KB)

----- Forwarded by Patricia McGrath/R10/USEPA/US on 01/30/2009 09:54 AM

George Tuckness <george@neeserinc.com>	To
01/30/2009 09:39 AM	Patricia McGrath/R10/USEPA/US@EPA cc
	Subject Red Dog Mine

40.001

Hello Mr. McGrath, I am writing to support issuing Red Dog Mine a permit to operate for the next 20 years. As an Alaska resident for 27 years I have observed that the mining industry has done a good job of preserving the environment. They realize that measures must be taken to protect the environment, and in return they should be allowed to continue bringing Alaska resources to market. At a time when the US economy is struggling it is even more important to continue to develop our resources to bring income to the people of America and to provide become energy independent. Please issue a permit to the Red Dog mine to continue mining the Zinc and lead minerals to help make America strong again.
George

George Tuckness
Sr. Project Manager

Neeser Construction,
Inc.
2501 Blueberry Road
Anchorage, Alaska
99503
O. (907) 276-1058
F. (907) 276-8533

(Embedded image moved)

Response

From: Mcgrath.Patricia@epamail.epa.gov
Sent: Friday, January 30, 2009 6:40 PM
To:
Subject: Fw: Red dog

----Forwarded by Patricia McGrath/R10/USEPA/US on 01/30/2009 05:35PM ----

To: Patricia McGrath/R10/USEPA/US@EPA
From: "Volkheimer Don RDOG" <Don.Volkheimer@teck.com>
Date: 01/30/2009 02:41PM
Subject: Red dog



41.001

Hello my name is Donald And I have been working at Red dog mine since 1990
I was born and raised In Kotzebue, Alaska. Graduated high school there in 1985
Puttered around for a few years then landed the job at red dog .An I can honestly say yes
There has been very positive results for not just this region but all of Alaska .
All the earnings I make are spent here in Alaska and it has directly changed the lives of many
Residents in this corner of Alaska for example we have been able to afford more essentials.
Like four wheelers(ATV),bigger and faster snow machines, boats ,outboard motors,
Newer styles of rifles shotguns, pistols and what have you for subsistence hunting .

There is the positive!

41.002

Now for the negative !Change people hate change because of the mine lifestyles have changed
And so have attitudes . The influx of money has created a paradox we have better tools to make are
lives a little
Better , easier and now people can go further in the field to hunt ,gather and generally terrorize the
wild life

41.003

Will closing the mine change this NO the only thing it will do is relegate us back down to third world
status and no I am not making a joke here think about it what was out here before the mine existed.
just a bunch of villages try to eke out a living in a very unforgiving landscape . there were literally very
few jobs to be had and a few years from now when the mine does shut down there will be the same
problem I don't know if this rant will help or hurt in any way. I have said my say and hope that the
people in charge will make a sound decision !

Donald L Volkheimer (mill operator of twenty years)

Author: Volkheimer, Don—Individual

Comment ID: 41.001

Response

Thank you for your comment.

Comment ID: 41.002

Response

Thank you for your comment. The appendices "Noatak and Kivalina Community Descriptions" and "Social Conditions" describe the challenges of life in the Northwest Arctic Borough and the changes that have occurred. EPA has considered these issues in preparing the SEIS.

Comment ID: 41.003

Response

Thank you for your comment.

TRUSTEES FOR ALASKA

A Nonprofit, Public Interest Law Firm Providing Counsel to Protect Alaska's Environment

1026 W. 4th Ave., Suite #201 Anchorage, Alaska 99501 (907) 276-4244 (907) 276-7110 Fax Email: ecolaw@trustees.org

February 3, 2009

Via Email

Patty McGrath
Red Dog SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 9-00, OW-135
Seattle, WA 98101
Email: mcgrath.patricia@epa.gov

Via Email

Ms. Cindi Godsey
Office of Water and Watersheds
U.S. EPA, Region 10
1200 6th Ave., Suite 900, OWW-130
Seattle, WA 98101
Email: godsey.cindi@epa.gov

Via Email

Mr. Tim Pilon
Alaska Department of Conservation, Division of Water
610 University Avenue
Fairbanks, AK 99709
Tim.Pilon@alaska.gov

RE: (1) Draft Supplement Environmental Impact Statement (dSEIS) for the Red Dog Mine Extension Aqqaluk Project
(2) Draft NPDES Permit for Teck Cominco Alaska, Inc.'s Red Dog Mine (AK-003865-2 and Draft State § 401 Certification

Dear Ms. McGrath, Ms. Godsey and Mr. Pilon:

The comments in this letter are submitted on behalf of the Native Village of Point Hope IRA Council on the above-entitled dSEIS, draft NPDES permit and draft State § 401 Certification for the Red Dog Mine.

Response

The specific comments below are intended to be supplemented by the comments of the Center on Race, Poverty and the Environment (submitted by Luke Cole), the Northern Alaska Environmental Center (submitted by Zak Richter) and the comments of the Center for Science in Public Participation (submitted by Dave Chambers) all of which are hereby adopted and incorporated by reference.

I. Public Participation and Government-to-Government Consultation

42.001 As an initial matter, it should be noted that the process for public participation and consultation have not resulted in adequate consultation with the tribe and affected communities. The approach by EPA in this environmental review has been different than that which had been used in previous meetings and was confusing. The Native Village of Point Hope IRA Council requests that there be government-to-government consultation before the Red Dog SEIS is finalized and prior to NPDES authorization.

II. Inadequate Identification of Impacts to Health of Residents

42.002 The dSEIS lacks scientific information on the health effects of the current mining operation and the extension of the mine to include the Aqqaqaluk project. As the dSEIS acknowledges, the original Red Dog EIS (1984) did not include a public health section, and lacked data on the potential health effects of the Red Dog Mine. There should be an analysis of the broader health impacts to the Native Community, including Point Hope.

42.002 After 20 years of operation, the residents of the Village of Point Hope are very concerned that there is still no adequate analysis of health impacts. The potential effects of large-scale mining on general health are complex and have not been directly investigated.” [dSEIS 3-255]. It is clear to the community that there are impacts and those impacts must be investigated and reported. Thus, the dSEIS does not rectify the inadequacy of the original EIS and fails to perform an adequate environmental review of the existing and projected health impacts of the mine. Instead, the dSEIS summarily concludes the there has been a “profound improvement in overall health status for Alaska Natives throughout the State.” [dSEIS p. 3-236]. There is no support for such a broad conclusory statement and it completely misses the point because it does not address the site-specific impacts of the Red Dog mine, now and as proposed in the dSEIS alternatives.

42.003 Despite these inadequacies in the dSEIS, it proposes that a “Stakeholder Participatory Monitoring and Review Committee could be formed to coordinate and collaborate ongoing health efforts and initiatives in the area including those related to mining.” [dSEIS 3-255]. This is inadequate to mitigate or evaluate the health impacts of the mine because it defers any mitigative effect to a process that has not even begun.

42.004 In addition, the information on elevated cancer rates in the “Kotzebue Service Unit” and the “Barrow Service Area” is extremely alarming. The data presented does not even include the data on cancer rates in past five years but reflects a significant increase in cancer rates, above the national average in the areas of colon and rectal

Author: Wainwright-PointHope, Nancy—Trustees for Alaska

Comment ID: 42.001

Response

EPA has conducted public participation and government-to-government consultations consistent with NEPA requirements and standard EPA practice. The public meetings were not unusual or different, but rather standard practice in which an overview of the project is presented with a question and answer period followed by a formal comment period. EPA clearly explained the format of the meeting at numerous points through the presentation.

Since government-to-government consultation is just that, a request for formal consultation needs to come from the tribal authority rather than a non-governmental organization. However, in response to this comment, EPA sent a letter to the Point Hope IRA council stating that EPA would be happy to have a government-to-government consultation meeting (February 25, 2009 letter from Michael A. Bussell, Director EPA Region 10 Office of Water and Watersheds, to Caroline Cannon, President Native Village of Point Hope). EPA sent the letter via both mail and e-mail to the IRA Council President and Tribal Administrator. To date there has been no response to these communications.

Comment ID: 42.002

Response

The public health chapter is limited by the information that is available at the time of the assessment. If public health were included in the original EIS, then baseline data would be available for comparison. Recommendations for improved data collection and monitoring in the future have been made, including a dietary survey to help assess localized affects of caribou and beluga disturbance on diet. The other sections of the SEIS evaluate impacts to surface water, aquatic resources, wildlife, vegetation, subsistence, etc. None of these sections indicated that there would be impacts that reach Point Hope which is over 100 miles from the mine and 50 miles from the port site.

Comment ID: 42.003

Response

The Stakeholder Participatory Monitoring and Review Committee was suggested as a mechanism to address local concerns across a range of health issues. Based on the information and analysis in section 3.13 of the SEIS, there is no clear indication from the data available that mining activities have affected health in the region.

Comment ID: 42.004

Response

Table 3.13-2, which presents cancer incidence rates 1989 through 2003, shows that the rates in the Kotzebue Service Area for the All Sites category are lower than Alaska Natives as a whole and lower than the rates for U.S. whites. Rates in the Kotzebue Service Unit are also lower than surrounding regions (Norton Sound and Barrow) for colorectal, stomach, and lung and bronchus cancers. While the increase in cancer rates is a concern within the health field, rates in the Kotzebue Service Area are not markedly different from other Native populations in Alaska. Please see also the section on environmental contaminants.

Response

42.004
(cont)

cancer, stomach cancer, lung and bronchus cancer. The dSEIS states that cancers have “increased markedly.” [dSEIS at 3-243]. Rather than analyze the effects of the existing mine operations on cancer rates the dSEIS again summarily concludes “Available data do not suggest an association between local cancer rates and activities at the Red Dog mine. There is no evidence of unusual environment-related cancer for mine workers.” [dSEIS p. 3-244]. There is no citation to which “available data” is being considered, or scientific support for the statement.

42.005

Further, instead of doing adequate baseline analysis of the existing mine’s health effects, and despite the acknowledgment of the “somewhat higher” percent of persons with elevated blood cadmium levels, the dSEIS cites to a “difficult to interpret” study on cadmium[dSEIS p. 3-245] and fails to adequately analyze the health impacts of cadmium. Likewise, the dSEIS cites to a blood level study that had “too few persons less than 18 years old tested” to report data or to draw any conclusion about trends. [dSEIS p. 245]. The conclusion that blood lead levels are “consistent with the national average” does not analyze the existing mine’s impacts or project the impacts of the proposed project expansion, nor does this justify a conclusion that there are no impacts. It could be that prior to the mine, the residents’ blood lead levels may have been below the national average and are increasing at an alarming rate. The dSEIS acknowledges that there is no baseline information because “No BLLs from Kivalina or Noatak were collected prior to the mine opening that could be compared with the above data.” [dSEIS p. 3-245].

42.006

Studies of BLL in Point Hope by Alaska Community Action on Toxics documented elevated BLLs, higher than those for Kivalina residents. There is no analysis in the dSEIS whether those elevated BLL levels are possibly related to the Red Dog mine activities or discharges which affect the subsistence resources of Point Hope residents, including caribou and beluga.

42.007

The HHRA study was completed by Teck Cominco but there is no indication of whether that study was peer-reviewed. EPA concluded that the HHRA findings on health risks “were underestimated by an order of magnitude for caribou consumption.” [dSEIS at 3-248]. In order for the residents of Kivalina to assess whether the remainder of the HHRA study is valid, EPA should require a peer review of the methodology and conclusions, or conduct its own independent study to verify the conclusions of the HHRA study.

42.008

Lastly, the Effects of the Alternatives section in the dSEIS looking at Public Health (General Health) impacts of all alternatives focuses exclusively on effects due to a change in economic circumstances. That section should include a more comprehensive look at “general health” than economic effects. There is no analysis of the effects of Alternative B on subsistence and nutrition, other than a vague reference to section 3.13.3.1 stating that the effects identified in that section “would continue until 2031.” [dSEIS at 3-257]. There is no analysis of impacts specific to the mine operation for another 19 years for Alternative B.

Comment ID: 42.005

Response

Please also see responses to 23.003 and 23.005. A “baseline” analysis is not possible since pre-mine data are unavailable. The SEIS takes into account the information available. While there is no clear way of identifying the source(s) of cadmium in local residents, the SEIS points out that cigarette smoking is a common source of cadmium exposure and can double cadmium concentrations in smokers compared to non-smokers. The SEIS also reports that 77 percent of residents of the Maniilaq service area smoke compared to 47 percent statewide and 20.4 percent of U.S. whites. Teck’s risk assessment found that ingestion was a greater concern for cadmium uptake compared to inhalation but that ultimately, cadmium fell within acceptable human health limits for risk. Based on the information available, smoking is a more likely source for “somewhat higher” concentrations of cadmium in local residents than an unidentified pathway from the mine.

In regard to worker health, the SEIS describes Teck’s procedures for employees that demonstrate elevated BLLs, consistent with MSHA requirements. The impact analysis discloses that employees are expected to demonstrate BLLs similar to currently experienced. As a population, employees’ exposures would continue to be governed by MSHA regulations.

Comment ID: 42.006

Response

The risk assessment considered workers, pregnant women, and children as consumers of subsistence foods and found that risks did not exceed target levels for concern. Further, the health assessment found no linkage between BLLs in Kivalina and mining operations. Since Kivalina is substantially closer to the mine (approximately 50 miles) than Point Hope (over 100 miles) it is highly unlikely that an unidentified pathway exists linking BLLs in Point Hope with the Red Dog Mine. Therefore, BLLs in Point Hope were not addressed in the SEIS analysis. See the response to Comment 42.011 for additional discussion of subsistence resources.

Comment ID: 42.007

Response

Risk assessments are not typically peer reviewed but are conducted within an established scientific framework and done in conjunction with a regulatory authority (in this case, ADEC). However, the risk assessment process was conducted outside of the NEPA process and, in and of itself, is not subject to comment as part of the SEIS. EPA did review the risk assessment. The SEIS included some of the information in the risk assessment, that was qualified based on our review (see Section 3.13, EPA Findings). In addition, EPA has recommended to Teck and ADEC that additional caribou monitoring needs to occur to reduce uncertainty in the risk assessment results.

Comment ID: 42.008

Response

The format of the impact analysis is the same as the preceding section, General Health, Subsistence and Health, Social and Psychological Health and Environmental Contaminants. The focus on the impacts associated with economic effects are the only clear effects that would occur in terms of general health. The existing information does not indicate any direct links between mining operations and any of the health issues discussed under the General Health Status section. The effects on health related to diet and subsistence are discussed in greater detail in the Effects of Existing Operations on Subsistence, Nutrition, and Diet-Related Diseases. The nature of that discussion indicated that the effects are not necessarily specific in terms of their origin.

Response

42.009 Villagers from Kotzebue to Point Lay have consistently reported higher incidents of cancer, liver and kidney problems, birth defects and still births which are affecting the residents and which are likely attributable to the mining activities. These significant public health concerns must be a foremost consideration in the decision of whether to approve the extension of the mine and must be adequately analyzed to fulfill the requirements of NEPA

III. Cumulative Impact Analysis Inadequate

42.010 There are notable inadequacies in the dSEIS' cumulative impacts analysis as identified in the comments adopted by reference in the introductory paragraph. We wish to specifically emphasize the inadequacy of the cumulative impacts analysis in one area: the failure to find the Western Arctic Coal Reserves (WAC) as a relevant action, given the five-year exploration project that is ongoing, and the failure to analyze the cumulative effect of the WAC project. The transportation corridors and alternatives being considered for the WAC would constitute a major impact on the Western Arctic Caribou Herd and on the subsistence resources of Point Hope. The project is well into its five-year exploration phase, and there are detailed studies available on the proposed transportation of the coal to the DeLong Mountain Transportation System by a rail or road system and the possible use of the Port Site. We urge EPA to consider the potential impacts from the WAC project.

IV. Draft NPDES Permit for Teck Cominco Alaska, Inc.'s Red Dog Mine (AK-003865-2 and Draft State § 401 Certification

NPDES These comments are specific to EPA's Draft National Pollutant Discharge Elimination System ("NPDES") Permit AK-003865-2 ("Permit") and the State of Alaska's Draft § 401 Certification.

Significant changes authorized by the Permit result in unacceptable impacts to water quality. The continued protection and maintenance of water quality is of vital significance and importance for the health of present and future Alaskans, the quality of fish and shellfish harvested from State and federal waters, the marketing of fish and shellfish from Alaska, and the maintenance of wildlife throughout the state. The residents of Kivalina are particularly impacted by water quality changes that the dSEIS and Draft NPDES permit contemplate.

The overarching objective of the CWA "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To achieve this objective, Congress established several goals, including (1) eliminating the discharge of pollutants into navigable waters by 1985; (2) attaining water quality that provides for the protection and propagation of fish, shellfish, and wildlife and provides

Comment ID: 42.009

Response

Cancer rates are discussed in the SEIS on a regional level, because this concern was raised by Maniilaq Association (who represented the cooperating agency responsibilities of nine tribal governments in the service area and is the regional tribal health care provider). No association between mining and cancer was found, based on the available data (see section 3.13.2.1, Cancer, and Environmental Contaminants). Based on the environmental monitoring and risk assessment data presented in the SEIS, exposure to mine-related contaminants is not a likely source of cancer or other illnesses, including those mentioned in this comment, because of the low levels of environmental exposure levels to mine-related contaminants documented to date. The SEIS acknowledges data gaps in human and subsistence food biomonitoring. Where data are incomplete, the final SEIS has incorporated recommendations for data collection and monitoring as part of the risk management plan, to allow better characterization of this issue. If, based on the additional monitoring studies undertaken elevated levels of mine-related contaminants are found in the human population or subsistence species, additional investigation of these concerns may be warranted (as suggested in the new potential mitigation measure in response to 23.005).

Comment ID: 42.010

Response

BHP Billiton Energy Coal recently announced that it is suspending the exploratory drilling program for 2009 due to the economic climate and declining coal prices. Regardless, the SEIS considers exploration activities at the Western Arctic Coal Reserves as part of the cumulative effects analysis. Development (mining) of the project is not a necessary outcome of exploration and is therefore not considered reasonably foreseeable. Since multiple access points are under evaluation as part of the preliminary analyses, a tie to the DMTS port, or other transportation corridor, is speculative at this point and also not considered reasonably foreseeable in terms of the cumulative impact analysis.

NPDES

for recreation in and on the water by July 1, 1983; and (3) prohibiting the discharge of toxic pollutants in toxic amounts. *Id.* While water quality has improved in many cases since the passage of the Federal Water Pollution Control Act ("Clean Water Act" or "CWA"), these three goals have not been attained. Similarly, while water quality has somewhat improved in limited respects around Red Dog Mine, the Permit does not attain these three goals, and in many ways is significantly less stringent than current requirements. Thus, the Permit does not meet the goals or the letter of the Clean Water Act.

A. The State's Draft § 401 Certification

The State "certifies that there is reasonable assurance that the proposed activity, as well as any discharge that may result, is in compliance with the requirements of Section 401 of the Clean Water Act, which includes the Alaska Water Quality Standards (18 AAC 70)." EPA Fact Sheet for the Reissuance of NPDES #AK-003865-2 to Teck Cominco Alaska, Inc.'s ("TCAK") Red Dog Mine ("Fact Sheet"), Appendix B, p. 24. This certification is illegal because it is based on a determination that it is consistent with Alaska's Antidegradation Policy, but the State has no implementation methods for the Policy. In addition, the mixing zone for ammonia and WAD cyanide are based on legally flawed calculations and violate Alaska's mixing zone regulations (18 AAC 70.240-.270).

1. The State's Draft 401 Certification violates antidegradation requirements.

401 Cert

When EPA revises permitting standards, the revision must be consistent with the state's antidegradation policy ("ADP"). 33 U.S.C. § 1313(d)(4)(B); Handbook, p. 4-10. Antidegradation is not defined in statute or regulation, but is a procedure to be followed when evaluating activities that may impact water quality. The implementation of that procedure is meant to protect water quality by maintaining or improving water quality and not allowing water quality to be degraded.

Federal regulation requires that states include an ADP that is no less stringent than the federal ADP in every water quality standards package submitted to the EPA for review. See 40 C.F.R. §131.6(d). The federal ADP delineates different levels of protection for three different "tiers" of water quality. Tier 1 sets the minimum level of water quality to protect all existing uses of a waterbody: water quality may be lowered only if "existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 C.F.R. §131.12(a)(1). Tier 2 provides the protection "necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water" to waters whose quality already exceeds the Tier 1 level and allows for reduction in quality only if, after a full public process and intergovernmental coordination, it is "necessary to accommodate important economic and social development." 40 C.F.R. § 131.12(a)(2). "In allowing such degradation or

lower water quality, the State shall assure water quality adequate to protect existing uses fully. *Id.* (emphasis added). Tier 3 waters are those waters that have been designated as Outstanding Natural Resource Waters (“ONRW”). These waters include waters in National Parks, National Wildlife Refuges, and waters of “exceptional recreational or ecological significance.” 40 C.F.R. § 131.12(a)(3).

EPA’s antidegradation regulation also requires the State to “identify the methods for implementing such policy. . . .” 40 C.F.R. § 131.12(a). For enforcement purposes, this is the most important part of the antidegradation requirement. The procedures developed to implement the ADP must be designed to: (1) prohibit any degradation in some waters; (2) minimize the impacts of degrading activities in others; and (3) assure that in every case, existing uses are protected.

Although EPA guidance indicates that some type of review process is required for all three tiers of antidegradation policy, the review process is especially important in the context of waters protected by Tier 2. *See Handbook*, pp. 4-6 – 4-9. Whenever any lowering of water quality occurs under Tier 2, the antidegradation regulation requires a state to: (1) determine whether the degradation is “necessary to accommodate important economic or social development in the area in which the waters are located;” (2) consider less degrading alternatives; (3) ensure that the best available pollution control measures are used to limit degradation; and (4) guarantee that, if water quality is lowered, existing uses will be fully protected. 40 C.F.R. § 131.12(a)(2); *Handbook*, p. 4-7.

Alaska, like many states, has adopted the federal ADP “3-tier” requirements:

It is the state’s antidegradation policy that

- (1) existing uses and the level of water quality necessary to protect existing uses must be maintained and protected;
- (2) if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department, in its discretion, upon application, and after compliance with (b) of this section, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose as authorized in a department permit, certification, or approval; . . .
- (3) if a high quality water constitutes an outstanding national resource, such as a water of national or state park or wildlife refuge or a water of exceptional recreational or ecological significance, the quality of that water must be maintained and protected

401 Cert

401 Cert

18 AAC 70.015(a). DEC has not, however, established implementation procedures¹ for its ADP as required by EPA, and as a result, cannot perform an antidegradation analysis for revised permitting standards in the Permit.² See Handbook, p. 4-10. Thus, when the State says that it “finds the reduction in water quality to be in compliance with the requirements of 18 AAC 70.015” there is no basis for the finding because no antidegradation implementation analysis could be performed. Fact Sheet p. 24. The 401 Certification, which authorizes reduced effluent limitations and significantly larger mixing zones, violates antidegradation requirements.

The State certifies in the Draft 401 Certification that a revised lower effluent limit for zinc is consistent with the State’s antidegradation policy. The State purports to undertake an antidegradation analysis. See Fact Sheet, Appendix B, pp. 32-36. However, because there is no antidegradation policy implementation plan, the State cannot properly perform this analysis, and the certification to allow for back-sliding of the effluent limitations for cyanide, zinc, and ammonia is illegal.³

The Permit allows the daily maximum effluent limit for selenium to be relaxed from 5.6 ug/L to 7.2 ug/L. It also allows the average monthly effluent limit for lead to be relaxed from 8.1 ug/L to 8.5 ug/L. The 401 Certification states,

These minor and offsetting changes are the result of statistical variability in data sets used to determine effluent limits. It is the department’s judgment that these changes will not affect the levels of these pollutants in the discharge, and no antidegradation analysis is required.

¹ A public records request was made to DEC to obtain its implementation plan for the ADP. DEC claimed the deliberative process privilege because no implementation plan has been officially adopted.

² For example, Alaska has numerous waterbodies that meet Tier 3 criteria, but no way to implement their designation and protection. There are also even more Tier 2 waterbodies, and DEC has not developed the 4-part antidegradation analysis, or a similar implementation plan, for those waterbodies.

³ In its purported antidegradation analysis, the State makes a conclusory finding that “[t]he permit limits will not violate water quality criteria.” Fact Sheet, Appendix B, p. 34. There is no analysis, mathematical or otherwise, to support this finding. The “analysis” similarly states that “[t]he permit renewal application does not propose any changes that would likely result in wastewater of lower quality to be discharged than has been discharged since issuance of the 1998 permit” and that water quality “will be adequate to fully protect existing uses.” *Id.* at p. 35. There is no support for these findings either. Finally, the purported antidegradation analysis finds that “the discharge from the existing point source meets the highest applicable statutory and regulator requirements.” *Id.* at p. 36. These conclusory statements are not supported or explained, so even if the State’s antidegradation analysis could legally suffice as performed under legally-adopted antidegradation procedures, it is arbitrary and capricious because of its conclusory and unsupported findings.

Fact Sheet, Appendix B, p. 33. There is no exemption in the Clean Water Act to relax effluent limitations for statistical variability. As such, a legal antidegradation analysis is required for the relaxation of these limits.

2. The mixing zone calculations are legally flawed and violate the State's mixing zone regulations.

The mixing zone for ammonia and WAD cyanide is based on legally flawed calculations and violates Alaska's mixing zone regulations (18 AAC 70.240-.270). The state has authorized:

A mixing zone in Main Stem Red Dog Creek (Main Stem) extends from the confluence of the Middle Fork Red Dog Creek with the North Fork Red Dog Creek (North Fork) to Station 151. The Main Stem mixing zone is approximately 1,930 feet in length and provides mixing in the ratio of 1.5 parts receiving flow to 1 part inflow for a dilution factor of 2.5. This mixing zone is granted for the following parameters: total dissolved solids (TDS), ammonia, and cyanide measured as weak acid dissociable cyanide.

401 Cert

Draft 401 Certification, Fact Sheet, p. 24. First, the length of the mixing zone is inaccurate. Outfall 001 is approximately one mile from the confluence of the Middle Fork and North Fork of Red Dog Creek. Thus, the mixing zone extends from Outfall 001 to Station 151, which is significantly longer than 1,930 feet, in fact a mile longer, according to the map scale. At Outfall 001 the treatment plant effluent is physically 'mixed' with water flowing down the Middle Fork of Red Dog Creek. Then again at the junction of the Middle Fork with the North Fork, the contaminants TDS, cyanide and ammonia are again diluted with clean water from the North Fork of Red Dog Creek. This is beyond absurd. The mischaracterization of the length of this mixing zone makes it even more egregious.⁴

Mixing zones are usually authorized based on a streamflow analysis of the 7Q10 low flow hydrologic event. However, there is no discussion in the Draft 401 certification of how the 1.5:1 (2.5X) dilution was determined, either by calculation or real-time monitoring, or whether this dilution factor will be applicable or effected at all times, even during low flow events.

In addition, the mixing zone violates the State's mixing zone regulations because it could create a barrier to fish passage. DEC "will not authorize a mixing zone if it finds that available evidence reasonably demonstrates that . . . (2) there could be . . . (B) a barrier formed to migratory species." 18 AAC 70.250(a)(2)(B). And DEC "will find

⁴ The same is true for the 3,420-foot TDS mixing zone—it is really almost two miles in length.

that something 'could' happen if the department determines that it is reasonably expected to occur." 18 AAC 70.250(c).

In this case, the mixing zone is proposed to run from Outfall 001 to Station 151, which would extend across the mouth of the North Fork of Red Dog Creek, a stream with spawning habitat for Arctic Grayling. Grayling migrate up the Mainstem of Red Dog Creek during early spring to spawn, and must pass through the lower portion of the proposed mixing zone. See Fact Sheet, Appendix A. The spawning period lasts for approximately two weeks, and fish were present from June to September in 1997, indicating that spawning and rearing take place in the Mainstem of Red Dog Creek. Webber-Scannel, P., "Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions, March 2005, p. 14. Exposure to toxic substances during this time could cause avoidance of the area, thus creating a barrier to migrating Grayling. TCAK's discharges of cyanide and ammonia are highly toxic to fish and it is likely that the proposed mixing zone would constitute a barrier to Grayling migrating up Red Dog Creek into the North Fork to spawn. Since TCAK has provided no evidence, and DEC has provided no explanation that these highly toxic chemicals do not constitute a barrier to fish migration, the proposed mixing zone violates 18 AAC 70.250(a)(2)(B). As a result, if a mixing zone is granted, the downstream edge of the mixing zone should not be allowed to impinge on the junction of the North Fork of Red Dog Creek, and to effectively manage that mixing zone, the downstream edge of any mixing zone should be Station 20.

Further, there is presently no cyanide-kill process employed by TCAK before discharge. The strategic application of a cheap and effective cyanide-kill process like the addition of ferrous sulfate could target the reduction not only of cyanide, but would also inhibit the release of ammonia, a breakdown product of the cyanide which is also a contaminant of concern in the discharge at Outfall 001.

In summary, the State's Draft 401 Certification is legally inadequate. The State has not promulgated an antidegradation policy implementation methods, and therefore cannot perform an antidegradation analysis to support a reduced effluent limit for selenium, lead, zinc, cyanide, or ammonia. The State also cannot authorize the mixing zone for WAD cyanide and ammonia because there is no support for a dilution factor of 1.5:1, and the mixing zone creates a barrier to fish passage, which violates 18 AAC 70.250(a)(2)(B). Thus, the Draft 401 Certification does not establish reasonable assurance that the proposed activity, as well as any discharge that may result, is in compliance with the requirements of Section 401 of the Clean Water Act, which includes the Alaska Water Quality Standards (18 AAC 70).

B. The Draft NPDES Permit

401 Cert

NPDES

The Permit is legally flawed because it allows backsliding in violation of section 402(o) of the CWA.

The Clean Water Act prohibits backsliding: A permit applicant may not obtain a renewed, reissued, or modified permit that contains less stringent effluent limitations than the comparable effluent limitations from the previous permit, unless the relaxed permit does not violate the state or federal antidegradation policy. See 33 U.S.C. § 1342(o)(1). Backsliding may also be allowed where

information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

33 U.S.C. § 1342(o)(2)(B)(i). See also 40 CFR § 122.44(l)(2)(i)(B)(1).⁵

An anti-backsliding analysis does not require a direct comparison of effluent limits or the outputs of one model versus another. The first step of the analysis is to determine whether the water body is in attainment (i.e., meets water quality standards). See Draft Interim Guidance on Implementation of Section 402(o) Anti-Backsliding Rules for Water Quality-Based Permits ("Anti-Backsliding Guidance"), p. 6. If the waters are in attainment, like the waterbodies in question, backsliding may be permitted if it is consistent with the State's antidegradation policy. *Id.*, pp. 6-7.

The Permit allows backsliding for the selenium, lead, zinc, cyanide, and ammonia effluent limits. As discussed above, the State has not promulgated an implementation plan for its antidegradation policy. As a result, the State cannot make the determination that the relaxed effluent limits and mixing zones comply with Alaska's ADP, and the exception that would allow backsliding does not apply.

V. Subsistence Impact Analysis Deficient

There is no justification for the failure to include the Village of Point Hope in the analysis of subsistence impacts. In each of the maps depicting subsistence resources and use there is indication that the subsistence use of resources extends to Point Hope. [dSEIS p. 3-176-177; 3-185] Yet there is no analysis on the impacts of the mine to the subsistence use of Point Hope residents. The analysis is limited to the impacts to the subsistence use by residents of Kivalina, Kotzebue and Noatak. Residents of Point Hope have documented subsistence declines in the specific resource areas identified in the dSEIS maps. It is respectfully requested that the mine impacts and potential impacts from the mine extension on subsistence resources of Point Hope be analyzed.

⁵ There are other exceptions to the anti-backsliding provision of the CWA, but none are asserted here.

Comment ID: 42.011

Response

The justification for not including the Village of Point Hope in the analysis of subsistence effects is two-fold. First, the issue was not identified during the scoping process. Second, the village is located over 100 miles from the mine and although subsistence use areas may be closer. The historical data available for Point Hope subsistence use areas show that for bowhead whale, beluga whale, and migratory birds, use by subsistence hunters from Point Hope in the southerly direction extended only as far as Cape Thompson (Braund and Burnham 1984). The data show that Point Hope hunters extended their hunts for walrus and seals somewhat (perhaps 10 miles) further south of Cape Thompson but hunts for these species would have been (1) outside the operational period for operations at the DMTS port and (2) still well north (approximately 50 miles) of the port itself. EPA considered that the distance from the mine's operations to Point Hope's historic use areas did not justify including a detailed analysis of potential effects on those use areas.

NPDES

42.011

VI. Conclusion

We appreciate the opportunity to comment. Please communicate with us for all future actions, public hearings and environmental documentation as follows:

Native Village of Point Hope IRA Council
916 Ippiq Street
P.O. Box 109
Point Hope, AK 99766

Sincerely,

Nancy S. Wainwright
Senior Staff Attorney

Response

My name is Verna Westlake, I am from the village of Kiana and a shareholder of the Northwest Alaska Native Association (NANA) Regional Corporation. I'm currently employed by Teck Alaska, Incorporated at the Red Dog Mine.

I am writing in support of the Red Dog Mine Extension - Aqqaluk Project - Alternative B.

There are many rural communities in Alaska that struggle to survive economically. With the current national energy crisis, times are even more challenging. During these tough times, we in the NANA region are fortunate to have the Red Dog Mine to support our people, our region, and the local borough government. Resources that support our economic base in the northwest region of Alaska are limited. We have the Red Dog Mine.

43.001

In 2007 Red Dog Mine provided 475 regular jobs at the mine with 57% being shareholders and/or shareholder spouses. Currently, there are 529 employed at Red Dog, of which 302 are NANA shareholders. In 2007, Red Dog Mine provided \$45 million in wages for Red Dog jobs alone, \$56 million to NANA Regional Corporation and of that, 62% was redistributed to other Regional and Village Corporations which provided significant benefits to their local economies. In addition, \$82 million was paid to NANA joint venture partnerships in 2007. Red Dog Mine has also provided considerable economic benefits to the local borough government and the state and federal governments in tax payments totaling \$242 million. (Source: Teck Alaska Incorporated and NANA Regional Corporation)

These numbers not only represent the individual employed, they represent numerous families.

In my experience and based on my knowledge, I have seen Teck Alaska Incorporated work proactively with the local communities, residents and leadership on how to best serve the people of the northwest communities and how to care for the land and all that it yields.

43.002

If the Red Dog Mine is forced to shut down in less than two years, what will the people do that rely on that income to sustain their livelihood? What kind of impact will the loss of jobs and income have on fathers and mothers who want to provide for their families? It not only affects the pocket book, but affects the self esteem of the provider of a family and that in itself generates another ripple of problems with that individual. Furthermore and most important, what will it do to their children? How will that affect their behavior and ability to learn in school when they see their parents struggling?

Times are hard enough in our region. The impact would be devastating to us if we all lost our jobs if the Mine were to shut down.

Alternative B provides the most certain future for Red Dog and the people of this region and I fully support it.

Thank you for the opportunity to comment on this important issue.

Verna Westlake
PO Box 129
Kiana , AK 99749
(907)475-2105

Author: Westlake, Verna—Individual

Comment ID: 43.001

Response

Thank you for your comment.

Comment ID: 43.002

Response

The effects of closing the mine in 2011 are discussed under the analysis for Alternative A.

*Native Village of Kotzebue
Kotzebue IRA*

February 3, 2009

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101

RE: Draft SEIS for the Red Dog Extension Aqqaluk Project and draft NPDES Permit

Dear Ms. McGrath,

44.001 The Native Village of Kotzebue has had an opportunity to review the above referenced document. The Tribe recognizes that the Red Dog Mine provides significant economic benefits to the northwest Arctic and many of the members of the Tribe. Because of these benefits the Tribe supports the continued operation of the mine, including the proposed expansion project. However, the Tribe also recognizes that concerns have been raised about the issue of fugitive dust, disruption to subsistence opportunities in the area of the mine, and concerns over water quality issues affecting the Wulik River drainage.

44.002 The Tribe supports addressing fugitive dust with truck washing stations at the mine and port, to lessen the amount of dust settling out in the country along the 52 miles of road. It is already known that fugitive dust has accumulated along the road during the past years since the mine was opened and before more aggressive controls were recently put into place with the covering of the loads. Washing trucks would provide a significant improvement to the management of fugitive dust. Also in relation to this, the Tribe believes that follow up should occur by EPA (if it has not already) on the Risk Management Plan that was supposed to have been put in place as part of the MOU between Teck and the ADEC, in order to address environmental points of concern that EPA recommended be part of such a plan.

44.004 The Tribe also supports the announced settlement agreement to build a wastewater pipeline to discharge at the Chukchi Sea. Until that occurs, the Tribe requests a clearer assessment of the impacts from current Red Dog mixing zone be undertaken by EPA, in regards to levels of cyanide and ammonia, to make sure this zone is not creating a migration barrier for grayling and other aquatic life.

44.005 The Tribe also would like to see a renewed strong commitment by Teck to rely on the Red Dog Subsistence Committee to address impacts to subsistence. The Tribe requests that Teck review the function and efficacy of the current structure and reinforce their commitment to make sure that the Committee is effective and has a real role in addressing concerns over subsistence. While this is outside the scope of the authorities in charge of federal permitting, the Tribe hopes that this current process can be used to highlight this issue and the need for an active and effective Subsistence Committee.

Sincerely,


Linda Joule
Executive Director

333 Shore Avenue • P.O. Box 296 • Kotzebue, Alaska 99752
Phone: (907) 442-3467 • Fax: (907) 442-2162

Response

Author: Joule, Linda—Native Village of Kotzebue

Comment ID: 44.001

Response

Thank you for your comment. Specific concerns are addressed individually below.

Comment ID: 44.002

Response

Thank you for your comment. While EPA has identified truck washes as a recommended mitigation measure, it is outside of our authority under the NPDES permitting program to require that they be installed and operated. We hope that other agencies that do have authority to require this and Teck find ways to implement this and other recommended mitigation measures.

Comment ID: 44.003

Response

As noted in your comment, the risk assessment and subsequent risk management plan are being done through an agreement between Teck and ADEC. EPA has provided comments and recommendations on the risk management plan to ADEC. If there are opportunities to do so, we will continue to provide input. However, ADEC is ultimately responsible for approving the risk management plan and its implementing plans.

Comment ID: 44.004

Response

Section 3.10.3.3 describes the impacts of the mixing zones in the mainstem of Red Dog Creek, including describing how it will not create a barrier for arctic grayling and other fish migration. It is important to emphasize that authorizing the mixing zones will not change the composition of the existing discharge to Red Dog Creek and current aquatic life conditions are expected to remain essentially the same under Alternative B. Under current conditions, there is no barrier to migration. The State of Alaska was specifically required to address fish migration in authorizing the mixing zones in the draft Clean Water Act certification of the NPDES permit. Aspects of this comments are also addressed in the responses to comments on the draft NPDES permit and Clean Water Act Section 401 certification which are part of the public record for the NPDES permit.

Comment ID: 44.005

Response

We agree that an active and effective Subsistence Committee may be the way to address a number of local concerns that have been identified but are outside agency authority. This is one of the mitigation measures we recommend in the SEIS.

Response



6441 South Airpark Place
Anchorage, Alaska 99502-1809
(907) 245-1544
Fax (907) 245-1744

Author: Jansen, Jim—Lynden

Comment ID: 45.001

Response

Thank you for your comment.

January 15, 2009

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101
E-mail: mcgrath.patricia@epa.gov
Fax: (206) 553-0165

45.001

Lynden has a substantial interest in the continued operation of the Red Dog Mine. The NANA/Lynden Logistics JV has operated at Red Dog for over 10 years providing transportation services for Teck at the Red Dog Mine. In addition, other Lynden operating companies including: Alaska Marine Lines, Lynden Transport, Lynden Air Cargo, Knik Construction and Lynden Logistics all provide support services for the Red Dog Mine.

NANA/Lynden Logistics directly employs more than 50 personnel at Red Dog Mine, with an annual payroll of more than \$4.2 Million. Of those employees, approximately 50% are local NANA shareholders and residents. Indirectly, Lynden employs an additional 500 personnel in Alaska and the Pacific Northwest, who indirectly support the Red Dog Mine with marine, air and truck transportation.

The Lynden companies lend their full support to Alternative B of the Aqqaq Draft SEIS. We believe it is essential that Red Dog Mine be allowed to continue operations, the NPDES permit should be reissued, and permits should be issued for the Aqqaq Deposit.

This mine is critical to the economic future of the region and the State of Alaska and we fully support Alternative B, and agree with EPA that this is the preferred alternative; therefore, we support moving quickly to finalize the EIS and issue the appropriate permits.

Best Regards,

A handwritten signature in black ink, appearing to read 'Jim Jansen', with a long horizontal line extending to the right.

Jim Jansen
CEO

Response

Author: Moran, Robert—Hydrogeology/CRPE

*Robert E. Moran, Ph.D.
Michael Moran Assoc., L.L.C.
Hydrogeology/Geochemistry
Golden, Colorado, U.S.A.
Phone: (303) 526-1405
remwater@gmail.com*

Re: Comments on Red Dog SEIS, December 2008

I have been retained by the Center on Race, Poverty and the Environment (CRP&E) to comment on the Red Dog Supplemental EIS (SEIS) to ensure that any permit issued in response to this SEIS is protective of the public and the environment. The Center's clients, the residents of Kivalina, AK, support a waste water pipeline to the Chukchi Sea.

I have more than thirty-six years of domestic and international experience in conducting and managing water quality, geochemical and hydrogeologic work for private investors, industrial clients, tribal and citizens groups, NGO's, law firms, and governmental agencies at all levels. Much of this technical expertise involves the quality and geochemistry of natural and contaminated waters and sediments as related to mining, nuclear fuel cycle sites, industrial development, geothermal resources, hazardous wastes, and water supply development. Countries worked in include: Australia, Greece, Mali, Senegal, Guinea, Gambia, Ghana, South Africa, Iraqi Kurdistan, Oman, Pakistan, Kazakhstan, Kyrgyzstan, Mongolia, Romania, Russia (Buryatia), Papua New Guinea, Argentina, Chile, El Salvador, Guatemala, Honduras, Mexico, Peru, Canada, Great Britain, United States.

I have attached my c.v. to these comments as **Exhibit 1**.

General Comments.

- 46.001 [1-The SEIS presents so many major changes in mine operations and alternatives that a completely new EIS should be required, not a Supplemental EIS.
- 46.002 [2-A new EIS or any attempt to implement aspects of the SEIS must utilize original baseline data, not the existing conditions. Use of the latter simply justifies increased pollution.
- 46.003 [3-This SEIS presents almost no fundamental data on the **detailed** ("complete" analyses") chemistry of the existing ore, waste rock, bottom sediments near Outfall 001, tailings and discharge waters (Outfall 001). Such data should be included in a new EIS

Comment ID: 46.001

Response

The SEIS summarizes baseline from the 1984 EIS through existing conditions. The "major changes" proposed in the mining process is the development of a new ore body on the other side of Red Dog Creek, raising the tailings dam, and extending the mine life by an additional 20 years. See also response to comment 31.002.

Comment ID: 46.002

Response

Each section of the SEIS presents a discussion of pre-mine conditions followed by a description of existing conditions. The impact analysis considers both conditions.

Comment ID: 46.003

Response

Section 3.3 summarizes studies conducted to characterize the geochemistry of the ore, sub-economic ore, oxide ore, waste rock, tailings, leachate and contact water, including test studies to determine weathering effects on leachate and contact water chemistry. The analysis in the final SEIS is based on detailed subject reports characterizing the geochemistry and weathering, including SRK, 2003, 2006, 2007a and 2007b. These studies are included as a part of the Administrative Record. Similarly, Section 3.5 summarizes studies characterizing water quality, both pre- and post-mining, as well as results from monthly discharge monitoring reports (DMR) from discharges at Outfall 001. The final SEIS analysis for surface and ground water is also based on detailed studies, including Dames & Moore, 1983, Peterson, 1983, ADF&G, 1999, SRK 2007a, and others. These studies have also been included in the Administrative Record and are available to the public. EPA maintains that there is sufficient characterization and analysis regarding the geochemistry of the host rock, waste rock, tailings and surface and ground water hydrology and quality to select an environmentally preferred alternative. Additionally, detailed information regarding development of the Draft NPDES permit is also available in the Fact Sheet that accompanies the draft permit.

Response

46.003 (cont) and they should be considered when compiling the constituents to be monitored in the new NPDES permit.

46.004 4-The new NPDES permit neglects to include numerous constituents / contaminants that have established U.S. Drinking Water Standards and/or Aquatic Life Criteria. Why? The U.S.G.S. geochemical data on the Aqaluk rocks indicate the presence of numerous regulated constituents not included in the permit. All such constituents should be regulated in the new NPDES permit. [See, for example: Slack, J.F., and others, 2004, Multistage Hydrothermal Silicification and Fe-Tl-As-Sb-Ge-REE Enrichment in the Red Dog Zn-Pb-Ag District, Northern Alaska: Geochemistry, Origin, and Exploration Applications: Economic Geology, Vol. 99, pp. 1481—1508.]

46.005 5-Red Dog (RD) facilities have operated for about 20 years and treatment processes have consistently been unable to comply with NPDES water quality standards. Thus, it is ridiculous to assume or trust (as is stated in the SEIS, i.e., p. 2-22) that future waste handling and treatment approaches will "...permanently ensure compliance with TDS limits...", or other limits.

46.006 These significant shortcomings in compliance and enforcement have occurred where waste disposal and waste water discharges have been conducted **on land**. Discharge of any treated wastes to the Chukchi Sea will involve risks to the marine environments that are considerably more complex [chemically, biologically, etc.] and difficult to understand than those to the present terrestrial sites. Most importantly, such marine environments are notoriously difficult and costly to monitor adequately—especially when conducted by representatives of mining company. Thus, monitoring in such marine settings is often far too limited to adequately protect marine ecosystems. At best, the adequacy of such disposal programs is largely unproven in the long-term. Unlike land-based disposal, if unforeseen impacts are detected, little viable remediation will be possible.

46.007 Thus, any alternative involving disposal to the Chukchi Sea should require treatment of waste waters as is described in Alternative A—pretreatment and appropriate membrane filtration (reverse osmosis).

46.008 6-Neither the SEIS nor Teck Cominco (TC) have demonstrated that a concentrate pipeline can be operated successfully in the manner claimed. Most importantly, the public has no evidence that such concentrates can be filtered and treated adequately, long-term, to generate concentrate waste waters that can be discharged to the Chukchi Sea with no significant impacts.

These concentrates are chemically-complex mixes of many elements and compounds in high concentrations. They contain much more than simply zinc and lead. The SEIS fails to present any preliminary test data on the chemical composition of such concentrate waste waters.

Comment ID: 46.004

Response

The Fact Sheet that accompanies the Draft NPDES permit discusses in detail how beneficial uses and applicable water quality standards are developed. Additionally, the Fact Sheet specifically discusses how "reasonable potential" for pollutants is determined and effluent limits developed based on procedures set forth in EPA's Technical Resource Document for Water Quality-based Toxics Control (EPA, 1991), and the Clean Water Act (CWA).

Comment ID: 46.005

Response

EPA's modeling indicates that selective use of barium hydroxide treatment will ensure compliance with TDS limits under Alternative B. Barium hydroxide treatment is a proven method to remove sulfate (and thereby TDS) from the effluent. As indicated in the NPDES permit fact sheet, long-term monitoring data show that Teck will be able to comply with all of the limits in the permit.

Comment ID: 46.006

Response

Should Alternative C or D be chosen, a draft NPDES permit would be prepared which details effluent limits for discharge to the Chukchi Sea. A summary of mixing zones that could potentially be used for a draft permit are presented in Appendix C. An NPDES permit would establish effluent and ambient monitoring requirements that would ensure protectiveness of water quality with respect to Alaska Marine WQS. As discussed in Section 3.10.3.4 of the final SEIS, the effects of the discharge on marine organisms would be minor and localized to invertebrates in the immediate vicinity of the discharge.

Comment ID: 46.007

Response

Reverse osmosis (RO) with pretreatment is required under Alternative A to reduce TDS levels in the fresh water discharge. The use of RO is unnecessary under Alternatives C and D because there is no need for TDS removal, i.e., there are no applicable water quality standards for TDS for protection of marine waters. The increased effects of installing an RO system (associated with additional power requirements and brine handling and disposal) greatly outweigh any benefits associated with its use under Alternatives C and D.

Comment ID: 46.008

Response

EPA appreciates the general comment related to the "risks" and "uncertainties" associated with the pipeline. More specifically, the use of filtration to separate solids (e.g., concentrate) from liquids is a proven technology used at mines throughout the world. The final SEIS has been clarified to indicate that the filtrate composition is expected to be comparable to the treatment plants' influent at the Red Dog Mine. The commenter is correct that this water includes a number of contaminants other than zinc and lead. The proposed treatment plant at the port, which is comparable to existing water treatment plants 1 and 2 at the mine site, represents proven technology to ensure that the effluent will be comparable to the current discharge to Red Dog Creek. The draft and final SEIS fully describe the impacts of the treated discharge on the marine environment.

Response

- 46.008 (cont) The use of a concentrate pipeline presents far too environmental many risks and uncertainties and should not be considered for use in any of the Alternatives.
- 46.009 7-The baseline data for *marine* resources [fish, marine sediments, benthic invertebrates, etc.] are inadequate to provide a numerical “yardstick” to compare present conditions with any potential future impacts. This must be rectified if expanded marine disposal is to be effectively regulated.
- 46.010 8-The baseline and monitoring data on which the SEIS and revised NPDES permit are based are all data collected by TC or its paid representatives. These are not from “independent” sources. Any EPA-approved approach should mandate that some percentage of all samples be collected and analyzed by totally independent parties.
- 9-Because several of the SEIS alternatives will require an EPA decision on reissuing the Red Dog NPDES permit, my previous comments on this permit are attached as Exhibit 2, and incorporated by reference here as if fully set forth.
- Specific Comments.*
- 46.011 1-Many of the past public disputes with TC revolve around the fact that all data are collected by TC or their representatives. Any alternative chosen must include provisions to allow collection, analysis and payment by TC of split samples of all wastes, waste waters, etc. by parties independent of any decision-making or financial control by TC.
- 46.012 2- Neither the SEIS nor other public Red Dog sources present data on the *detailed* chemistry of RD treated water at Outfall 001 [both filtered and unfiltered samples]. These sources also fail to present *detailed* chemical data on river bottom sediment chemistry downstream of outfall 001. Detailed analyses would include all relevant major, minor and trace components, both organic and inorganic, which are regulated by EPA Standards or Criteria. Both categories of data must be made public.
- 46.013 3-Logical selection of any alternative presented in the SEIS requires that a detailed water balance be presented for the present operating project. This water balance needs to be based on actual data, not computer simulations. After roughly 20 years of operation, all such data should be available.
- 46.014 4-Ground water (GW) data have been almost totally lacking in public documents for the RD project, both during baseline and operational periods. Now it appears that TC is concerned about increased melting, mobility and impacts from / to GW due to global climate change. These changes would greatly impact the overall site water balance--- which is largely “impressionistic” now. Thus, adequate GW monitoring and testing need to be performed and integrated into a water balance of present conditions. Such a water balance must include calculations of *loads* of all chemical constituents presently discharged at Outfall 001 that have EPA water quality Standards and / or Criteria.

Comment ID: 46.009

Response

Extensive detail on marine algae, invertebrates, and fisheries resources was provided in the Delong Mountain Terminal, Alaska - Draft EIS (Corps 2005) document. It includes detailed summaries of density and location various organisms that were sampled in the project region. That document was used as a reference to describe existing conditions on the marine resources in the area. Relevant information from the DEIS and other documents were cited as appropriate in this SEIS. The commentor did not provide specific information as to why he believes the marine resources data is inadequate.

Comment ID: 46.010

Response

Under penalty of law, Teck must certify all data reported to EPA under the requirements of NPDES permit. EPA and the State of Alaska routinely review these data and conduct compliance inspections at the site. EPA is under no obligation to require data collection by independent parties. Comments on the NPDES permit are addressed as part of the permit process, separate from the SEIS comments.

Comment ID: 46.011

Response

The NPDES program is self-reporting, meaning the discharger is responsible for sampling. Any arrangement for a third party to conduct “split” sampling would have to be done through Teck.

Comment ID: 46.012

Response

Results from Discharge Monitoring Reports (DMRs) from Outfall 001, which are available publicly, were used in the preparation of the final SEIS, and Draft NPDES permit. Section 3.5 summarizes studies characterizing water quality, both pre- and post-mining, as well as results from the monthly DMRs for Outfall 001. Sediment chemistry monitoring is not required by the NPDES or other permits and no data are available for the operating period of the mine.

Comment ID: 46.013

Response

A detailed water balance has been developed by Teck that is both predictive and actual. Actual water balance data is input annually in order to reassess and calibrate future expectations concerning water management and balance. The water balance was reviewed by EPA and is described in various sections of the final SEIS, including Section 3.5.2.1, Appendix B and by SRK, 2007 in the Administrative Record.

Comment ID: 46.014

Response

All of the recent ground water studies conducted by Teck and reviewed by EPA are referenced in the SEIS and available either publicly or as part of the Administrative Record. They were used to prepare the affected environment and environmental consequences discussions in Section 3.6. Please see responses to Comment ID 7.015 and 7.017 related to the effects of global warming on site-wide hydrogeology, especially melting of permafrost. EPA has specifically recommended continued ground water flow monitoring to detect changes and plan for future effects. EPA disagrees with the commentor’s characterization of the current site-wide water balance as impressionistic. In fact, it is based on long-term data collected at the site since the mid-1980s, including all of the inflows to the tailings impoundment. Similarly, the characteristics of tailings impoundment water and the discharge from Outfall 001 have been well characterized based on long-term monitoring, as described in Sections 3.3 and 3.5. This includes all pollutants that could be found in the discharge with relevant water quality criteria. It is important to recognize that the quality of the inflows to the impoundment vary. Both the shallow (seep and spring) and subpermafrost ground water quality data show elevated zinc and iron concentrations (see Section 3.6.2), similar to drainage from other sources at the mine site. In addition, subpermafrost groundwater has elevated TDS levels, also comparable to drainage from mineralized areas, e.g., at the waste rock dump and mine sump. As a result, any changes in ground water inflow should not affect the overall impoundment quality. Moreover, because of the proven performance of the treatment system, the future quality of the discharge from Outfall 001 is not expected to vary from current conditions.

Response

- 46.015 [Similar load calculations need to be presented for the various marine disposal alternatives.
- 46.016 [Disposal of mine wastes to the Chukchi Sea makes it easier for TC to deal with the undefined increases in volumes of discharge waters, but it also makes oversight of actual impacts and enforcement of relevant regulations more problematic and costly. It is orders of magnitude more costly to monitor marine conditions than similar conditions on land. Thus, many aspects often are ignored, especially when activities are performed by representatives of the company.
- 46.017 [Frequently, under such conditions, companies attempt to substitute computer simulations for actual data collection. Such simulations [plume migration, permafrost behavior, plume water quality, etc.] are subject to significant degrees of error.
- 46.018 [5--Baseline is assumed to be present conditions, NOT pre-mining due to mining impacts! Many interested parties want the Aqqaluk expansion to proceed, but it is clear that increased water, air and soils contamination will occur, but the full effects will be masked by the use of present conditions as baseline.
- 46.019 [6-Marine baseline (background) water quality data have been collected from only two unspecified locations with unspecified depths (pg.3-65). Details of this sampling [sample collection/ handling methods, dates, etc.] are not described. Only 4 to 6 water quality samples were collected and for these, the constituents determined were limited to Cd, Cl, Cu, Hg, Pb, salinity, Zn. This range of constituents is totally inadequate to define baseline. Also, the SEIS mentions that the laboratories had problems analyzing marine waters. Clearly these efforts did not use personnel and facilities accustomed to analyzing such waters.
- 46.020 [The baseline / background data for other important marine data are totally lacking, such as oceanographic measurements, marine biologic data, bottom sediment data, etc. **There will be no way to detect changes in water, sediment, etc. quality given the lack of detailed marine data presented in the SEIS.**
- 46.021 [The overall tone of SEIS consistently justifies or minimizes existing or future contamination and clearly is intended to promote the approval / development of the Aqqaluk expansion.
- 46.022 [7-The SEIS fails to adequately evaluate the potential advantages of employing paste tailings procedures, which may reduce leachate volumes.
- 46.023 [8-Most of the RD scenarios assume some form of perpetual water treatment will be required. Nevertheless, the regulators have allowed TC to provide financial assurance in the form of letters of credit. There exists significant risk that such self-guaranteed funds would no longer be available to the State of Alaska during a financial crisis. The

Comment ID: 46.015

Response

Please see the response to Comment ID 7.026

Comment ID: 46.016

Response

Please see the response to Comment ID 46.006.

Comment ID: 46.017

Response

Please see the responses to Comment ID 46.006 and Comment ID 7.025. EPA and ADEC generally accept the use of CORMIX, a model which was developed by EPA, in order to predict hydrodynamic mixing and mixing zone sizes.

Comment ID: 46.018

Response

For the purpose of the analysis, baseline conditions are existing conditions. However, pre-mining conditions are described for each resource. The effects discussion considers what has already occurred (also required as part of cumulative impacts) and what additional impacts would be anticipated.

Comment ID: 46.019

Response

The ambient monitoring data presented in Section 3.5.2.3 was collected in accordance with a plan developed under the port site discharge NPDES permit. As such, the plan was subject to EPA and ADEC review and has been included in the Administrative Record. All sampling and QA/QC procedures are consistent with EPA and ADEC-approved protocols. Monitoring data for 2008 has been added to the final SEIS and Teck's 2008 annual report. With the 2008 data, including improved performance for copper analyses, EPA would have sufficient ambient data to develop an NPDES permit for proposed marine discharge under alternatives C and D. EPA would further consider any future monitoring data that is collected prior to permit issuance.

Comment ID: 46.020

Response

As noted previously, extensive detail on marine algae, invertebrates, and fisheries resources is provided in the Delong Mountain Terminal, Alaska - Draft EIS (Corps 2005) document. It includes detailed summaries of density and locations for various organisms that were sampled in the project region. That document is cited a reference and establishes the existing conditions on marine resources in the area. This information is adequately summarized and referenced in the SEIS. If a marine discharge were selected, EPA could require a monitoring program to determine if the discharge was producing changes in the marine biota or habitat.

Comment ID: 46.021

Response

The comment is not specific enough to provide a full response. The SEIS acknowledges the effects that have occurred at the site and describes the effects that would occur if it were to be implemented under the proposed action and alternatives.

Comment ID: 46.022

Response

Section 2.4.5 of the draft and final SEIS describe EPA's rationale for not evaluating the use of paste tailings. The future use of paste tailings disposal does not yield any specific environmental benefits. The draft and final SEIS include a dry closure option for the tailings impoundment to potentially reduce long-term water treatment requirements.

Response

46.023 (cont) form of these financial assurance vehicles needs to be strengthened.

46.024 9-Detailed, independent, long-term toxicity testing is needed to evaluate present and future impacts to fish and other aquatic life. Such studies need to be performed with the chemically-complex waters being released to the environment at Red Dog, not with chemically-simple waters as has been used by several investigators employed by TC. Most of the trace constituents present in Red Dog and Aqqaluk ores have not been studied in any publicly-available toxicity tests, i.e. those described on pg.147.

46.025 The SEIS statements below also indicate that few conclusions about present toxicity are actually known:
Pg. 115, Risk Assessment: **“It is important to note that there is inherent uncertainty in this type of risk assessment in that it is a modeling exercise and true availability of contaminants and true risks are unknown.”**

46.026 Pg. 143, Ecological Risk Assessment Findings: “Exponent (2007a) concluded that levels of cadmium, lead, and selenium were high enough to suggest potential adverse effects; however, as these concentrations were below the maximum no-effect concentrations, effects could not be conclusively predicted.”

46.027 10-The SEIS has made no serious efforts to evaluate Cumulative Impacts from other sources to these marine and fresh waters, just as the original EIS failed to do so.

46.028 11-The SEIS assumes that disposal of high-concentration TDS effluents into marine environments is of no concern. That is simply untrue. As is well known, the Red Dog treated effluents contain TDS that is made up of many potentially-toxic metals, metalloids and other minor constituents. Disposal of millions of gallons per year of such TDS-rich effluent would smother some marine organisms, accumulate in the marine sediments, and would be consumed by benthic organisms. Such impacts have not been adequately evaluated in this SEIS.

46.029 12- The SEIS fails to adequately investigate the collective environmental impacts of removing the treated discharge waters from Outfall 001. For example, on page 158 it states: “Because of the increased metals concentration and reduced flow, the overall effects of flow diversion to the Chukchi Sea may be more negative than positive to aquatic resources of Red Dog Creek system.”

Comment ID: 46.023

Response

The State of Alaska is responsible for overseeing the closure plan development for the Red Dog Mine, including independently verifying the closure cost estimates and the adequacy of financial assurance mechanisms. These estimates and mechanisms are subject to periodic review by the State. We agree that financial assurance be adequate and in a secure form. However, EPA does not have the authority to require specific financial assurance for the Red Dog Mine.

Comment ID: 46.024

Response

EPA respectively disagrees with the commenter that the impacts of Red Dog mine effluent on aquatic resources have not been fully characterized. As discussed in Section 3.10.2, extensive, long-term studies of aquatic life have been conducted downstream of the discharge since the 1990. This biological monitoring takes into account the synergistic effects of all components of the discharge and clearly shows improvements compared to pre-mining conditions. Moreover, in addition to individual chemical monitoring, NPDES permit conditions require Teck to conduct whole effluent toxicity (WET) testing to measure the combined effects of all potentially toxic constituents in the discharge. WET limits are established in the NPDES permit based on background toxicity in area streams.

Comment ID: 46.025

Response

The SEIS summarizes information from Teck’s risk assessment (Exponent 2007) including the risk estimates and the uncertainties associated with those estimates. Although there are sources of uncertainty, the risk assessment uses conservative estimates of exposure concentrations (95% UCLs), toxicity reference values (NOAELs), and chemical bioavailability (100%) to provide conservative risk estimates.

Comment ID: 46.026

Response

Please see the response to Comment ID 46.025.

Comment ID: 46.027

Response

Marine and fresh water resources are considered in the cumulative effects section of the SEIS. For example, expansion of the DMTS port is included as a reasonably foreseeable action that would have an effect on marine water quality. The commenter was not specific regarding why he believes that the cumulative impacts analysis to marine and fresh waters is not adequate.

Comment ID: 46.028

Response

Section 3.10.3.4 describes the discharge’s impacts on the marine environment. The dissolved solids in the discharge are generally carbonate and sulfate salts whose makeup is dominated by calcium and magnesium. These salts are not harmful to marine aquatic life. Any NPDES permit issued for the discharges would have to ensure compliance with Alaska State Water Quality Standards (WQS) to protect aquatic life.

Comment ID: 46.029

Response

The preceding paragraph in the draft SEIS described the effects of relocating the discharge from Red Dog Creek, including “reducing periphyton, benthic organisms and possibly reducing fish growth or survival.” The effects on the marine environment are described in the following subsection (Marine Waters). The text in Section 3.10.3.4 in the final SEIS has been modified slightly but still describes the effects that would result from eliminating the discharge from Outfall 001.



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February 3, 2009

Patty McGrath, Red Dog SEIS Project Manager
EPA Region 10
1200 Sixth Ave, Suite 900, OWW-135
Seattle, WA 98101

Submitted via e-mail to: mcgrath.patricia@epa.gov

RE: Red Dog Mine Extension draft SEIS

Dear Ms. McGrath,

Thank you for the opportunity to comment on the draft supplemental environmental impact statement (SEIS) for the Aqqaluk expansion of Red Dog Mine. Since 1919, the National Parks Conservation Association (NPCA) has been the leading voice of the American people in protecting and enhancing our National Park System. Our primary interest in the SEIS is ensuring protection of the natural resources of Cape Krusenstern National Monument.

Range of Alternatives

47.001 [We were pleased to see the variety of alternatives presented in the SEIS. Both Alternatives C and D evaluated several excellent ideas and mitigating measures. However, we are extremely disappointed to learn that while EPA included and evaluated these options, they did not, and apparently cannot, require them. We especially found this odd as National Park Service compliance documents often include mitigating measures.

47.002 [NPCA cannot support the preferred alternative (Alternative B) unless it is modified to include at least one of the dust abatement measures from the other alternatives.

Dust Abatement

47.003 [Fugitive dust, laden with heavy metals, is responsible for severe contamination of the environment at the mine site, the port, and along the Delong Mountain Transportation System (DMTS). We appreciate the number of measures Teck Cominco has already employed to reduce fugitive dust, but even by their own account "there is more that can be done." We are pleased with the recognition the fugitive dust problem has received in the SEIS, and the exploration of either a slurry pipeline or truck washes to help further alleviate the problem.

Response

Author: Frankevich, Joan—NPCA Alaska Regional Office

Comment ID: 47.001

Response

EPA has identified mitigation measures in Section 2.5 with more detailed discussions throughout the document. However, EPA can only implement alternative components and mitigation measures that can be tied directly to requirements under the NPDES permit. The NPS would have a broader range of options in terms of mitigation since it is a land management agency and can put stipulations on activities occurring on the lands that it manages.

Comment ID: 47.002

Response

Comment noted. EPA has no authority to require dust abatement measures through its NPDES permitting program.

Comment ID: 47.003

Response

Thank you for your comment.

Response

Slurry Pipeline:

47.004 NPCA is fully supportive of construction of a pipeline for concentrate slurry as outlined in Alternative C. A slurry pipeline will eliminate nearly all the fugitive dust problem. Additionally, this substantial reduction in road traffic helps alleviate impacts to caribou migration. While we understand it is expensive, now is the time to build it since Teck Cominco has already committed to building another pipeline for wastewater in their legal settlement with the village of Kivalina. It makes good economical sense to lay the pipe for all three pipelines (wastewater, slurry, and fuel line) at the same time. We strongly urge construction of the slurry pipeline.

Truck Washes:

47.005 At a minimum, we hope to see year round truck washes built at both ends of the DMTS regardless if the slurry line is built. The fugitive dust problem has come at a great cost to Teck Cominco – both financially in new efforts to contain the dust, as well as in public relations and loss of support for the Red Dog Mine. The truck washes seem a relatively simple solution to a massive problem. Additionally the washes should be used for all vehicles as both the mine and port are highly contaminated areas.

Additional Mitigating Measures

47.006 NPCA is fully supportive of all the mitigating measures outlined in Alternatives C & D. We recommend the following also be incorporated into the final alternative: building a fuel pipeline, closing the road during fall caribou migration, and closing the port during June beluga migration. All these measures help protect resources including subsistence and ensure the public that Teck Cominco is committed to the environment.

Closure Procedures

47.007 NPCA sees problems with both closure procedures: to continue wastewater discharge into the Chukchi Sea or to remove the pipeline and return to discharging wastewater into Red Dog Creek. Since wastewater from the mine tailings will need to be treated in perpetuity, there are no easy answers and at this time NPCA has no clear preference for either option. We understand the village of Kivalina's request that the wastewater no longer be discharged into their water supply. Alternately, if the wastewater pipeline remains through Cape Krusenstern, then so will the road. It seems increasingly likely the DMTS will never be closed and reclaimed as originally planned. It is extremely disheartening to look into the future and realize that this "temporary" road built through one of our nation's national treasures will very likely remain in perpetuity.

Future Studies

47.009 NPCA hopes Teck Cominco continues to monitor the amount of fugitive dust that is being deposited. We are optimistic that the previous dust abatement measures combined with a slurry pipeline or truck washes, will go a long way in reducing this problem. Regardless, a lot of contamination has already taken place. Continued studies to determine the effects of heavy metal contamination on the tundra and the food chain are also warranted. Compounds are weathering and may be more readily absorbed by plants and animals over time. Additionally we recommend studies be done to determine whether Noatak National Preserve has been contaminated by fugitive dust.

Thank you for the opportunity to comment.

Sincerely,

Joan Frankevich
Program Manager
NPCA Alaska Regional Office

Comment ID: 47.004

Response

Thank you for your comment. EPA has identified the slurry pipeline as part of the environmentally preferred alternative. However, selection of the slurry pipeline is outside EPA's authority in issuing the NPDES permit. Its implementation, however, would be based on Teck's approach to addressing its lawsuit settlement.

Comment ID: 47.005

Response

The commenter should be aware that the focus of the truck washes is to minimize concentrate dust on the exterior of the trucks and trailers. This would not be an issue under Alternative C since concentrate would be transported as a slurry in a pipeline. Fugitive dust would continue to be generated under all alternatives with or without truck washes. Because of the gravel road surface, truck tires would continue to generate fugitive dust in dry conditions and mud would accumulate on (and fall from) the trucks along the road under wet conditions.

Comment ID: 47.006

Response

Thank you for your comment.

Comment ID: 47.007

Response

Comment noted. Based on the final SEIS analysis, EPA will identify an environmentally preferred alternative that will take into account potential impacts that could result from discharging to Red Dog Creek or the Chukchi Sea after closure.

Comment ID: 47.008

Response

Comment noted. However, removal of the DMTS road was not a foregone conclusion when the 1984 EIS was drafted. The 1984 EIS discloses in numerous places that the "access road" could remain in place beyond the life of the mining operation, including in the reclamation discussion. The discussion of irreversible and irretrievable resources in the 1984 EIS noted that "the land status of Cape Krusenstern National Monument would likely be permanently altered by the issuance of a right-of-way...the undeveloped nature of the project area would be permanently altered."

Comment ID: 47.009

Response

Comment noted. The monitoring proposed under the fugitive dust risk management is intended to monitor trends in deposition rates as well as the fate of contaminants already present. EPA recommended to ADEC that the risk management plan require the monitoring and mitigation measures for fugitive dust, including monitoring in the western portion of the Noatak National Preserve. EPA does not have the authority under the NPDES program to require air quality or moss sampling.

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Chapter-Page Section	Line Number	Agency	Comment
Abstract	44	DEC/CSP	The last sentence in the Abstract is unclear. It would be beneficial to readers to include in the general background discussion the various aspects that are undergoing for Red Dog Mine by the State including the mine closure permit and risk assessment for fugitive dust and identify what Department/program within the State is regulating that work, e.g., ADNR or ADEC/Contaminated Sites Program.
Executive Summary Section 1.0		DEC/CSP	As part of that discussion it would be beneficial to include a figure of the area taken from the risk assessment report that shows the entire area from the port to the mine including the area of the mine within the solid waste boundary. It would be useful also to show that the proposed Aqqaq project is within this solid waste boundary. Figure 3-4 is provided later in the SEIS but that figure does not clearly show whether the Aqqaq project is within the ambient and solid waste boundary. As noted for the Executive Summary, it would be beneficial to readers to include in the general background discussion the various aspects that are undergoing for Red Dog Mine by the State including the mine closure permit and risk assessment for fugitive dust.
Chapter 1 Section 1.1		DEC/CSP	The section under the subheading "U.S. Environmental Protection Agency" should also note that the facility must comply with EPA's Spill Prevention Control and Countermeasures (SPCC) regulations for existing fuel storage areas.
Section 1.6.1		DEC/CSP	

Response

Author: DiMarchi, Jack—Alaska Dept. of Natural Resources

Comment ID: 48.001

Response

The last sentence of the Abstract has been rewritten.

Comment ID: 48.002

Response

The State roles and responsibilities are already described in Section 1.6.2. ADNR and ADEC have participated throughout the development of the SEIS as cooperating agencies and have been welcome to contribute input. Since it has no bearing on the decision-making process for EPA or the Corps, EPA does not see that including a figure of the solid waste permit boundary would bolster the impact analysis as it has been drafted.

Comment ID: 48.003

Response

EPA additional information on the risk assessment process has been added to Section 1.6.4. EPA prefers not to add additional discussion of the closure plan. ADEC's limited authority to require a number of mitigation measures related to fugitive dust and the presence of contaminants has caused confusion and concern on the part of a number of SEIS reviewers. EPA has provided additional detail on the process to explain the degree to which additional mitigation measures may or may not be identified or required under the process.

Comment ID: 48.004

Response

Comment noted. This information has been added to Section 1.6.1.

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48.005	Section 1.6.2 State and Local Government	DEC/CSP	<p>Under the general heading 1.6 it notes agencies responsibilities, approval and compliance and then discusses the primary roles of the agencies involved in the Aqaluk Project including a description of the major permits and authorizations required for the project as well as how the project complies with environmental laws as they pertain to each of the responsible agencies. However, under the various subheadings it appears that discussion is more focused on permitting and approvals for the project and does not necessarily include all of the regulations that the project may be required to comply with. Specifically, under Section 1.6.2 for ADEC, there is no mention that the facility must address releases of hazardous substances regulated under 18 AAC 75 regulations and oversight provided by ADEC's Spill Preparedness and Response Division (SPAR). Earlier under Section 1.5, the document notes that Issue 3 and Issue 4 are concerned with fugitive dust impacts and mining operations impacts to receptors. SPAR's Prevention and Emergency Response Program (PERP) is responsible for overseeing initial hazardous substance releases, and SPAR's Contaminated Sites Program (CSP) is responsible for overseeing longer term releases of hazardous substances and is currently overseeing the fugitive dust issue between the port and the mine that is the subject of a Teck risk assessment and draft risk management plan.</p> <p>Also, there is no discussion on the 2005 dated Memorandum of Understanding (MOU) (updated in 2007) ADEC has with Teck that is overseen by ADEC's Air Program. Suggest review of the intent of Section 1.6 and if it is to include the regulations that the project must comply with or potentially comply with, other considerations be addressed. If so, please include such language that spills are regulated under the oversight of SPAR's PERP and CSP programs.</p>
48.006	Chapter 2 Section 2.0 page 2-1	DEC/CSP	<p>It is unclear how the mine's closure plan and fugitive dust risk management plan will relate to the four alternatives. Suggest some language be included that address this issue.</p>

Response

Comment ID: 48.005

Response
Again, ADNRR and ADEC have participated throughout the SEIS's development as cooperating agencies. EPA would be happy to consider specific suggestions for edits to the existing language. However, it is not clear what benefit a discussion of the Spill Preparedness and Response Division or the Prevention and Emergency Response Program would provide to the SEIS.

Comment ID: 48.006

Response
Comment noted. The closure plan and risk management plan would be implemented as appropriate regardless of which alternative is selected.

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48.007	Section 2.2.1 page 2-5	1-15	DEC/CSP	Reference to mine closure should be clarified, i.e., closed under permit by ADNR. Reference to the lined waste facility (line 24) should be clarified who would be approving of this facility. This section also notes that the tailings impoundment and from the Main Pit would be treated for perpetuity. It is unclear whether this is in accordance with the mines closure plan. Also, under Section 2.2.2, it notes that the wastewater from the tailings impoundment would be treated as long as can be predicted. It would seem language similar to Section 2.2.2 should be used in Section 2.2.1.
48.008	Section 2.2.2 page 2-5	1-17	DEC/CSP	Reference to mine closure should be clarified, i.e., closed under permit by ADNR.
48.009	Section 2.2.2 page 2-9	6	DEC/CSP	Section 2.2.2, notes that the wastewater from the tailings impoundment would be treated as long as can be predicted. The timeline on the prediction should be clarified. i.e., 2031?
48.010	Section 2.2.3 page 2-10		DEC/CSP	How would the wastewater and concentrate slurry be transported to the port via the pipeline, i.e., by gravity?
48.011				Is seepage expected from the impoundment dam and if so, how would it be treated and would this be considered a non point source and not requiring a NPDES permit?
48.012	Section 2.3.4 page 2-13		DEC/CSP	How would the wastewater be transported to the port via the pipeline, i.e., by gravity?
48.013				Is seepage expected from the impoundment dam and if so, how would it be treated and would this be considered a non point source and not requiring a NPDES permit?
48.014	Section 2.3.11 page 2-25 and 26		DEC/CSP	Some discussion should be included that a permit is required for the fuel storage by ADEC.
48.015	Section 2.3.18 page 2-29	35	DEC/CSP	Suggest rephrase the first line to state "A detailed reclamation and closure plan is being developed for approval by the State of Alaska that"

Response

Comment ID: 48.007

Response

The text in the final SEIS has been modified to indicate that the closure plan would be authorized by ADNR and that any brine disposal unit would likely be regulated under the State's solid waste regulations. The final permitting requirements would be determined if this alternative was selected. The language in Section 2.2.1 describing how water treatment would be necessary for as long as can be predicted has been modified to be consistent with Section 2.2.2. It is EPA's understanding that this is consistent with the proposed closure plan under ADNR review.

Comment ID: 48.008

Response

The suggested change was made to the text.

Comment ID: 48.009

Response

The need for treatment would extend beyond mine closure in 2031. While water quality is expected to improve, there isn't any way to anticipate when treatment would not be required to meet discharge limits. The final SEIS has been revised to say that treatment is always expected to be needed.

Comment ID: 48.010

Response

The wastewater pipeline would flow by gravity. The concentrate and diesel would be pumped. The text in Section 2.2.3 has been clarified.

Comment ID: 48.011

Response

Under all alternatives, tailing impoundment seepage during operations would continue to be collected and treated prior to discharge through an NPDES permitted outfall. As discussed in Section 2.3.18, at closure, seepage would be collected and managed in the Aqqaquluk Pit. Water in the pit would be treated and discharged according to conditions and effluent limits specified in an NPDES permit.

Comment ID: 48.012

Response

The wastewater pipeline would flow by gravity. The text in Section 2.2.4 has been clarified.

Comment ID: 48.013

Response

Please see the response to Comment ID 48.011.

Comment ID: 48.014

Response

Comment noted.

Comment ID: 48.015

Response

The edit to the text was made per the suggestion.

Comment ID: 48.016

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48.016	Section 2.4.3 page 2-32	DEC/CSP	Did EPA consider the expansion of the port facilities to include a deep water port that would allow ocean going vessels to load near the shore. Thus if implemented, would eliminate the barges that are used at this time. This would potentially reduce one mechanism of releasing fugitive dust to the environment.
48.017	Tables 2.5-2 and Table 2.6-1 pages 2-37 - 39	DEC/CSP	Table 2.5-2 and Table 2.6-1 refer to the same document but in different context. Table 2.5-1 states the draft fugitive dust risk management plan and Table 2.6-1 states the Risk Management Plan. Currently the plan in draft form and six more detailed subplans of the Fugitive Dust Risk Management Plan are to be submitted by Teck to ADEC for approval. Suggest rephrasing the two tables to minimize confusion by the readers.
48.018	Table 2.7-1 page 2-44	DEC/CSP 36	Same below comment applicable to Table ES-1 under The Executive Summary (page ES-10) and under the column "Resource" subheading "Vegetation" and under the column "Impact" subheading "Dust impacts." For Alternate B the table under the above subheading (Vegetation/Dust impacts) notes that some reduction could occur through implementation of the risk management plan. This comment should be applied to all four alternatives and not be limited to only Alternative B. At this time, ADEC CSP has not received the six more detailed plans for the risk management plan from Teck. The plans are expected to include discussion how Teck will address risks identified in the risk assessment report for fugitive dust that CSP approved in December 2007."

Response

Response

EPA did not consider expansion of the port facilities in detail. The suggested approach would eliminate the barges without affecting the concentrate transfer process that would need to occur at the port facility. Eliminating the barges would remove a single step in the concentrate transfer process that now occurs approximately three miles offshore. The existing barge-to-ship transfers occur under conditions where negative pressure is generated within the barge, with emissions from the barge (and conveyors) controlled by bag houses. Note that a deep water port expansion of the DeLong Mountain Terminal was evaluated independently under a draft EIS prepared by the Corps of Engineers. This document was reviewed in preparation of the draft SEIS.

Comment ID: 48.017

Response

Since the risk management plan's format has not been finalized, the final SEIS has been revised to consistently refer to the draft risk management plan.

Comment ID: 48.018

Response

The statement in question has been deleted since it is unclear that any identified measures under the draft risk management plan would bring about changes due to the uncertainty in the plan's status and the authority that could be exercised to require any of the identified measures.

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48.019	Chapter 3 Section 3.2.2.2 page 3-10 and 3-11	DEC/CSP	<p>Under the subheading "Delong Mountain Regional Transportation System Deposition, the text discusses studies performed by the NPS but does not discuss investigations performed by Teck's consultants including Exponent or by ADEC's contractor Ecology & Environment on a 2002 berry study.</p> <p>The text also notes that Figure 3.3 compares modeled lead concentrations in soil to arctic cleanup levels in soils. The figure does not compare lead soil concentrations to cleanup levels. This sentence should be rephrased to state that Figure 3.3 compares various groupings of modeled soil concentrations at the site.</p> <p>In addition, the narrative discusses the ADEC lead cleanup level of 400 mg/kg. We suggest that some further discussion be clarified on this cleanup level as this level is a default cleanup level under 18 AAC 75.341 Method Two and was determined protective for human health in a residential scenario. Method Two cleanup levels were calculated to be protective for human health and not necessarily for ecological receptors. ADEC cleanup levels can also be developed that are site specific by performing a risk assessment under 18 AAC 75.341 Method Four which will address human health and ecological risks. Teck performed such a risk assessment which final report was approved by ADEC in December 2007. The ADEC approval requested Teck to provide ADEC with a risk management plan to address risks to ecological receptors that were identified in the risk assessment report. The report did not identify any current risk to humans.</p>
48.020			
48.021			
48.022	Section 3.2.2.2 page 3-11	DEC/CSP	<p>Under the subheading "Evolution of Dust Control" it states that "Stressed vegetation has been observed adjacent to mining activities within the mine site." Teck's risk assessment report also notes that stressed vegetation has been observed along the DMTS. The SEIS should be modified to reflect that the risk assessment report stated that stressed vegetation has also been observed along the DMTS.</p>

Response

Comment ID: 48.019

Response

The studies cited in the Air Quality section were not intended to be all-inclusive, but rather illustrative of the study types that focus on fugitive dust distribution. For example, the E&E study clearly states that its focus is on "similarities and differences in metal concentrations between data sets collected at and near the Port, Noatak, and Point Hope." The E&E study does not provide additional insight into the extent or distribution of fugitive dust and therefore is not included in the discussion. Exponent's studies are references in the subsection titled Ecological Risk Assessment Sampling.

Comment ID: 48.020

Response

The figure has been revised in the final SEIS to only illustrate observed lead concentrations in moss. The comparison to cleanup levels has been eliminated.

Comment ID: 48.021

Response

Comment noted. The discussion of cleanup levels has been removed since it is not directly relevant to the SEIS process. In terms of the conclusions about risks to humans, EPA's assessment of the risk assessment portion that addressed contaminants in caribou was that the risks were understated, as discussed in Section 3.13.2.1.

Comment ID: 48.022

Response

The subheading "Evolution of Dust Control" has been retitled "Mine Site" to more accurately describe the paragraph's focus. The discussion of effects on vegetation along the DMTS and elsewhere is presented in the vegetation section (3.7.2). Additional discussion of vegetation under the air quality discussion is unwarranted.

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48.023	Section 3.2.2.2 page 3-11	DEC/CSP	Under the subheading of "Ecological Risk Assessment Sampling" the narrative does not state what the findings of the sampling or the risk assessment were. In the previous subheading, it notes that stressed vegetation was observed. This should also be reiterated in this section that stressed vegetation has been observed along the DMTS and that there is potential for impacts to small mammals and ptarmigan. This would lead into the sentence "Additional detail....."
48.024	3.2.3.1 page 3-16	DEC/CSP	The report lists seven items to be included in the fugitive dust risk management plan (FDRMP), per the MOU (ADEC 2007). It does not appear these items are required to be included in the FDRMP under the MOU. As a general comment, no specific actions are provided in the FDRMP but are deferred to six individual implementation plans. It is unknown, at this time, if the items listed in this section or referred to in other sections throughout Section 3 will be included in the implementation plans.

Response

Comment ID: 48.023

Response

The section in question is about air quality with the subsection's focus on fugitive dust distribution. Effects to vegetation, birds and mammals are discussed in detail in the relevant sections.

Comment ID: 48.024

Response

The final SEIS includes the items identified in the draft fugitive dust risk management plan since that was the only document available. The document is cited as a draft, and the uncertainties surrounding its ultimate content and likelihood of being implemented (or enforced) are disclosed in the SEIS.

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48.025	3.2.3.1 page 3-16	30	DEC/CSP	<p>The report states the following:</p> <p><i>“Regardless of the steps taken to reduce fugitive dust emissions, the plan [FDRMP] should include a monitoring approach that (1) is adequate to quantify changes in emissions/deposition in response to the new dust control measures to determine whether they are having an effect, and (2) allows results to be shared with the local community so that they can be aware of changes in the status of fugitive dust from future operations. The agencies are still discussing how monitoring may be required under existing permits or authorizations”</i></p> <p>Although it is plausible that the listed information would be addressed in the FDRMP and/or associated implementation plans, these items have not yet been listed as requirements by ADEC’s CSP. It is unclear what is exactly meant how monitoring may be required under existing permits or authorizations. CSP does not issue permits. It is unknown whether any other State agency or program will approve of the FDRMP other than CSP. After satisfactorily addressing its comments, CSP expects to approve of Teck’s FDRMP and its six subplans sometime in the future (although it has not yet seen the six subplans) but it would simply approve of the plans, i.e., with possible conditions.</p> <p>The text states that “Since this type of study can be included within ADEC’s waste management permit,” It is unclear what is exactly meant by ADEC’s waste management permit. Suggest clarifying the specifics on the permit and what program within ADEC would be issuing such a permit. It is suspected that the text refers to the ADEC Waste Management Permit as identified in Section 3.7.3.1.</p> <p>This section does not discuss Alternative C’s wastewater and fuel pipelines between the port to the mine and the potential for releases and impacts to human health or the environment. Suggest adding language to address this issue.</p>
48.026	3.3.2.4 page 3-29	40	DEC/CSP	
48.027	3.3.3.4 pages 3-34 and 3-35		DEC/CSP	

Response

Comment ID: 48.025

Response

The quoted statement is simply a suggestion within the SEIS’s context based on the FDRMP’s contents. EPA is aware of the process’s limitations and has made every effort to disclose the likelihood for implementing measures associated with the FDRMP.

Comment ID: 48.026

Response

The text has been edited to read ADEC Waste Management Permit.

Comment ID: 48.027

Response

The cited section generally refers to the long-term geochemical behavior of materials at the mine as well as areas along the road and at the mine and port that have been affected by fugitive dust. Impacts from a spill primarily would be localized and short-term. Under the provisions of a SPCC Plan, Teck would be required to clean-up any residual materials from a concentrate pipeline spill. A wastewater pipeline spill’s geochemical effects would be limited because the treated wastewater has low metals concentrations. Potential spills and their impacts are described in the surface water (Section 3.5), wildlife (3.9), and aquatic resources (3.10).

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48.028	DEC/CSP	3-5.2.3 pages 3-62 to 3-66	<p>This section discusses oceanography near the terminal and focuses on information from the 2005 draft EIS. It may be useful to the reader to include reference to other marine information collected by Teck and other groups such as findings of sediment sampling. This information would be pertinent to following discussion on Alternative C. Such information is provided under Section 3.10.2.2 but some reference to these investigations may be beneficial as well in Section 3.5.2.3.</p>
48.029	DEC/CSP	40	<p>Under the subheading "Permafrost Layer" it notes that because of the additional warming that now there is a zone where there is no permafrost under the dam. It is unclear whether there is no permafrost at all in this zone or that the top of the permafrost layer is now found deeper than previously detected, and if the latter, what is the current depth of the top of the permafrost layer and how much has it decreased.</p>
48.030	DEC/CSP	3.6 General Comment beginning page 3-74	<p>Discussion in Section 3.6 states that there are permafrost absent areas such as under the tailings pond. It would be beneficial to clarify this or is it that the top of the permafrost layer has just receded to deeper depths because of other effects such as global warming.</p>
48.031	DEC/CSP	11	<p>The following sentence appears near the middle of the paragraph: "Both the coastal plain and tundra communities....." However, no mention is made of mosses and lichens, which are plentiful in these plant communities. To be complete, the text should also say that a variety of mosses and lichens form the bottom layer in these plant communities.</p>
48.032	DEC/CSP	Table 3-9-2 page 3-114 and 3-115	<p>Table 3-9-2 presents only maximum NOAEL-based hazardous quotients (HQs) for wildlife. In general, this table creates the impression that conditions at the site are worse than presented in the final fugitive dust risk assessment (RA). The final RA drew conclusions about risk based on consideration of both NOAEL and LOAEL based HQs and spatial extent of contamination. Suggest that the SEIS add a column to the table and present also the LOAEL based HQs for the chemicals and receptors listed.</p>

Response

Comment ID: 48.028

Response
EPA feels that Section 3.10.2.2 is the appropriate location to discuss marine bottom sediment quality as it relates to potential impacts to marine aquatic life. Section 3.5.2.3 focuses on background conditions that can affect water quality, including tides and currents.

Comment ID: 48.029

Response
Permafrost is completely absent underneath the dam (WMC 1997, and later reports). EPA has added additional text to Section 3.6.2 of the final SEIS to clarify this issue.

Comment ID: 48.030

Response
Permafrost is completely absent underneath the dam (WMC 1997, and later reports). EPA has added additional discussion to Section 3.6.2 to clarify this issue. It is possible that permafrost was completely absent in this location – but to a smaller extent - before mining started, because of the South Fork’s original streambed flow. While some data does indeed indicate this condition, no conclusive evidence is available describing permafrost location before mining started.

Comment ID: 48.031

Response
Text in Section 3.7.2 has been revised to state: “Both the coastal plain and tundra communities are dominated by cottongrass, dwarf Arctic birch, diamondleaf willow, bog blueberry, salmonberry (Rubus spectabilis), Labrador tea, lingonberry (V. vitis-idaea), crowberry, and a variety of moss and lichen species.”

Comment ID: 48.032

Response
Table 3.9-2 has been revised to include the LOAEL-based HQs.

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48.033	3.9.2.1 page 3-92	31	DEC/CSP	It is unclear whether the vegetation plan is also required by ADNR for closure and reclamation. Currently, the Section reads as if the plan is required by only ADEC. Later in this Section the text notes that Teck is working with ADNR with the revegetation issue so it would seem that some language up front in this Section that the plan is also required by ADNR is necessary.
48.034	3.9.2.1 page 3-116	13	DEC/CSP	The second bullet states that "(Note that under the draft risk management plan, ADEC will require additional sampling of these species to monitor risk levels." Suggest rephrasing to "(Note the draft risk management plan proposes to perform further sampling to monitor exposure and risk for these species to address ADEC's concerns.)"
48.035	3.10.3.1 page 3-151	7	DEC/CSP	The text states that a large fuel spill would basically not be an issue because the marine ecosystem is very sparse and limited in value and ecosystem function per the USCOE. This statement should be considered opinion and removed from the text or qualified as it is scientifically baseless.
48.036	3.12.3.2 page 3-228		DEC/CSP	In several places in Section 3 including in Section 3.12.3.2, EPA mentions uncertainty in the caribou data and the resulting conclusions in the risk assessment. Actions to address this uncertainty and impacts on the risk assessment should be identified in the SEIS.
48.037	3.12.4 page 3-235	35	DEC/CSP	The text states that "Contamination continues to be a major concern for local residents but studies on contaminants in subsistence resources have been inconclusive." The human health risk assessment for the DMTS and port site used site-specific data on level of contaminants in subsistence foods to estimate exposure and risk and draw conclusions. The studies on subsistence resources cannot be generalized to be "inconclusive." Site-specific contaminant levels in berries, ptarmigan and caribou were used in the human health component of the risk assessment (HHRA). There are assumptions used in the HHRA but the results do show no unacceptable increased risk for consumption of subsistence foods.

This issue is similar to the below issue which we provide comments on, i.e., for line 37 Section 3.13.2.1 page 3-40, subheading "Effects of Existing Operations on Subsistence, Nutrition, and Diet-related Diseases."

Response

Comment ID: 48.033

Response
A revision in the final SEIS was made per the comment.

Comment ID: 48.034

Response
A revision in the final SEIS was made per the comment.

Comment ID: 48.035

Response
The intertidal communities in the areas that could be impacted by a spill are in fact sparse. EPA has removed the reference to "limited in function and value" from the final SEIS.

Comment ID: 48.036

Response
EPA did include a monitoring measure to reduce uncertainty. In Section 3.13.2 (see also Table 2.5-2) EPA recommends that metals in various tissues of caribou that are being consumed be monitored. EPA does not have the authority in the NPDES permit to require this monitoring and/or mitigation to address the uncertainty related to risks associated with caribou consumption. However, we have made recommendations to Teck and the State for additional monitoring, which could be incorporated into the risk management plan.

Comment ID: 48.037

Response
The text in Section 3.12.4 has been revised to include the main conclusion of the human health risk assessment regarding subsistence resources, specifically: "the risk assessment concluded that the concentrations of metals in subsistence areas did not pose a human health risk and that harvests of subsistence resources could continue in all areas."

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48.038	3.13.2.1 page 3-240	37	DEC/CSP	In the last paragraph of the subheading "Effects of Existing Operations on Subsistence, Nutrition, and Diet-Related Diseases," the text states that the risk assessment is based on a set of assumptions but has not been validated through direct studies. It is true the risk assessment is based on a set of assumptions that should be investigated in development of the implementation plans from the draft FDRMP although data is available on chemical concentrations in subsistence foods (i.e. berries). This information should be mentioned in this section of the SEIS.
48.039	3.13.2.1 page 3-248	19	DEC/CSP	Under the subheading "EPA HHRA Findings," the text states: "The draft risk management plan includes provisions to (1) develop a monitoring plan for foods and water and (2) determine safe consumption levels in subsistence foods and water." Please note these issues were identified in the draft FDRMP as possible actions but were not yet identified as actions to be implemented.
48.040	Page 3-240		DNR - OPMP	In the section titled "Effects of Existing Operations on Subsistence, Nutrition, and Diet-Related Diseases" the last paragraph should also mention that other studies (DEC & DHSS) also showed no contaminant levels of concern from water in the Wulik River.
48.041	Page 3-241		DNR - OPMP	In the section titled "Effects of Existing Operations on Social and Psychological Health," Surely there should be some positive social and psychological health benefits resulting from an improved economy and increased employment?
48.042	Page 3-258 & 3-259		DNR - OPMP	In the Effects of both Alternative C and D, the statement is made that the elimination of the discharge into Red Dog Creek may help address some villagers concerns about drinking water and subsistence food safety. While this may be true as a perception, in reality there is a possibility that these alternatives could actually degrade the water quality of Red Dog Creek.

Response

Comment ID: 48.038

Response
The text has been modified to address the comment. Section 3.13.2.1 has been revised to indicate that the HHRA included data for contaminants in some subsistence foods.

Comment ID: 48.039

Response
The text in the final SEIS has been clarified to indicate that the draft risk management plan included the referenced provisions as possible future actions.

Comment ID: 48.040

Response
Section 3.13.2.1 has been revised to note the findings of the DHSS study on drinking water.

Comment ID: 48.041

Response
The social and psychological benefits from positive economic conditions are well established and referenced in the General Health Status section (p. 3-237 of the draft SEIS). The positive effect of employment on suicide rates is discussed in the sub section on injury.

Comment ID: 48.042

Response
As discussed in Section 3.5.3.3 for Alternative C, water quality would be degraded somewhat in Red Dog Creek. However, changes to water quality in Ikalukrok Creek, would be expected to be small because of the larger water volume. No impacts to water quality, drinking water, or human health would be expected in the Wulik River, again because of the larger water volume. These effects are discussed in Section 3.5.2.2 and illustrated in Table 3.5-8 for the current conditions. These conditions would not significantly change under Alternative C.

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State of Alaska General Comments:

The State requests that these 3 additional comments be considered in the formulation of the final SEIS document.

1) Selection of “Wet” closure option as part of the environmentally preferred alternative

As stated in Section 1.6.2 of the draft Red Dog SEIS, the closure and post-closure activities at Red Dog, including water treatment and the financial assurances for these activities, are regulated under State authority. The State is currently in the final stages of reviewing Teck's draft Red Dog Mine Closure and Reclamation Plan (including the Aqqaluk deposit) with the objective of approving a plan in 2nd quarter 2009. The proposed plan prescribes a “wet” closure for the Red Dog tailings facility. The State endorses the company's “wet” closure proposal and strongly recommends that the EPA endorse the “wet” closure option as the part of the “environmentally preferred” alternative in the final SEIS for the reasons outlined below:

- In arriving at the wet closure option, the State collaborated with Teck, technical consultants and the public when evaluating both wet and dry closure options. Evaluating the mine closure options and selecting the wet alternative was a 2-year consultation process, including at least 20 meetings and workshops between the stakeholders (NANA, the Subsistence Committee, all 11 regional villages and multiple meetings with the residents of Kivalina and Noatak) and the state agencies and technical consultants including SRK and URS. As a result the wet closure option as proposed in the company's draft reclamation and closure plan is supported both by a thorough technical evaluation and a wide stakeholder base.
- The proposed “Clean Pond” wet closure method was the first choice of >50% of the participants in the first workshop (April, 2006) and ~90% of the participants in the second workshop (June, 2006).
- The primary technical reasons for selecting the wet closure alternative were that water cover is the only technology that has been proven to control the oxidation of sulfide-bearing tailings over a long period of time, and the fact that the company has already successfully shown the efficacy of a wet cover over its tailings for many years at the Red Dog Mine.
- The dry closure alternatives were also examined in the selection process. However, geotechnical experts raised a number of technical issues associated with the dry closure alternative that indicate that there is a significant risk of failure under the dry closure method, including:
 - Operational difficulty of constructing a dry cover over unconsolidated tailings similar to those difficulties experienced at the Faro Mine, where the use of heavy equipment on the tailings was problematic.
 - Differential settling of the tailings, due to desiccation and freeze/thaw processes, is inevitable and this will lead to the introduction of water and oxygen into the tailings and initiate acid drainage and metal leaching.
 - Further analyses (URS Corporation, 2007, “Seepage Analysis Report, Tailings Main Dam, Future Raises to Closure, Red Dog Mine, Alaska”,) showed that, under the dry closure alternative, the cover and the upper tailings would be subject to periodic drying and

48.043

Response

Comment ID: 48.043

Response

EPA appreciates the process that the State followed in determining the preferred closure option for the tailings impoundment (“wet pond”). The final SEIS, however, presents a technical evaluation of the wet versus dry closure options. EPA acknowledges the technical issues raised by the commenter regarding dry closure and has added additional text to the final SEIS regarding feasibility. Specifically, the dry cover would have to be installed during winter onto a frozen surface. It is unclear how the cover would then be affected by subsequent thawing. In addition, differential settling of the tailings would occur for many years after closure and would likely affect the cover's integrity and effectiveness. Both issues could limit the cover's ability to minimize infiltration and reduce oxidation exposure. Additional information has been added to the final SEIS regarding the sources of and impacts from the borrow materials needed for dry closure.

Based on the discussion above, the final SEIS indicates that wet closure is the environmentally preferred closure alternative. EPA also recognizes the comment that the closure plan will likely be re-visited in the future as the tailings impoundment is expanded and additional data are collected. See also response to comment 10.011.

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Comment ID: 48.044

Response

The final SEIS clearly indicates that water quality in Red Dog Creek has improved since pre-mining conditions; Section 3.10.2.1 clearly describes the improvements in aquatic life conditions cited by the commenter. Mainstem Red Dog Creek would not return to pre-mining water quality if Alternative C or D is adopted since the water would not pass through the mineralized area associated with the mine. As discussed in Section 3.10.3.2, however, water quality will be worse than current conditions and there will be likely be a negative impact on aquatic life. The exact magnitude of these impacts cannot be determined, i.e., biological conditions will not necessarily return to pre-mining conditions. In Section 3.10.3.4 of the final SEIS, EPA has added language to indicate that Alternative C and D could specifically lead to reduced viability and/or eliminated arctic grayling and Dolly Varden rearing and spawning in Red Dog Creek as well as potentially impacting grayling migration to North Fork Red Dog Creek.

48.043
(cont)

- wetting, creating both a potential for sulfide oxidation and a means to transport the resulting contaminants to the surface. As a result acid generation and metal leaching may not be prevented under the dry closure alternative.
- A dry closure would require a large quantity of clean material to act as a cover. The SEIS fails to address the quantity of clean cover material that would have to be acquired and the possibility that no local source could supply that quantity.
 - Considering that the tailings pond is a basin, and will remain such, it will be very difficult to maintain it as a dry facility. It will likely fill with water and end up wet anyway.
- Other concerns raised by community members about the dry cover option included the potential for uptake of contaminants by animals using the cover, and the increased toxicity of any seepage.
 - Even though one possible positive outcome of the dry closure alternative would be a reduction in the volume of water that would require water treatment, the dry closure would not entirely eliminate the need to treat water. As a result there would be a continued need for water treatment in perpetuity with either the wet or dry closures.
 - The operational challenges of constructing a dry cover over unconsolidated tailings, the risks associated with maintaining the long term integrity of the dry cover, and doubts about the efficacy of a dry cover in preventing acid generation and metal leaching all indicate that the wet cover has a greater chance of meeting the primary objective of controlling acid drainage and metal leaching at Red Dog.
 - Notwithstanding the previous points, should any technological or operational advancement, that reduces the risk of failure associated with the dry closure alternative, become available in the future, there is nothing preventing the mine from implementing a dry closure at that future time. However, the opposite is not true; it would be difficult to go from an initial dry closure to a wet closure in the event that the dry closure failed to prevent acid drainage and/or metal leaching.

2) Benefits to Water Quality and Fish Habitat under Alternative B

The State of Alaska believes that the SEIS minimizes the discussion of the environmental benefits of Alternative B and believes that much of the following should be incorporated as appropriate to make the environmental benefits of Alternative B more clear to the readers.

48.044

Alternatives C and D include moving the discharge from Middle Fork Red Dog Creek to the ocean. Under these alternatives there would be changes to water quality and quantity in Middle Fork and Mainstem Red Dog creeks. Middle Fork Red Dog Creek does not support fish and has not in the past (pre-mining) or under the current conditions. A summary of biological comparisons in the Red Dog Creek drainage for pre-mining and current conditions follows (Weber Scannell 1995):

- Before development of the Red Dog Mine, (a) water quality was naturally degraded in Red Dog Creek; (b) fish use was limited to migration to North Fork Red Dog Creek during high water events; (c) no fish spawning was documented in Red Dog Creek; and (d) natural fish kills commonly occurred in Red Dog Creek;

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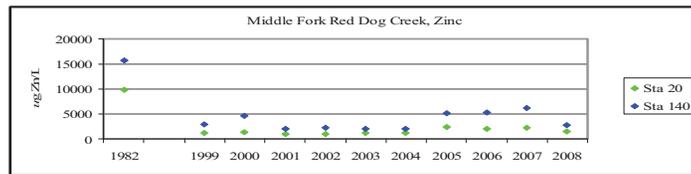
- Development of the Red Dog Mine included a number of water management practices that resulted in improved water quality in Red Dog Creek. These practices included collection, treatment and discharge of mineralized water; discharge of high volumes of water with low metals concentrations; and improvements in water treatment;
- High volumes of treated water are discharged to Middle Fork Red Dog Creek. This water dilutes the naturally occurring metals in Red Dog Creek, moderates the pH, and lessens the toxicity of metals by increasing the hardness;
- As a result of improved water quality, Arctic grayling began using Mainstem Red Dog Creek for spawning and rearing and Dolly Varden for rearing;
- Improved water quality was followed by development of abundant and diverse aquatic invertebrate and periphyton communities; and
- Over the last six years (1998 through 2004) there is a viable aquatic community in Mainstem Red Dog Creek with the current water quality and mine discharge.

Biomonitoring in the Red Dog Creek drainage has continued from 2005 to 2008 and results of these studies indicate that the conclusions made by Weber Scannell (1995) are still valid and appropriate. If the treated wastewater discharge is moved from Middle Fork Red Dog Creek to the ocean, the biological changes as documented above will no longer exist and we will return to conditions similar to pre-mining. Open water season fish use would drop and aquatic communities would deteriorate. Fish kills might return and water quality conditions could degrade to such an extent as to preclude migration through Mainstem Red Dog Creek to North Fork Red Dog Creek by Arctic grayling for spawning. The aquatic benefits of the existing wastewater discharge to the Red Dog Creek drainage are real and well documented.

Two examples of water quality data are presented below to illustrate the effect that the treated wastewater discharge has on downstream water quality and thus how it would effect aquatic life in receiving waters if the discharge were removed.

First, Middle Fork Red Dog Creek (Station 140) is located upstream of Outfall 001 (treated wastewater discharge) and Station 20 is located downstream of Outfall 001. In 1982, median Zn concentrations were lower at Station 20 due to dilution from South Fork Red Dog Creek (Figure 1). South Fork Red Dog Creek is covered by the existing tailing dam and impoundment – dilution from South Fork Red Dog Creek no longer exists. During mining (1999 to 2008) the median Zn concentrations were consistently lower at Station 20 due to the presence of the discharge of treated water at Outfall 001.

48,044
(cont)



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48.044
(cont)

Second, in the past several years (2006 to 2008) Rachael Creek has been contributing high Ni concentrations to the clean water bypass system. As presented in Figure 2, the median Ni concentration at Station 140 was 97.6. The major source of Ni is Rachael Creek upstream of actual mine related activities. From Station 140 above Outfall 001 to Station 20 below Outfall 001, the median Ni concentrations dropped to 31.9. Again, this is clear evidence of the beneficial effect of the treated wastewater discharge.

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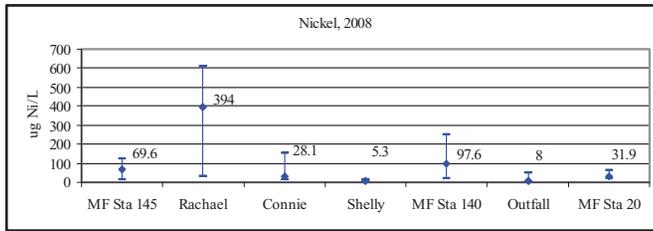


Figure 2. Median Ni concentrations at Stations in the Red Dog Area

48.044
(cont)

Literature Cited:

Weber Scannell, P. 1995. Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions. Prepared for the Office of Habitat Management and Permitting. Alaska Department of Natural Resources. Fairbanks, AK. 19 pp.

Ott, A.G. and W.A. Morris. (IN PREPARATION) 2009. Aquatic biomonitoring at Red Dog mine, 2008. Technical Report No. 09-XX. AK Dept. of Fish and Game, Division of Habitat. Juneau, AK. XXX pp.

Ott, A.G. and W.A. Morris. 2008. Aquatic biomonitoring at Red Dog mine, 2007. Technical Report No. 08-02. AK Dept. of Natural Resources, Office of Habitat Management and Permitting. Juneau, AK. 127 pp.

Ott, A.G. and W.A. Morris. 2007. Aquatic biomonitoring at Red Dog mine, 2006. Technical Report No. 07-03. AK Dept. of Natural Resources, Office of Habitat Management and Permitting. Juneau, AK. 103 pp.

Ott, A.G. and W.A. Morris. 2006. Aquatic biomonitoring at Red Dog mine, 2005. Technical Report No. 06-03. AK Dept. of Natural Resources, Office of Habitat Management and Permitting. Juneau, AK. 113 pp.

3) The State of Alaska Department of Fish and Game, Division of Subsistence also has the following comments that should be considered in the final SEIS:

The Red Dog Aqqaq SEIS discussions of subsistence information are generally very well written and informed. These discussions contain many references to community subsistence harvest estimates resulting from studies conducted between the 1960s and 2008. Lacking in the SEIS, however, is a discussion of the various methods used to develop the harvest estimates so that the reader can evaluate whether simple data point comparisons and the interpretations made in the SEIS are supported by the data. While the documentation and representation of local perceptions of resource change observations is well represented, it is important to clearly distinguish between community perceptions and opinions and the systematic subsistence data collection and analysis associated with the community harvest estimates. The ADF&G Division of Subsistence, in making these comments, is not responding to local community observations, but rather requesting the limitations of the social science data and analyses be clarified in the document.

48.045

Response

Comment ID: 48.045

Response

As correctly pointed out by ADF&G Division of Subsistence, some, but not all, of the harvest estimates used in the SEIS are subject to sampling errors. Burch's 1960s and 1983 research results for Kivalina were based on a census of households while the 1992 and 2007 ADF&G research results are based on samples. To inform the reader of this fact and its implications, the text has been modified in Sections 3.12.2.1 and 3.12.2.2 to include information on confidence intervals associated with harvest data.

The conclusions in the SEIS regarding subsistence impacts rely not only residents' observations but conclusions from biologists in Sections 3.7, 3.9, and 3.10, as well as analysis of whether the harvest data support residents' observations. The authors recognize the limitations of relying solely on local observations. For example, despite residents' concerns about contamination of Dolly Varden char, studies on these fish have been inconclusive and harvest data do not indicate an overall decline since mine operations began. The SEIS therefore concludes that the impacts on Dolly Varden char are more related to residents' concerns of contamination rather than contamination itself.

The statutory citation for the definition of subsistence uses in Section 3.12 has been changed to AS 16.05.094(33).

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Supplemental Environmental Impact Statement

For example, the research conducted by Burch in the 1960s and 1980s involved weekly harvest enumeration in Kivalina, which were then summed to represent total community harvest for the year.

This method of data collection is likely much more accurate and precise than the more cost-effective 12-month recall household harvest surveys conducted by ADF&G for 1992 and 2007, where estimated total community harvests are derived through statistical expansion through the substitution of weighted sample means for uncontacted households to derive total community estimates bounded by 95% confidence intervals.

The SEIS also would benefit from a discussion of the confidence intervals associated with the harvest estimates in order to characterize the limitations of the data and better inform interpretive comparisons between years. For example, the 1992 Kivalina estimated total community harvest in useable pounds is 261,765 pounds bounded by a 95% confidence interval of 11% (+/- 28,794 pounds), such that there is a 95% probability that the actual total harvest in Kivalina fell within the range of 232,919 to 290,569 useable pounds. On the other hand, the 2007 Kivalina estimated total community harvest of 255,344 useable pounds is bounded by a 95% confidence interval of 23% (+/- 58,729 pounds), such that there is a 95% probability that the actual harvest in Kivalina in 2007 fell within the range of 196,615 to 314,073 useable pounds.

Finally, the statutory citation for the definition of subsistence uses should be corrected on page 3-172, as the citation changed a number of years ago to AS 16.05.094(33).

48.045
(cont)



OPTIONAL FORM 99 (7-99) *JUANINA BARBOSA*

FAX TRANSMITTAL # of pages *3*

To: *Gene Weglinski* From: *Patty McGrath*

Dept./Agency: *720-293-5850* Phone #: *206-553 0979*

Fax #: *303-377-5705* Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Response

Author: Karp, David—Northern Air Cargo

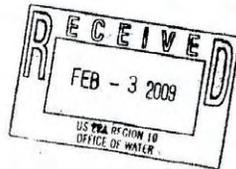
Comment ID: 49.001

Response

Thank you for your comment.

February 2, 2009

Ms. Patty McGrath
US EPA Region 10
1200 Sixth Avenue
Suite 900, OW-135
Seattle, WA 98101



Dear Ms. McGrath:

RE: RED DOG MINE EXTENSION, AQQALUK PROJECT

Northern Air Cargo is writing to provide support to the Red Dog Mine Extension, Aqqaluk Project. As a primary support vendor for the mine, I can attest to the importance of this project to the state, the region and also our business. The Red Dog mine is an integral part of the economic fabric of our state. Their ability to continue operations beyond the lifespan of the current site is absolutely critical to the economic vitality of the region and its people.

49.001

Please consider this correspondence an endorsement of the EPA's proposed decision to reissue the Clean Water Act Section 402 NPDES permit for the Mine including any changes as a result of the Aqqaluk Deposit.

Respectfully,

David W. Karp
David W. Karp
President & CEO

Response

Author: Joule, Reggie—Alaska State Legislature

Comment ID: 50.001

Response

Thank you for your comment.

During Session:
Alaska State Capitol
Juneau, Alaska 99801-1182
(907) 465-4833
Fax (907) 465-4586
1-800-782-4833
Representative Reggie Joule@legis.state.ak.us



During Interim:
P.O. Box 673
Kotzebue, Alaska 99752
(907) 442-3880
Fax (907) 442-3022

Alaska State Legislature
REPRESENTATIVE REGGIE JOULE

February 3, 2009

Ms. Patty McGrath
US EPA Region 10
1200 Sixth Avenue, OWW-135
Seattle, WA 98101

The purpose of this letter is to provide my support for the Red Dog Mine's proposed Aqqaluk Project. I am the State Representative for the area where the mine is located and am fully supportive of the operation.

Red Dog is the economic engine for the region I represent. It provides jobs that are so badly needed in an area of underemployment. It also is the financial backbone of the NANA Regional Corporation of which I am a shareholder. The revenue NANA receives from the mine allowed it to pay record dividends. NANA also benefits from contracting services that it receives through its Joint Venture partnerships. In addition to Teck, many of my constituents work for NANA Management Services or NANA Lynden, two companies that are important to NANA and my people.

During the summer of 2008 I visited the mine and was given the opportunity to see the operation first hand and view the proposed Aqqaluk mine area. I learned that the actual footprint of the proposed activity was right next to their current pit. I was surprised to see how small the impact would be. They have showed me plans for its development that include the continued capture and treatment of mine water. I was impressed when I saw the control the mine has in place and good quality of the downstream water. We drove to down the port road and stopped on a bridge where we watched healthy Dolly Varden swimming in the water.

Through the NEPA process, EPA has completed a draft SEIS that has looked at four alternatives. As I viewed the operation it was clear to me that Teck's proposed project - Alternative B will provide for the most certain uninterrupted operation of the mine. This is most important to me. Their project plan also includes continued discharge of treated water to Red Dog Creek. As I noted above I saw no problems from this activity. We also discussed the closure plan and how it will ensure the site is safe and protective of the environment. I also saw examples of dust control measures the operation has completed. I understand they have come a long way in improving the control of dust and fully appreciate the efforts they have made.

Please accept this letter as my endorsement for their Alternative B.

Regards,

Reggie Joule
Representative Reggie Joule
Alaska State Legislature

Response

**RED DOG MINE EXTENSION - AQQALUK PROJECT
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

Comment Sheet

Name:	Karen Naser
Organization:	
Address:	6240 B St
City, State Zip:	Anchorage AK
Email:	karen.naser@grainier.com

Names and addresses will be added to the mailing list for the Red Dog Mine SEIS. Please be advised that by including your name and address, you are agreeing to be part of the EIS public record.

PLEASE ENTER YOUR COMMENTS BELOW:

I work for a company doing business with Jack for over 9 years. I have been onsite @ Red Dog as part of our business relationship. I was given a full site tour including the pit and all areas of production. I was impressed with their operation and their focus on safety - both environmental and personnel. They appear to be good stewards of the land and the project. In their JV with Nana they employ a lot of Alaskans and provide good community support to area villages.

Author: Naser, Karen—Individual

Comment ID: 51.001

Response

Thank you for your comment.

51.001



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1689 C Street, Room 119
Anchorage, Alaska 99501-5126



Response

Author: Bergmann, Pamela—US Dept of Interior

Comment ID: 52.001

Response

Thank you for your comment.

9043.1
ER08/1260
PEP/ANC

January 28, 2009

Ms. Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth avenue, Suite 900, OW-135
Seattle, WA 98101

Dear Ms. McGrath:

52.001

The U.S. Department of the Interior (DOI) has reviewed the November 2008 Red Dog Mine Aqqaluk Draft Supplemental Environmental Impact Statement (SEIS) for the proposed Red Dog Mine extension Aqqaluk project located in northwestern Alaska. The Draft SEIS analyzes potential environmental effects associated with development of the Aqqaluk deposit and consideration of new environmental information obtained since the original 1984 EIS completed for the mine. We have no comments to offer at this time.

Thank you for the opportunity to comments on the Draft SEIS.

Sincerely,

Pamela Bergmann
Regional Environmental Officer – Alaska



February 3, 2009

Patty McGrath
Red Dog Mine SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, OW-135
Seattle, WA 98101

Re: Red Dog Mine SEIS

Dear Ms. McGrath:

53.001 [The Resource Development Council for Alaska (RDC) writes to express support of the Environmental Protection Agency (EPA) preferred alternative, alternative B, of the Red Dog Mine Draft SEIS.

RDC is a statewide, non-profit, membership-funded organization founded in 1975. The RDC membership is comprised of individuals and companies from Alaska's oil and gas, mining, timber, tourism, and fisheries industries, as well as Alaska Native corporations, local communities, organized labor, and industry support firms. RDC's purpose is to link these diverse interests together to encourage a strong, diversified private sector in Alaska and expand the state's economic base through the responsible development of our natural resources.

53.002 [Alternative B will allow for the continuation of the mine operated by Teck Alaska, and through a partnership with NANA Regional Corporation. The mine, which is the largest employer in the region, with the majority of employees being NANA shareholders, will continue to provide economic benefits to the region for the next two decades. Red Dog employs hundreds of Alaskans, paying millions of dollars in wages, state and federal taxes, and royalties to NANA Regional Corporation. Through the shared wealth provision of ANCSA, the mine has not only been beneficial to NANA, but also to the other Regional Native Corporations in Alaska.

53.003 [Alternative B will allow the operations to continue to decrease naturally occurring metal levels in Red Dog Creek, resulting in a productive and

121 West Fireweed Lane, Suite 250, Anchorage, Alaska 99503-2035
Phone: 907/276-0700 Fax: 907/276-3887 Email: Resources@akrfdc.org Website: www.akrfdc.org

Response

Author: Soto, Marleanna—Resource Development Council

Comment ID: 53.001

Response

Thank you for your comment.

Comment ID: 53.002

Response

Thank you for your comment. Socioeconomics are discussed in Section 3.17.

Comment ID: 53.003

Response

Thank you for your comment. Water quality and aquatic resources are discussed in Sections 3.5 and 3.10 respectively.

Response

53.003 (cont) [healthy environment for fish. Further, Teck Alaska has committed to developing a plan to determine the viability of a pipeline to transport processed wastewater directly to the ocean.

53.004 [Concerns addressed in the SEIS regarding subsistence resources are and will be addressed through the Red Dog Subsistence Committee on an ongoing basis. Protecting subsistence resources is a priority to NANA, Teck Alaska and to all Alaskans.

53.005 [RDC is confident extending the life of the mine will continue to provide positive economic impacts, with long-term opportunities for rural Alaskans to develop skills and to enable them to not only continue living in rural Alaska, but to prosper.

Thank you for the opportunity to comment on this important issue.

Sincerely,



Marleanna Soto
Projects Coordinator

Comment ID: 53.004

Response

The SEIS did not closely evaluate the function or effectiveness of the Subsistence Committee. However, based on the issues surrounding dust-borne contaminants as a result of mining operations and comments from some Kivalina residents, EPA included the recommendation that the Subsistence Committee review its procedures.

Comment ID: 53.005

Response

Thank you for your comment.

Response

-----Original Message-----

From: McGrath.Patricia@epamail.epa.gov
[<https://tmail.tetratech.com/owa/redirect.aspx?C=374170eac9e74c2191eb314129dlac25&URL=mailto%3aMcgrath.Patricia%40epamail.epa.gov>]
Sent: Tuesday, January 20, 2009 11:42 AM
To: vanwyck@gci.net
Cc: vanwyck@gci.net
Subject: Re: Red Dog - Aqgaluk comments

Dear Mr. Van Wyck-

Thank you for your comment.

Sincerely,

Patty McGrath

Patty McGrath
Regional Mining Coordinator
US EPA Region 10, OWW-135
1200 Sixth Avenue, Suite 900
Seattle, WA 98101
(206) 553-0979
mcgrath.patricia@epa.gov

Nicholas Van Wyck <vanwyck@gci.net > Sent by: vanwyck@gci.net	To Patricia McGrath/R10/USEPA/US@EPA cc Subject Red Dog - Aqgaluk comments
--	--

01/16/2009 03:46
PM

Please respond
to
vanwyck@gci.net

Dear Ms. McGrath,

I attended the public meeting in Anchorage on January 15th but was not able to stay for the comments. Please include this e-mail with the public comments.

54.001

Author: Van Wyck, Nicholas—Individual

Comment ID: 54.001

Response

Thank you for your comment.

Response

54.001
(cont)

In light of the results presented during the meeting and in consideration of the other alternatives I would like to support Alternative B which is to develop the Aqqaluk deposit using the existing operations.

Sincerely,

Nicholas Van Wyck, Ph.D.

TRUSTEES FOR ALASKA

A Nonprofit, Public Interest Law Firm Providing Counsel to Protect Alaska's Environment

1026 W. 4th Ave., Suite #201 Anchorage, Alaska 99501 (907) 276-4244 (907) 276-7110 Fax Email: ecolaw@trustees.org

February 3, 2009

Via Email

Patty McGrath
Red Dog SEIS Project Manager
U.S. Environmental Protection Agency
1200 Sixth Avenue, Suite 9-00, OW-135
Seattle, WA 98101
Email: mcgrath.patricia@epa.gov

Via Email

Ms. Cindi Godsey
Office of Water and Watersheds
U.S. EPA, Region 10
1200 6th Ave., Suite 900, OWW-130
Seattle, WA 98101
Email: godsey.cindi@epa.gov

Via Email

Mr. Tim Pilon
Alaska Department of Conservation, Division of Water
610 University Avenue
Fairbanks, AK 99709
Email: Tim.Pilon@alaska.gov

RE: (1) Draft Supplement Environmental Impact Statement (dSEIS) for the Red Dog
Mine Extension Aqqaluk Poject
(2) Draft NPDES Permit for Teck Cominco Alaska, Inc.'s Red Dog Mine (AK-
003865-2 and Draft State § 401 Certification

Dear Ms. McGrath, Ms. Godsey and Mr. Pilon:

The comments in this letter are submitted on behalf of the Native Village of
Kivalina IRA Council and Ms. Becky Norton, a resident of Kivalina on the above-

Response

entitled dSEIS, draft NPDES permit and draft State § 401 Certification for the Red Dog Mine.

The specific comments below are intended to be supplemented by the comments of the Center on Race, Poverty and the Environment (submitted by Luke Cole), the Northern Alaska Environmental Center (submitted by Zak Richter) and the comments of the Center for Science in Public Participation (submitted by Dave Chambers) all of which are hereby adopted and incorporated by reference.

I. Public Participation and Government-to-Government Consultation

55.001 As an initial matter, the process for public participation and consultation have not resulted in adequate consultation with the tribe and the affected community. The approach by EPA in this environmental review has been different than that which had been used in previous meetings and was confusing to community members. It resulted in valuable testimony of those in attendance not being recorded or acknowledged because it occurred during the “workshop” portion of the meeting rather than the public hearing portion, which was held later and community members could not attend for that length of time.

55.002 It is unclear whether the “open houses” held in Kivalina were recorded. Some the individuals who spoke at the workshop/open house believed their comments were being recorded and would be acknowledged by the permitting agencies. It is unclear from the dSEIS “Scoping and Public Involvement” section whether those comments were included. The dSEIS states that oral testimony through the scoping process was provided by 19 speakers. [dSEIS at 1-6]. There is no identification of where those who participated verbally were located (Anchorage, Kotzebue, Noatak, or Kivalina). In Kivalina alone 57 people are recorded by EPA as having attended the “meeting.” The comments of all of those who attend a workshop should be recorded and reflected in the agency analysis, the dSEIS and the final SEIS.

If EPA has a recording of the meetings in Kivalina, the IRA Council respectfully requests that a copy of that recording be provided to the IRA Council so that the IRA Council may ensure that all of the community concerns have been addressed.

55.003 The government-to-government consultation by EPA on October 5, 2008, was appreciated. However, EPA should identify which “significant issues and alternatives” have been developed to address the IRA Council’s concerns. [dSEIS at 1-7.] The Native Village of Kivalina IRA Council has consistently identified the troubling health impacts of the existing mine, and the potential for adverse health impacts of the proposed mine extension. Yet that issue is not identified as one of the “significant issues” in the dSEIS. [dSEIS at 107]. The dSEIS states that the “scoping responsiveness summary is available on the project website (www.reddogseis.com). Yet no such link or document is available on that site. [dSEIS at 1-7].

Author: Wainwright_Kivalina, Nancy—Trustees for Alaska

Comment ID: 55.001

Response

EPA has conducted public participation and government-to-government consultations consistently within NEPA requirements and standard EPA practice. The public meetings were not unusual or different but standard practice in which an overview of the project is presented with a question and answer period followed by a formal comment period. Participants were reminded of the format numerous times throughout the meeting. Neither EPA nor anyone on the project team at the meeting was made aware of anyone who did not have time to provide a verbal comment or asked for a change in the meeting format.

Comment ID: 55.002

Response

The open house portion of the meeting in Kivalina was not recorded by the court reporter. As noted above, EPA clearly stated multiple times that the formal public comment period would happen after the presentation and question and answer period.

The draft SEIS refers to 19 speakers at the scoping meetings held in October 2007. Details on the scoping meetings is presented on the Scoping Responsiveness Document available on the project website (www.reddogseis.com) or through EPA. Scoping comments were all considered in establishing the scope and approach to developing the SEIS.

EPA does not have a recording of the public meetings. We relied on a court reporter to take formal comments. The court reporter’s report is included in the administrative record for the SEIS and the comments are responded to in this response to comments.

Comment ID: 55.003

Response

Concerns raised during the government-to-government consultation and public SEIS scoping meeting on October 5, 2007 are reflected in significant issues #1 (potential impacts on aquatic life and drinking water supply for Kivalina), #3 (potential impacts from metals in fugitive dust), and #4 (potential impacts on availability and quality of subsistence foods). In addition, Maniilaq’s comments resulted in the inclusion of a public health section in the SEIS that was primarily authored by Maniilaq. EPA and the cooperating agencies developed alternatives that were responsive to the significant issues, including Alternative C that evaluated both wastewater discharge pipeline and concentrate slurry pipeline and Alternative D that included a wastewater pipeline, year-around truck washes, and port and road closures during caribou and beluga migration.

The scoping responsiveness summary was inadvertently removed from the project website (www.reddogseis.com) when it was updated with the final SEIS. The document has since been replaced on the website. EPA would have been happy to provide a copy of the document to the commenter or fixed the web page sooner had the issue been brought to our attention.

II. Inadequate Identification of Impacts to Health of Residents and Workers

55.004 The dSEIS lacks scientific information on the health effects of the current mining operation and the extension of the mine to include the Aqqaluk project. As the dSEIS acknowledges, the original Red Dog EIS (1984) did not include a public health section, and lacked data on the potential health effects of the Red Dog Mine. The North Slope Borough specifically stated in its comment letter of April 13, 1983:

The Village of Kivalina appears to be located downstream from the proposed mine site. Since there has been long term drainage through the proposed mine site, it is possible that the people by already be subject to some accumulation of the ore body's heavy metals, possibly through consumption of food items (fish, caribou etc.) that themselves may have been affected. It, therefore, seems reasonable that predevelopment ("baseline") data should be obtained from long term residents of the area regarding the possibility of heavy metal accumulations. Such accumulation may be unlikely, but it should be investigated at the outset. As development progresses a long term monitoring effort should be established.

55.005 After 20 years of operation, the Kivalina IRA Council and Ms. Norton are very concerned that there is still no adequate analysis of health impacts: "The potential effects of large-scale mining on general health are complex and have not been directly investigated." [dSEIS 3-255]. It is clear to the community that there are impacts and those impacts must be investigated and reported. Thus, the dSEIS does not rectify the inadequacy of the original EIS and fails to perform an adequate environmental review of the existing and projected health impacts of the mine. Instead, the dSEIS summarily concludes the there has been a "profound improvement in overall health status for Alaska Natives throughout the State." [dSEIS p. 3-236]. There is no support for such a broad conclusory statement and it completely misses the point because it does not address the site-specific impacts of the Red Dog mine, now and as proposed in the dSEIS alternatives.

55.006 Despite these inadequacies in the dSEIS, it proposes that a "Stakeholder Participatory Monitoring and Review Committee could be formed to coordinate and collaborate ongoing health efforts and initiatives in the area including those related to mining." [dSEIS 3-255]. This is inadequate to mitigate or evaluate the health impacts of the mine because it defers any mitigative effect to a process that has not even begun.

55.007 In addition, the information on elevated cancer rates in the "Kotzebue Service Unit" is extremely alarming. The data presented does not even include the data on cancer rates in past five years but reflects a significant increase in cancer rates, above the national average in the areas of colon and rectal cancer, stomach cancer, lung and bronchus cancer. The dSEIS states that cancers have "increased markedly." [dSEIS 3-

Comment ID: 55.004

Response

The SEIS includes an assessment on health effects using the information available. We agree that it is unfortunate that baseline data is not available. However, the content of the 1984 EIS are not open for comment at this time. The SEIS does recommend some measures to better evaluate and respond to health concerns. See Sections 3.12 and 3.13 and Tables 2.5-1 and 2.5-2.

Comment ID: 55.005

Response

EPA has reviewed potential health effects of existing mine operations and the proposed action and alternatives as part of the NEPA analysis. Where potential links between the mine and health effects are identified, EPA has made recommendations or identified potential mitigation measures in the final SEIS to address health concerns (see response to comment 55.004). The quoted statement regarding overall health status has been modified for clarification purposes. The commenters have taken this statement out of context, however: the remainder of section 3.13.1.1, and the following sections on health, discuss health at a regional level, and identify potential site specific impacts as much as possible with available data. Where available data are not sufficient to address a concern, the SEIS makes recommendations and identifies potential mitigation measures. The SEIS also notes that these potential mitigation measures are outside EPA's authority to implement.

Comment ID: 55.006

Response

The Stakeholder Participatory Monitoring and Review Committee was suggested as a mechanism to address local concerns across a range of health issues. There is no clear indication from the data available that mining activities have affected health in the region, therefore it is not meant as a mitigation measure at this time.

Comment ID: 55.007

Response

Table 3.13-2, which presents cancer incidence rates 1989 through 2003, shows that the rates in the Kotzebue Service Area for the All Sites category are lower than Alaska Natives as a whole and lower than the rates for U.S. whites. Rates in the Kotzebue Service Unit are also lower than surrounding regions (Norton Sound and Barrow) for colorectal, stomach, and lung and bronchus cancers. While the increase in cancer rates is a concern within the health field, rates in the Kotzebue Service Area are not markedly different from other Native populations in Alaska. The text has been modified to address your comment. Please see also the section on Environmental Contaminants.

Response

55.007
(cont)

243]. Rather than analyze the effects of the existing mine operations on cancer rates the dSEIS again summarily concludes “Available data do not suggest an association between local cancer rates and activities at the Red Dog mine. There is no evidence of unusual environment-related cancer for mine workers.” [dSEIS p. 3-244]. There is no citation to which “available data” is being considered, or scientific support for the statement.

55.008

Further, instead of doing adequate baseline analysis of the existing mine’s health effects, and despite the acknowledgment of the “somewhat higher” percent of persons with elevated blood cadmium levels, the dSEIS cites to a “difficult to interpret” study on cadmium[dSEIS p. 3-245] and fails to adequately analyze the health impacts of cadmium. Likewise, the dSEIS cites to a blood level study that had “too few persons less than 18 years old tested” to report data or to draw any conclusion about trends. [dSEIS p. 245]. The conclusion that blood lead levels are “consistent with the national average” does not analyze the existing mine’s impacts or project the impacts of the proposed project expansion, nor does this justify a conclusion that there are no impacts. It could be that prior to the mine, the residents’ blood lead levels may have been *below* the national average and are increasing at an alarming rate. The dSEIS acknowledges that there is no baseline information because “No BLLs from Kivalina or Noatak were collected prior to the mine opening that could be compared with the above data.” [dSEIS p. 3-245]. The fact that Teck employees from 1995-2007 had elevated BLLs is only addressed with a recommendation that “Teck could bolster its medical surveillance program for mine workers by adding blood zinc protoporphyrin testing to its procedures” rather than an analysis of the mine’s impacts and the potential impacts of the expansion.

55.009

The HHRA study was completed by Teck Cominco but there is no indication of whether that study was peer-reviewed. EPA concluded that the HHRA findings on health risks “were underestimated by an order of magnitude for caribou consumption.” [dSEIS at 3-248]. In order for the residents of Kivalina to assess whether the remainder of the HHRA study is valid, EPA should require a peer review of the methodology and conclusions, or conduct its own independent study to verify the conclusions of the HHRA study.

55.010

Lastly, the Effects of the Alternatives section in the dSEIS looking at Public Health (General Health) impacts of all alternatives focuses exclusively on effects due to a change in economic circumstances. That section should include a more comprehensive look at “general health” than economic effects. There is no analysis of the effects of Alternative B on subsistence and nutrition, other than a vague reference to section 3.13.3.1 stating that the effects identified in that section “would continue until 2031.” [dSEIS at 3-257]. There is no analysis of impacts specific to the mine operation for another 19 years for Alternative B.

55.011

Kivalina village residents have consistently reported higher incidents of cancer, liver and kidney problems, birth defects and still births which are affecting the residents and that could be attributable to the mining activities. These significant public health concerns must be a foremost consideration in the decision of whether to approve the

Comment ID: 55.008

Response

Please also see responses to 23.003 and 23.005. A “baseline” analysis is not possible since pre-mine data are unavailable. The SEIS takes into account the information available. While there is no clear way of identifying the source(s) of cadmium in local residents, the SEIS points out that cigarette smoking is a common source of cadmium exposure and can double cadmium concentrations in smokers compared to non-smokers. The SEIS also reports that 77 percent of residents of the Maniilaq service area smoke compared to 47 percent statewide and 20.4 percent of U.S. whites. Teck’s risk assessment found that ingestion was a greater concern for cadmium uptake compared to inhalation but that ultimately, cadmium fell within acceptable human health limits for risk. Based on the information available, smoking is a more likely source for “somewhat higher” concentrations of cadmium in local residents than an unidentified pathway from the mine.

In regard to worker health, the SEIS describes Teck’s procedures for employees that demonstrate elevated BLLs, consistent with MSHA requirements. The impact analysis discloses that employees are expected to demonstrate BLLs similar to currently experienced. As a population, employees’ exposures would continue to be governed by MSHA regulations.

Comment ID: 55.009

Response

Risk assessments are not typically peer reviewed but are conducted within an established scientific framework and done in conjunction with a regulatory authority (in this case, ADEC). However, the risk assessment process was conducted outside of the NEPA process and, in and of itself, is not subject to comment as part of the SEIS. EPA did review the risk assessment. The SEIS included some of the information in the risk assessment, that was qualified based on our review (see Section 3.13, EPA Findings). In addition, EPA has recommended to Teck and ADEC that additional caribou monitoring needs to occur to reduce uncertainty in the risk assessment results.

Comment ID: 55.010

Response

The format of the impact analysis is the same as the preceding section, General Health, Subsistence and Health, Social and Psychological Health and Environmental Contaminants. The focus on the impacts associated with economic effects are the only clear effects that would occur in terms of general health. The existing information does not indicate any direct links between mining operations and any of the health issues discussed under the General Health Status section. The effects on health related to diet and subsistence are discussed in greater detail in the Effects of Existing Operations on Subsistence, Nutrition, and Diet-Related Diseases. The nature of that discussion indicated that the effects are not necessarily specific in terms of their origin.

Comment ID: 55.011

Response

Cancer rates are discussed in the SEIS on a regional level, because this concern was raised by Maniilaq Association (who represented the cooperating agency responsibilities of nine tribal governments in the service area and is the regional tribal health care provider). No association between mining and cancer was found, based on the available data (see section 3.13.2.1, Cancer, and Environmental Contaminants). Based on the environmental monitoring and risk assessment data presented in the SEIS, exposure to mine-related contaminants is not a likely source of cancer or other illnesses, including those mentioned in this comment, because of the low levels of environmental exposure levels to mine-related contaminants documented to date. The SEIS acknowledges data gaps in human and subsistence food biomonitoring. Where data are incomplete, the final SEIS has incorporated additional recommendations for data collection and monitoring as part of the risk management plan, to allow better characterization of this issue. If, based on the additional monitoring studies undertaken elevated levels of mine-related contaminants are found in the human population or subsistence species, additional investigation of these concerns may be warranted (as suggested in the new potential mitigation measure in response to 23.005).

55.011
(cont)

expansion of the mine and must be adequately analyzed to fulfill the requirements of NEPA.

III. Cumulative Impact Analysis Inadequate

55.012

There are notable inadequacies in the dSEIS' cumulative impacts analysis as identified in the comments adopted by reference in the introductory paragraph. We wish to specifically emphasize the inadequacy of the cumulative impacts analysis in one area: the failure to find the Western Arctic Coal Reserves (WAC) as a relevant action, given the five-year exploration project that is ongoing, and the failure to analyze the cumulative effect of the WAC project. The transportation corridors and alternatives being considered for the WAC would constitute a major impact on the Western Arctic Caribou Herd and on the subsistence resources of Kivalina. The project is well into its five-year exploration phase, and there are detailed studies available on the proposed transportation of the coal to the DeLong Mountain Transportation System by a rail or road system and the possible use of the Port Site. We urge EPA to consider the potential impacts from the WAC project.

IV. Draft NPDES Permit for Teck Cominco Alaska, Inc.'s Red Dog Mine (AK-003865-2 and Draft State § 401 Certification)

NPDES

These comments are specific to EPA's Draft National Pollutant Discharge Elimination System ("NPDES") Permit AK-003865-2 ("Permit") and the State of Alaska's Draft § 401 Certification.

Significant changes authorized by the Permit result in unacceptable impacts to water quality. The continued protection and maintenance of water quality is of vital significance and importance for the health of present and future Alaskans, the quality of fish and shellfish harvested from State and federal waters, the marketing of fish and shellfish from Alaska, and the maintenance of wildlife throughout the state. The residents of Kivalina are particularly impacted by water quality changes that the dSEIS and Draft NPDES permit contemplate.

The overarching objective of the CWA "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To achieve this objective, Congress established several goals, including (1) eliminating the discharge of pollutants into navigable waters by 1985; (2) attaining water quality that provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water by July 1, 1983; and (3) prohibiting the discharge of toxic pollutants in toxic amounts. *Id.* While water quality has improved in many cases since the passage of the Federal Water Pollution Control Act ("Clean Water Act" or "CWA"), these three goals have not been attained. Similarly, while water quality has somewhat improved in limited respects around Red Dog Mine, the Permit does not

Comment ID: 55.012

Response

BHP Billiton Energy Coal recently announced that it is suspending the exploratory drilling program for 2009 due to the economic climate and declining coal prices. Regardless, the SEIS considers exploration activities at the Western Arctic Coal Reserves as part of the cumulative effects analysis. Development (mining) of the project is not a necessary outcome of exploration and is therefore not considered reasonably foreseeable. Since multiple access points are under evaluation as part of the preliminary analyses, a tie to the DMTS port, or other transportation corridor, is speculative at this point and not considered reasonably foreseeable in terms of the cumulative impact analysis.

NPDES

attain these three goals, and in many ways is significantly less stringent than current requirements. Thus, the Permit does not meet the goals or the letter of the Clean Water Act.

A. The State’s Draft § 401 Certification

The State “certifies that there is reasonable assurance that the proposed activity, as well as any discharge that may result, is in compliance with the requirements of Section 401 of the Clean Water Act, which includes the Alaska Water Quality Standards (18 AAC 70).” EPA Fact Sheet for the Reissuance of NPDES #AK-003865-2 to Teck Cominco Alaska, Inc.’s (“TCAK”) Red Dog Mine (“Fact Sheet”), Appendix B, p. 24. This certification is illegal because it is based on a determination that it is consistent with Alaska’s Antidegradation Policy, but the State has no implementation methods for the Policy. In addition, the mixing zone for ammonia and WAD cyanide are based on legally flawed calculations and violate Alaska’s mixing zone regulations (18 AAC 70.240-.270).

1. The State’s Draft 401 Certification violates antidegradation requirements.

When EPA revises permitting standards, the revision must be consistent with the state’s antidegradation policy (“ADP”). 33 U.S.C. § 1313(d)(4)(B); Handbook, p. 4-10. Antidegradation is not defined in statute or regulation, but is a procedure to be followed when evaluating activities that may impact water quality. The implementation of that procedure is meant to protect water quality by maintaining or improving water quality and not allowing water quality to be degraded.

Federal regulation requires that states include an ADP that is no less stringent than the federal ADP in every water quality standards package submitted to the EPA for review. See 40 C.F.R. §131.6(d). The federal ADP delineates different levels of protection for three different “tiers” of water quality. Tier 1 sets the minimum level of water quality to protect all existing uses of a waterbody: water quality may be lowered only if “existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.” 40 C.F.R. §131.12(a)(1). Tier 2 provides the protection “necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water” to waters whose quality already exceeds the Tier 1 level and allows for reduction in quality only if, after a full public process and intergovernmental coordination, it is “necessary to accommodate important economic and social development.” 40 C.F.R. § 131.12(a)(2). “In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully.” *Id.* (emphasis added). Tier 3 waters are those waters that have been designated as Outstanding Natural Resource Waters (“ONRW”). These waters include waters in National Parks, National Wildlife Refuges, and waters of “exceptional recreational or ecological significance.” 40 C.F.R. § 131.12(a)(3).

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EPA’s antidegradation regulation also requires the State to “identify the methods for implementing such policy. . . .” 40 C.F.R. § 131.12(a). For enforcement purposes, this is the most important part of the antidegradation requirement. The procedures developed to implement the ADP must be designed to: (1) prohibit any degradation in some waters; (2) minimize the impacts of degrading activities in others; and (3) assure that in every case, existing uses are protected.

Although EPA guidance indicates that some type of review process is required for all three tiers of antidegradation policy, the review process is especially important in the context of waters protected by Tier 2. *See Handbook*, pp. 4-6 – 4-9. Whenever any lowering of water quality occurs under Tier 2, the antidegradation regulation requires a state to: (1) determine whether the degradation is “necessary to accommodate important economic or social development in the area in which the waters are located;” (2) consider less degrading alternatives; (3) ensure that the best available pollution control measures are used to limit degradation; and (4) guarantee that, if water quality is lowered, existing uses will be fully protected. 40 C.F.R. § 131.12(a)(2); *Handbook*, p. 4-7.

Alaska, like many states, has adopted the federal ADP “3-tier” requirements:

It is the state’s antidegradation policy that

- (1) existing uses and the level of water quality necessary to protect existing uses must be maintained and protected;
- (2) if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department, in its discretion, upon application, and after compliance with (b) of this section, allows the reduction of water quality for a short-term variance under 18 AAC 70.200, a zone of deposit under 18 AAC 70.210, a mixing zone under 18 AAC 70.240, or another purpose as authorized in a department permit, certification, or approval; . . .
- (3) if a high quality water constitutes an outstanding national resource, such as a water of national or state park or wildlife refuge or a water of exceptional recreational or ecological significance, the quality of that water must be maintained and protected . . .

18 AAC 70.015(a). DEC has not, however, established implementation procedures¹ for its ADP as required by EPA, and as a result, cannot perform an antidegradation

¹ A public records request was made to DEC to obtain its implementation plan for the ADP. DEC claimed the deliberative process privilege because no implementation plan has been officially adopted.

401 Cert

analysis for revised permitting standards in the Permit.² See Handbook, p. 4-10. Thus, when the State says that it “finds the reduction in water quality to be in compliance with the requirements of 18 AAC 70.015” there is no basis for the finding because no antidegradation implementation analysis could be performed. Fact Sheet p. 24. The 401 Certification, which authorizes reduced effluent limitations and significantly larger mixing zones, violates antidegradation requirements.

The State certifies in the Draft 401 Certification that a revised lower effluent limit for zinc is consistent with the State’s antidegradation policy. The State purports to undertake an antidegradation analysis. See Fact Sheet, Appendix B, pp. 32-36. However, because there is no antidegradation policy implementation plan, the State cannot properly perform this analysis, and the certification to allow for back-sliding of the effluent limitations for cyanide, zinc, and ammonia is illegal.³

The Permit allows the daily maximum effluent limit for selenium to be relaxed from 5.6 ug/L to 7.2 ug/L. It also allows the average monthly effluent limit for lead to be relaxed from 8.1 ug/L to 8.5 ug/L. The 401 Certification states,

These minor and offsetting changes are the result of statistical variability in data sets used to determine effluent limits. It is the department’s judgment that these changes will not affect the levels of these pollutants in the discharge, and no antidegradation analysis is required.

Fact Sheet, Appendix B, p. 33. There is no exemption in the Clean Water Act to relax effluent limitations for statistical variability. As such, a legal antidegradation analysis is required for the relaxation of these limits.

2. The mixing zone calculations are legally flawed and violate the State’s mixing zone regulations.

² For example, Alaska has numerous waterbodies that meet Tier 3 criteria, but no way to implement their designation and protection. There are also even more Tier 2 waterbodies, and DEC has not developed the 4-part antidegradation analysis, or a similar implementation plan, for those waterbodies.

³ In its purported antidegradation analysis, the State makes a conclusory finding that “[t]he permit limits will not violate water quality criteria.” Fact Sheet, Appendix B, p. 34. There is no analysis, mathematical or otherwise, to support this finding. The “analysis” similarly states that “[t]he permit renewal application does not propose any changes that would likely result in wastewater of lower quality to be discharged than has been discharged since issuance of the 1998 permit” and that water quality “will be adequate to fully protect existing uses.” *Id.* at p. 35. There is no support for these findings either. Finally, the purported antidegradation analysis finds that “the discharge from the existing point source meets the highest applicable statutory and regulator requirements.” *Id.* at p. 36. These conclusory statements are not supported or explained, so even if the State’s antidegradation analysis could legally suffice as performed under legally-adopted antidegradation procedures, it is arbitrary and capricious because of its conclusory and unsupported findings.

The mixing zone for ammonia and WAD cyanide is based on legally flawed calculations and violates Alaska's mixing zone regulations (18 AAC 70.240-.270). The state has authorized:

A mixing zone in Main Stem Red Dog Creek (Main Stem) extends from the confluence of the Middle Fork Red Dog Creek with the North Fork Red Dog Creek (North Fork) to Station 151. The Main Stem mixing zone is approximately 1,930 feet in length and provides mixing in the ratio of 1.5 parts receiving flow to 1 part inflow for a dilution factor of 2.5. This mixing zone is granted for the following parameters: total dissolved solids (TDS), ammonia, and cyanide measured as weak acid dissociable cyanide.

Draft 401 Certification, Fact Sheet, p. 24. First, the length of the mixing zone is inaccurate. Outfall 001 is approximately one mile from the confluence of the Middle Fork and North Fork of Red Dog Creek. Thus, the mixing zone extends from Outfall 001 to Station 151, which is significantly longer than 1,930 feet, in fact a mile longer, according to the map scale. At Outfall 001 the treatment plant effluent is physically 'mixed' with water flowing down the Middle Fork of Red Dog Creek. Then again at the junction of the Middle Fork with the North Fork, the contaminants TDS, cyanide and ammonia are again diluted with clean water from the North Fork of Red Dog Creek. This is beyond absurd. The mischaracterization of the length of this mixing zone makes it even more egregious.⁴

Mixing zones are usually authorized based on a streamflow analysis of the 7Q10 low flow hydrologic event. However, there is no discussion in the Draft 401 certification of how the 1.5:1 (2.5X) dilution was determined, either by calculation or real-time monitoring, or whether this dilution factor will be applicable or effected at all times, even during low flow events.

In addition, the mixing zone violates the State's mixing zone regulations because it could create a barrier to fish passage. DEC "will not authorize a mixing zone if it finds that available evidence reasonably demonstrates that . . . (2) there could be . . . (B) a barrier formed to migratory species." 18 AAC 70.250(a)(2)(B). And DEC "will find that something 'could' happen if the department determines that it is reasonably expected to occur." 18 AAC 70.250(c).

In this case, the mixing zone is proposed to run from Outfall 001 to Station 151, which would extend across the mouth of the North Fork of Red Dog Creek, a stream with spawning habitat for Arctic Grayling. Grayling migrate up the Mainstem of Red Dog Creek during early spring to spawn, and must pass through the lower portion of

⁴ The same is true for the 3,420-foot TDS mixing zone – it is really almost two miles in length.

the proposed mixing zone. See Fact Sheet, Appendix A. The spawning period lasts for approximately two weeks, and fish were present from June to September in 1997, indicating that spawning and rearing take place in the Mainstem of Red Dog Creek. Webber-Scannel, P., "Comparison of Mainstem Red Dog Creek Pre-Mining and Current Conditions, March 2005, p. 14. Exposure to toxic substances during this time could cause avoidance of the area, thus creating a barrier to migrating Grayling. TCAK's discharges of cyanide and ammonia are highly toxic to fish and it is likely that the proposed mixing zone would constitute a barrier to Grayling migrating up Red Dog Creek into the North Fork to spawn. Since TCAK has provided no evidence, and DEC has provided no explanation that these highly toxic chemicals do not constitute a barrier to fish migration, the proposed mixing zone violates 18 AAC 70.250(a)(2)(B). As a result, if a mixing zone is granted, the downstream edge of the mixing zone should not be allowed to impinge on the junction of the North Fork of Red Dog Creek, and to effectively manage that mixing zone, the downstream edge of any mixing zone should be Station 20.

401 Cert

Further, there is presently no cyanide-kill process employed by TCAK before discharge. The strategic application of a cheap and effective cyanide-kill process like the addition of ferrous sulfate could target the reduction not only of cyanide, but would also inhibit the release of ammonia, a breakdown product of the cyanide which is also a contaminant of concern in the discharge at Outfall 001.

In summary, the State's Draft 401 Certification is legally inadequate. The State has not promulgated an antidegradation policy implementation methods, and therefore cannot perform an antidegradation analysis to support a reduced effluent limit for selenium, lead, zinc, cyanide, or ammonia. The State also cannot authorize the mixing zone for WAD cyanide and ammonia because there is no support for a dilution factor of 1.5:1, and the mixing zone creates a barrier to fish passage, which violates 18 AAC 70.250(a)(2)(B). Thus, the Draft 401 Certification does not establish reasonable assurance that the proposed activity, as well as any discharge that may result, is in compliance with the requirements of Section 401 of the Clean Water Act, which includes the Alaska Water Quality Standards (18 AAC 70).

B. The Draft NPDES Permit

The Permit is legally flawed because it allows backsliding in violation of section 402(o) of the CWA.

NPDES

The Clean Water Act prohibits backsliding: A permit applicant may not obtain a renewed, reissued, or modified permit that contains less stringent effluent limitations than the comparable effluent limitations from the previous permit, unless the relaxed permit does not violate the state or federal antidegradation policy. See 33 U.S.C. § 1342(o)(1). Backsliding may also be allowed where

information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

33 U.S.C. § 1342(o)(2)(B)(i). *See also* 40 CFR § 122.44(l)(2)(i)(B)(1).⁵

An anti-backsliding analysis does not require a direct comparison of effluent limits or the outputs of one model versus another. The first step of the analysis is to determine whether the water body is in attainment (i.e., meets water quality standards). *See* Draft Interim Guidance on Implementation of Section 402(o) Anti-Backsliding Rules for Water Quality-Based Permits (“Anti-Backsliding Guidance”), p. 6. If the waters are in attainment, like the waterbodies in question, backsliding may be permitted if it is consistent with the State’s antidegradation policy. *Id.*, pp. 6-7.

The Permit allows backsliding for the selenium, lead, zinc, cyanide, and ammonia effluent limits. As discussed above, the State has not promulgated an implementation plan for its antidegradation policy. As a result, the State cannot make the determination that the relaxed effluent limits and mixing zones comply with Alaska’s ADP, and the exception that would allow backsliding does not apply.

V. Conclusion

We appreciate the opportunity to comment. Please communicate with us for all future actions, public hearings and environmental documentation as follows:

Kivalina IRA Council
P.O. Box 50051
Kivalina, Alaska 99750

Becky Norton
P.O. Box 50046
Kivalina, Alaska 99750

and also to:
Trustees for Alaska
1026 W. Fourth Avenue, Suite 201
Anchorage, AK 99501

Sincerely,

Nancy S. Wainwright
Senior Staff Attorney

⁵ There are other exceptions to the anti-backsliding provision of the CWA, but none are asserted here.

NPDES

Response

-----Original Message-----
From: Kuhle, Don P POA
[<https://tmail.tetrattech.com/owa/redir.aspx?C=ff467107ba7d460aa5fb10856d3cee1d&URL=mailto%3aDon.P.Kuhle%40usace.army.mil>]
Sent: Tuesday, February 03, 2009 8:06 PM
To:
Cc: Mcgrath.Patricia@epamail.epa.gov
Subject: Comments on DSEIS

Hi Gene,

I have just a few comments regarding the DSEIS.

56.001

The comment/response table you emailed on 1/9/09 states (in the last response on page 51 and the first response on page 52) that a separate comment/response document was completed for the wetlands section. Is that correct? I haven't seen it.

56.002

A couple of my comments on the wetlands section were not addressed, specifically those on page 3-4, lines 42-48 and page 3-5, lines 3-5 (page numbers are those of the separate PDSEIS wetlands section.)

56.003

In response to my comment that the pipeline bench should be narrower for alternative D, Part 3.8.3.5 was changed to state that "the 24-foot-wide pipeline bench (containing a 20-foot-wide working surface) is standard engineering practice." Could the existing road not be part of the working surface? If not, there should be an explanation.

56.004

In Table 3.8-4, total jurisdictional wetlands add up to 146.4 acres rather than 144.9. Total jurisdiction wetlands in the Tailings Impoundment Filled column add up to 20.9 acres rather than 20.8.

Thanks,
Don

Author: Kuhle, Don—US Army Corp of Engineers

Comment ID: 56.001

Response

A response to comments for the PDSEIS wetlands section was prepared but not distributed. EPA regrets the oversight. The response table has been submitted to the cooperating agencies.

Comment ID: 56.002

Response

The response table notes that the numbers of wetlands in Ikalukrok Creek are reported because the total drainage area is known. This is not the case with the other drainages, which is why we cannot provide estimates for them. Also noted in the response to comments table, the 60:40 ratio of wetlands to uplands was calculated based on the total number of wetlands (waters of the U.S.) and uplands. The ratio for wetland:upland mosaics was reported as 60:40 but the methodology for that determination was not disclosed.

Comment ID: 56.003

Response

Use of the existing roadbed as a working surface is possible but would constitute a serious threat to the health and safety of the pipeline workers and the truck drivers. Construction of the bench alone would require the staging of materials, such as geotechnical fabric, along with equipment to lay the fabric, followed by trucks to dump the fill material and bulldozers to grade the material, followed by the staging of miles of pipe, which would need to be fused into medium-length segments (e.g. 500 feet) that would then be fused into larger segments. This activity would be followed by covering the pipe(s) and building the rest of the bench. The opinion of Tetra Tech's engineers was that a 24-foot wide bench (20-foot operating surface) would be a tight fit considering the amount of staging that would be required for even a single pipeline. We used "standard engineering practice" to avoid a lengthy discussion of bench and pipeline construction techniques.

Comment ID: 56.004

Response

The total of jurisdictional wetlands within the Tailings Impoundment Filled category is actually 19.6 acres (1.1 + 5.5 + 8.1 + 4.9). The grand total for jurisdictional wetlands is then 145.1. These numbers have been corrected in the final SEIS.

Response

Author: Shroyer-Beaver, Sandy—Northwest Arctic Borough School District

Comment ID: 57.001

Response

Thank you for your comment.



Northwest Arctic Borough School District

“Educating Our Children to Lead Successful Lives”

P.O. Box 51 • Kotzebue, Alaska, 99752 • Phone (907) 442-3472 • Fax (907) 442-2392

RESOLUTION 09-010

A RESOLUTION OF THE NORTHWEST ARCTIC BOROUGH SCHOOL DISTRICT BOARD OF EDUCATION FOR THE SUPPORT OF PERMITTING OF THE AQQUALAK DEPOSIT AT THE RED DOG MINE AND FOR OTHER ENVIRONMENTALLY RESPONSIBLE MINING AND FOR RELATED PURPOSES.

WHEREAS: the Northwest Arctic Borough is the home of the Red Dog Mine, the largest zinc mine in the world, which is operated by Teck Alaska Incorporated (“TAK”) on land owned by the NANA Regional Corporation (“NANA”); and

WHEREAS: The Red Dog Mine provides education, training and jobs to NANA Shareholders; and

WHEREAS: the Red Dog Mine is the source of approximately \$6 million in annual borough revenue under an agreement for Payments in Lieu of Taxes (“PILOT” Agreement), which funds the borough’s local contribution to education and has also financed approximately \$75 million in general obligation bonds for school renovation and construction. Also, an additional \$528,000 (annually) over the several recent years was provided to make up for a bonding shortfall; and

WHEREAS: the Red Dog Mine has supported education benefiting the region through voluntary funding over and above the PILOT Agreement. In 2007 this amounted to \$400,000 and included; \$150,000 to NWABSD, \$100,000 to the University of Alaska and \$150,000 to the Alaska Native Science and Engineering program; and

WHEREAS: the Red Dog Mine has successfully lobbied the State government for support and funding for the Alaska Technical Center and the Noatak school; and

WHEREAS: the Red Dog Mine acts as a partner in promoting and contributing to education of the young people in the Region through their School to Work and Job Shadow Programs, the John Baker school engagement program, support and involvement in science fairs and staff visits to schools in the region; and

57.001

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Northwest Arctic Borough School District

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RESOLUTION 09-010 (Continued)

WHEREAS: the Environmental Protection Agency (EPA) is preparing a Supplemental Environmental Impact Statement (SEIS) under the National Environmental Policy Act (NEPA) for certain federal actions which include the mine's water discharge and wetlands permits; and

WHEREAS: through this SEIS process EPA is evaluating Red Dog Mine's proposal to mine the Aqqaluk Deposit without which mining at Red Dog would cease in 2011.

WHEREAS: the draft SEIS looked at three Alternative Actions in addition to Red Dog's proposed action (Alternative B) which is to continue to treat and discharge mine effluent to Red Dog Creek under stringent permit conditions in a manner that fully protects water quality; and

WHEREAS: Alternative B will allow for the continued economic benefit to the Region, protect the environment, allow for the timely development of the Aqqaluk Deposit; and

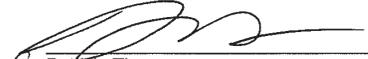
WHEREAS: Alternative B is EPA Preferred Alternative;

Therefore Be It Resolved that: the Northwest Arctic Borough School District Board of Education Requests that the EPA accept the Board's support for NANA and Teck's project application (Alternative B) as the Preferred Alternative.

ADOPTED, January 27, 2009 at a duly convened Regular Meeting of the Northwest Arctic Borough School District Board of Education, at which a quorum was present and voting.

ATTEST:


Sandy Shroyer-Beaver,
President, NWABSD Board of Education


Patricia Thomas,
Secretary, NWABSD Board of Education

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57.001
(cont)



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Alternative B – Applicant's Proposed Action

The proposed action alternative includes reissuing the Red Dog Mine NPDES permit and issuing a Section 404 permit for fill placement associated with development of the Aqqaluk Project. Stripping of waste material overlying the Aqqaluk Deposit would begin in 2010. Mining operations in the Main Pit would be completed while developing the initial stages of the Aqqaluk Deposit. After the Main Deposit was mined out, waste rock removed from the Aqqaluk Deposit would be placed in Main Pit. Ore from the Aqqaluk Deposit would be processed in the existing mill and tailings would be disposed in the existing impoundment. The height of the tailings impoundment would be raised 16 feet to accommodate the additional tailings. Wastewater from the tailings impoundment would be treated via the existing high density sludge process to reduce metals concentrations with additional treatment (e.g., barium hydroxide precipitation) to reduce TDS levels in the discharge. The wastewater discharge would continue in Red Dog Creek. All other activities would continue to occur consistent with current operations for life of the operation with final closure occurring in 2031.

At mine closure, the tailings impoundment would be managed to keep a shallow layer of water over the tailings. Seepage from mine facilities including waste rock dump and tailings impoundment would be pumped to the Aqqaluk Pit and water in both the Aqqaluk Pit and tailings impoundment would be treated and discharged to Red Dog Creek. Wastewater treatment processes would need to continue in perpetuity.

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ALASKA MINERS ASSOCIATION, INC.

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January 22, 2009

Ms. Patty McGrath
Red Dog SEIS Project Manager
Office of Water and Watersheds (OWW-135)
USEPA Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Email: mcgrath.patricia@epa.gov
Fax: 206-553-0165

Re: Comments on DSEIS for Red Dog Mine Extension Aqqaq Project & Draft NPDES Permit

Dear Ms. McGrath,

Thank you for the opportunity to comment on the Draft Supplemental Environmental Impact Statement (DSEIS) for the Red Dog Mine extension into the Aqqaq deposit and the Draft NPDES permit. Timely completion of these actions is critical to the continuation of the Red Dog mine which will be unable to remain in production beyond 2011 without development of the Aqqaq pit.

The Alaska Miners Association is a non-profit membership organization established in 1939 to represent the mining industry. The AMA is composed of over 1200 individual miners, prospectors, geologists and engineers, vendors, junior mining companies, and major mining companies. AMA has many members that are involved in the Red Dog mine as miners, as suppliers, as contractors, etc. Additionally, since Red Dog began operating in 1989, it has contributed a large percent of Alaska's mineral production value and provides a significant level of funding to state and local governments.

General Comments:

58.001

The Red Dog mine has now been operating for more than 19 years and has done an excellent job serving as an example of what mining can do for the State. Red Dog has provided many hundreds of jobs for local residents of Northwest Alaska. Before the mine began, the Northwest part of the state had the highest unemployment in the state, and it had all the various problems that exist when people do not have jobs that enable them to provide for their families. The Red Dog mine changed that situation and Northwest Alaska no longer has the highest unemployment rate. The jobs at Red Dog are some of the best jobs in Alaska and they are more than simply jobs - they offer new careers for residents and provide life long skills to the people working at the mine. The skills of the workers at Red Dog are in demand in many parts of the world, even now during the economic downturn.

58.002

We are concerned that this SEIS has included a **Health Impacts Assessment**, a requirement not previously part of an EIS process. We do appreciate that human health concerns have been

Response

Author: Borell, Steven—Alaska Miners Association

Comment ID: 58.001

Response

Thank you for your comment. The socioeconomic effects of the project are discussed in detail in Section 3.17.

Comment ID: 58.002

Response

EPA believes that in certain circumstances evaluation of health impacts should be included in an EIS. NEPA requires that EIS's evaluate the environmental impacts (which, per NEPA is synonymous with effects) of the proposed action and alternatives. The NEPA regulations at 40 CFR 1508.8 define "effects" as "Ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative." Therefore, we believe that assessment of health impacts can be included in an EIS. The need for and scope of the health analysis will be project-specific, as is the scope of any of the other resources that are analyzed.

Response

58.002 (cont) raised at various times and that health monitoring is an important part of the Health & Safety Program at the mine. However, this is a project specific issue and should be limited to this SEIS. It should not be required or incorporated into other Environmental Impact Statements. The time and cost to go through the EIS process is huge, typically taking many years and costing millions of dollars. Oftentimes due to changing customers, markets, financing, etc., projects have a narrow window during which they must begin operation if they are to be economic - and thus provide the jobs, especially the rural jobs, this state needs. If Health Impacts Assessments are required for other projects, the result could be that the projects will not be able to meet their respective opportunity windows.

58.003 The Red Dog mine is one of only 5 major operating mines in Alaska and it pays a large amount of tax to the State and local governments. Many of the villages in the Northwest part of Alaska now have new schools because of the Red Dog mine and the stable, predictable payments that the mine makes to the NWAB.

58.004 **1. We support the approval of the proposed action under Preferred Alternative B and the timely completion of the NEPA process to ensure that Red Dog mine production is uninterrupted.** The proposed action includes development of the Aqqaq Project as proposed by Teck, reissuance of the Red Dog NPDES permit with updated permit conditions reflecting new information and analysis of the effects of mine wastewater discharges over the past 19 years, and issuance of Corps of Engineer 404 permits for Aqqaq related construction.

58.005 **2. We agree with EPA's decision that it does not have the authority to require construction of a concentrate or wastewater pipeline.** Additional studies are needed to determine whether such options are feasible and/or have environmental advantages that would outweigh the socio-economic and environmental impacts created by their construction.

58.006 **3. Subsistence Harvest – How much of the reduced harvest can be accounted for by reduced need or interest due to life style changes?**

Specific Comments:

58.007 **1. 1.5 Significant Issues –** a fifth significant issue for consideration would be the *impacts of a premature closure of the Red Dog Mine, for either a short period of up to a year, or a longer closure in the case that the cost to restart the mine was prohibitive until international metal prices recover.*

58.008 **2. 2.2.4 Alternative D – Enhanced Dust Control –** this alternative would require closure of the port through the annual beluga whale migration. Such closure could shorten the shipping season enough to have a substantial impact on the mine.

58.009 **3. 2.3.5 Tailings Disposal –** The first paragraph discusses the current activity to raise the elevation of the dam to 970 feet which corresponds to a dam height of 187 feet. The third

Comment ID: 58.003

Response
Thank you for the comment.

Comment ID: 58.004

Response
Thank you for your comment.

Comment ID: 58.005

Response
Thank you for the comment.

Comment ID: 58.006

Response
A quantitative assessment is not available to specifically address the question. However, subsistence interviews reveal that some "Employment/Lack of Time," "Personal Reasons," and "Changes in Subsistence Dependents" were among the reasons identified for harvesting less caribou. Similar reasons were not identified in association with marine mammal harvests. Details are discussed further in Appendix D (Subsistence).

Comment ID: 58.007

Response
The significant issues were identified during the scoping process; the issue of mine's temporary closure was not identified at that time and therefore was not analyzed in detail. The analysis of Alternative A, No Action discusses the effects of the mine's closure over the short-term although it considers a permanent closure rather than a temporary one. A temporary closure would create effects similar to those described under Alternative A but only for the closure's duration. The costs of restarting operations would also have socioeconomic consequences, primarily in the form of reductions in the royalty paid to NANA; however those consequences would extend no longer than a year or two beyond the reopening of operations.

Comment ID: 58.008

Response
The final SEIS evaluates the impact of port closure on mining operations.

Comment ID: 58.009

Response
The commenter is correct. The text has been revised to indicate that the 970-foot elevation corresponds to a height of 192 feet and the 986-foot elevation corresponds to a maximum height of 208 feet.

Response

- 58.009 (cont) paragraph discusses how, under alternatives B and D the dam would need to be raised to an elevation of 986 feet which corresponds to a dam height of 153 feet (34 feet shorter than the present dam). There seems to be an error here.
- 58.010 4. 2.3.6.1 Alternative A – No Action Alternative – reverse osmosis with pretreatment for gypsum removal using barium or aluminum hydroxide is discussed in this section. The discussion does not appear to be conclusive regarding the merits of installing such a system at the Red Dog Mine. Further discussion in 2.4.2 Wastewater Treatment seems to argue against the use of such a process. Our understanding is that the current level of reverse osmosis technology is not adequate to do the job at the Red Dog Mine. Furthermore, the cost and amount of fuel (and handling and storage) to do this would have to be considered. Reverse osmosis is clearly outside the realm of practicality.
- 58.011 5. 2.7 Identification of Environmentally Preferred Alternatives – the first sentence in the first paragraph on page 2-41 has an extra “the”. This paragraph suggests that discharge of treated mine waste waters to the Chukchi Sea using a mixing zone (less than 10 feet) would not cause adverse impacts to aquatic life and marine mammals. We agree with this statement. However, considering the continuing efforts to have additional marine mammals and other species placed on the threatened or endangered species lists we suspect that, in reality, due to perceptions, it would be more difficult to permit such a release and would provide another point for third party harassment and litigation.
- 58.012 6. 3.13 Health – This section is a new addition to the DEIS process. Baseline data for this chapter appears to be limited. However, it appears that native populations are healthier, by most measures, now than they were prior to the development of the mine. The communities most impacted by the mine have improved health care facilities, emergency services, sanitation facilities, educational facilities, etc. and there is little doubt that with the decreased number of fatalities from infectious diseases and accidents, the life expectancy of native population in the area has increased. Longer living populations can be expected to show increased cancers, heart disease and other cardio-vascular diseases. Continued economic success in the region can provide the resources to allow health professionals to continue their efforts to eradicate disease and suicide in the region.
- 58.013 7. 3.13 health Table 3.13.1 - this table is of limited value; it would be significantly more useful if it identified the year of the data (especially for population, number of villages and unemployment rates).
- 58.014 8. 3.13 Pg.3-242 – Effects of Existing Operations on Injury Rates – the word “adverse” should be removed from the second sentence of this section so that it reads ...problems; hence, potential effects of mining” No mention is given of the fact that there are now more than 1000 past and current employees that have received health, safety and advanced first aid training and that these persons are interspersed throughout the communities. The benefits of having this many people with this training is a huge benefit for the communities that must be included in the analysis. Beyond that are the several dozens of people who have various levels of EMT training that are similarly throughout the communities.

Comment ID: 58.010

Response

Please see the response to Comment ID 10.013. Section 2.4.2 describes other technologies, including reverse osmosis alone, that were considered but not evaluated in detail. As discussed in Section 2.3.6.1, reverse osmosis with barium hydroxide addition, provides a technologically feasible alternative to meet the current TDS limits. The impacts of implementing this technology, including power and fuel requirements are disclosed in the final SEIS.

Comment ID: 58.011

Response

Comment noted. EPA cannot speak for the NOAA Fisheries Protected Resources group. However, we would consider it highly unlikely that the presence of a mixing zone less than 10-feet on a side would result in a finding other than “not likely to adversely affect” any marine mammals or threatened or endangered species.

Comment ID: 58.012

Response

The SEIS identifies trends in available indicators of general health status in the region, and the SEIS analyzes the contribution of mine-related economic benefits to specific aspects of infrastructure and public services in the NWAB. The increased life expectancy of Alaska Native populations throughout the state is not by itself a sufficient explanation for the increasing rates of chronic illnesses and cancer observed in Alaska Native communities, as rates of some of these problems (including, for example, cancer mortality and obesity) are disparately high in the NWAB and many other Alaska Native regions.

Comment ID: 58.013

Response

Table 3.13.1 has been clarified to indicate that the results were from 2008.

Comment ID: 58.014

Response

EPA agrees with the commenter. The word “adverse” has been stricken from the sentence in question in Section 3.13.2.1.

Response

58.015 9. 3.13 Pg 3-155 – Recommendation – A Stakeholder Participatory Monitoring and Review Committee is not needed. The NAMA corporation is the landowner and they are the best and only such group that should have such a committee, and they already have this in place. Another “committee” is not needed and would simply be a source for additional third party conflict.

58.016 10. 3.18 Environmental Justice -3.18.35 Effects of Alternative D – Enhance Dust Control – To be accurate you must add that the reduced flow of treated mine water could result in reduced water quality, especially with respect to dissolved metals due to the increased contribution to the flow regime from ground water.

58.017 We urge that the Record of Decision and the various permits be completed and issued at the earliest possible date. The Red Dog mine is crucial to the jobs and livelihoods of more than 500 Alaskans, many who live in rural Alaska. The mine needs to begin development of the Aqqaluk deposit area as soon as possible. Even though Teck has expended a tremendous amount of effort to understand the deposit, the real test of how the mill will have to be fine-tuned to recover the metal cannot occur until ore from the new deposit area is fed into the mill.

Sincerely,



Steven C. Borell, P.E.
Executive Director

Cc: Senator Lisa Murkowski
Senator Mark Begich
Congressman Don Young
Governor Sarah Palin

Comment ID: 58.015

Response

EPA's intent in suggesting a Stakeholder Participatory Monitoring and Review Committee was not to encourage a source of third party conflict. Instead, the committee could serve as a way for health professionals from Red Dog, Maniilaq and the state, as well as interested villagers or other interested parties, to discuss health-related issues that affect the borough as a whole. The draft SEIS acknowledges that health is a concern to the general population in the region and is impacted by sources that extend beyond mine operations. The committee could serve as an unbiased resource to disseminate relevant information, whether it pertains to the ongoing monitoring in response to the risk assessment, or to advise on improving eating habits as they pertain to store-bought versus subsistence foods.

Comment ID: 58.016

Response

Comment noted. Removing the discharge would affect water quality and fish under alternatives C and D. The text in sections 3.18.3.4 and 3.18.3.5 has been revised to reflect the effects of increased metals concentrations.

Comment ID: 58.017

Response

EPA and the Corps have approached the permitting and NEPA processes with a sensitivity to the timing necessary to avoid operational interruptions while ensuring that the analysis covers the breadth of issues necessary to make a fully-informed decision.

Response

Author: Hill, Jackie—Maniilaq Association

Comment ID: 59.001

Response

Thank you for your comments.

Comment ID: 59.002

Response

Under the NEPA process, mitigation measures are discussed to address identified impacts. While the SEIS acknowledges that mining activities have likely had some effect on subsistence resources, the extent to which these changes have contributed to large scale changes in subsistence food consumption and dietary changes, if at all, is unknown. Because of the uncertainty, EPA recommended a nutritional survey. In terms of overall health it is likely that a better understanding of subsistence consumption patterns and the reasons for changes would be beneficial to regional health providers in finding solutions to the diet-related illnesses. The results of the nutritional survey would not provide quantitative data on the effects specific to activity associated with the Red Dog Mine. It may however, help provide baseline data on consumption and dietary patterns that could be used as a measure in future analyses. The SEIS does not say that management measures would be developed contingent on the results; EPA does not have authority to develop management measures that would apply to subsistence food consumption.

Comment ID: 59.003

Response

Details of the final fugitive dust risk management were not available in time for inclusion in the final SEIS. EPA has commented on the draft fugitive dust risk management plan and specifically requested that fugitive dust-related monitoring and mitigation measures recommended in the SEIS are implemented under the FDRMP. The risk management process is being run by ADEC; public comments and suggestions can be directed to their Contaminated Sites Program.

Ms. Patricia McGrath
Project Manager
Red Dog Mine/Aqqaluk Expansion SEIS

Dear Ms. McGrath,

59.001

Maniilaq Association is a regional tribal non-profit health corporation, charged with providing health care, public health, and related services to Alaska Native communities in the NWAB region. Maniilaq Association participated in the SEIS process as a cooperating agency. We appreciate the opportunity to submit these comments on the Draft SEIS. Maniilaq Association's purpose is "working together to make our lives better;" Our vision is "Maniilaq Association is seen as the premier model for creating successful, healthy communities through the planning, development and strengthening of village-based services supported by strong, accountable tribal self-governance." As such, we are acutely interested in any issue that has the potential to positively or adversely affect health in our communities. For this reason, we elected to represent federally recognized tribes in the region as a cooperating agency, and to prepare a health impact assessment, on which this section is based.

We acknowledge and appreciate the willingness of EPA and the cooperating agencies to work with us on this effort, and the comments and guidance you have provided along the way. As the public health baseline conditions (Sec 3.13.2) illustrates, the consideration of potential public health impacts has been underemphasized in previous permitting efforts, and as a consequence, there are many data gaps. We sincerely hope that the cooperative approach initiated with our work on this SEIS will highlight the important of considering public health at every phase of a project, from pre-permitting studies through development decommissioning. We would offer the following remarks on the DSEIS.

59.002

Section 3.13 Public Health

Page 3-240, paragraph 2: this section identifies a nutritional survey and the potential for additional measures based on the results. It may be clearer to identify this explicitly as "potential mitigation," in order that the reader may identify the measure as a means of addressing the impact of subsistence changes on the nutritional system of Kivalina. While the nature and extent of nutritional impacts associated with the observed changes in subsistence harvest are not fully known, it is reasonable to conclude that subsistence impacts affect the overall nutritional system and, therefore, that mitigation should be contemplated. The proposed measure focuses on monitoring – which is not by itself mitigation – but goes on to state that management measures would be developed contingent upon the results, to address any observed adverse impacts on nutrition.

59.003

Page 3-240, paragraph 4 references the draft risk management plan. This plan was not available to us while drafting the public health subsections. It would be helpful to readers if the monitoring were described in more detail in the FSEIS. The plan should include a community-based, participatory approach, because such an approach is well-demonstrated to produce the most credible results from a community perspective.

Response

59.004 Page 3-240, paragraph 5, sentence 3. This sentence should be revised to read: “... on rates of these problems in other *arctic indigenous* populations that have been studied.”

59.005 Page 3-244 to 3-248. We have two concerns with this section:
1. A potential exposure pathway which should be evaluated in the DSEIS is the “secondary occupational exposure pathway” (ATSDR, 2007), in which family members are exposed to lead dust brought home by exposed workers. This pathway can be a significant source of exposure, particularly for children. This pathway should be evaluated by a one-time test of worker quarters, by reviewing worker decontamination policies and enforcement at the mine site (for example, are workers allowed to wear work clothing home? Are workers required to shower before leaving work?), and by sampling children (for whom there are minimal data available after 1990, according to DSEIS table 3.13-3.

59.006 2. Second, the summary of the EPA HHRA on page 3-248 notes that based on a small sample, levels of lead in caribou could potentially be above safe levels. In addition to the studies recommended in this section, we again suggest that a nutritional survey is essential to evaluating this risk. The survey should quantify not only the amount of caribou consumed, but should also attempt to identify types of tissues consumed as well. The monitoring plan should address the need for data on lead levels in different tissues (not only muscle), based on consumption patterns. These data – particularly if collected and analyzed in collaboration with the community – will provide a basis for accurate and credible recommendations regarding consumption of this key nutritional resource.

Other DSEIS Sections:

59.007 Section 3.4.3.2-3.4.3.5 Geotechnical stability of tailings impoundment dam.
The risk of dam failure is, of course, a matter of great concern, particularly for the community of Kivalina which is downstream from the mine. We believe that several clarifications are warranted for this analysis:

59.007 1. For alternatives B-D, the analysis concludes that “The impoundment would be stable except as noted in the stability evaluation in Section 3.4.2.5.” Section 3.4.2.5, however, makes no note of the plan to raise the current height of the dam, as described for Alternatives B-D. This leaves the reader with the obvious question, would there be any change in the risk of failure if the dam height were raised? This may be addressed in the reference cited and incorporated by reference (URS 2007c), but the discussion should be summarized in the DEIS (40 C.F.R. 1502.21), and the difference between the alternatives in this regard more clearly described.

59.008 2. Section 3.4.2.5 describes a potential corrective action for the rise in phreatic level currently being observed: “install a horizontal drain pipe with a water trap at the end which limits oxygen ingress into the toe of the embankment.” The conditions under which this corrective action would be instituted, and evidence of its effectiveness, should be provided in the DSEIS.

59.009 3. In selecting a final preferred alternative, the EPA should make clear that the selection is based, in part, on the assumption that all concerns (including those

Comment ID: 59.004

Response
The edit to the final SEIS was made per the suggestion.

Comment ID: 59.005

Response
The Occupational Health and Safety Administration (OSHA) has established rules that govern workers’ exposure to workplace contaminants. Teck has provided health and safety procedures that describe how worker exposure is addressed including the use of change rooms where workers must change clothing and shower before moving from “dirty” work areas to “clean” living quarters. Clothing from the respective areas is laundered separately to prevent cross contamination during the cleaning process. The implication is that if workers must change clothes prior to returning to the living quarters, they would not wear work clothing home. Teck has also conducted lead monitoring in the living quarters as part of their health and safety program. While EPA does not have the authority to require testing workers’ quarters or families within the purview of NEPA, the Maniilaq Association, as the entity responsible for providing health services on a regional basis, could work directly with Teck, to discuss this type of sampling program. Teck has expressed a willingness to focus additional attention this exposure pathway.

Comment ID: 59.006

Response
We agree that the diet survey be specific enough to determine type of tissues consumed. A mention of this will be added to the text of Section 3.13.2.1, EPA HHRA Findings.

Comment ID: 59.007

Response
Please see the response to Comment ID 26.005. Monitoring shows that the dam is stable. The concerns raised in Section 3.4.2.5 relate to potential long-term issues that are being addressed through the State of Alaska’s Dam Certification Program, which has primary responsibility for reviewing and approving future, proposed dam raises. The text in the final SEIS has been clarified to indicate that the dam will be stable under all alternatives, including the proposal to raise the dam to 986 feet elevation under Alternatives B-D.

Comment ID: 59.008

Response
Overseeing the design of the dam, including requiring specific design changes, is beyond EPA’s authority under the NPDES program and is the responsibility of ADNR. The suggestion of installing the horizontal pipe is one potential solution but Teck may propose another alternative for ADNR review and approval. EPA understands that the issue is being addressed through the dam certification program.

Comment ID: 59.009

Response
We agree that ensuring long-term dam safety is important and we will add the suggested text to the description of the environmentally preferable alternative in Section 2.7.

Response

59.009 (cont) presented by the changing engineering requirements created by climate change and permafrost thawing, according to the best available climate modeling) associated with dam safety would be “fully addressed during the final design and will be reviewed and approved by ADNR under the dam safety review and permitting process.”

59.010 Section 3.6.3.1 discusses the potential effects of climate change. The discussion of climate change in the SEIS should reflect the current state of knowledge – including region-specific science, traditional knowledge, and world-wide knowledge base – regarding the potential effects of climate change at the mine site. At a minimum, the SEIS should cite and incorporate by reference the best available data on current climate trends and predictions. At a minimum, this would include the Arctic Climate Impact Assessment, and the Intergovernmental Panel on Climate Change 4th Synthesis Report (ACIA, 2005; IPCC, 2007). It is important for the EPA and other regulatory agencies involved in the project to recognize and acknowledge that, for communities in our region, the potential impacts from global warming are anything but speculative. The case of Kivalina, which is experiencing accelerated erosion as a direct consequence of Arctic warming in conjunction with more severe storm surges, illustrates just how immediate and real climate-related geotechnical issues are for our communities.

59.011 The SEIS speculates that there could be substantial changes in groundwater and surfacewater flow, and in seepage from the tailings dam related to climate change. We believe that these issues warrant further analysis, in view of the best available current information on localized impacts from climate change. It would be reasonable to contemplate additional analysis including but not limited to: (1) modeling of seepage rates under varying climate change scenarios; (2) evaluation or modeling of potential changes in precipitation and runoff, and how these would affect the function and stability of the dam; (3) engineering evaluation addressing the technical feasibility of a “pump-back system and/or seepage collection system for the tailings impoundment” (Sec 3.6.3.1); (4) modeling or analysis, based on the cited geotechnical monitoring data (Sec. 3.6.2) of future changes under projected rates of warming. Additionally, the Geotechnical Stability evaluation of the tailings impoundment dam at section 3.4.2.5 should make explicit reference to climate change, monitoring observations at the site, and the potential impact of permafrost thawing on dam safety.

59.012 We understand that predicting future climate impacts is challenging and involves uncertainty. The documented rate and extent of current impacts, however, makes this a key issue for project engineering in our region, and the SEIS should rely on the best available science, modeling methods, and engineering techniques to analyze potential effects related to climate change.

59.013 Section 3.6.4 Water Resources – Groundwater -- Summary
This section makes reference to the importance of continued monitoring of groundwater changes: the DSEIS should make clear what regulatory authority is available to ensure that such monitoring continues as recommended.

59.014 Section 3.12 Subsistence
As documented in the SEIS, subsistence is an integral and fundamental aspect of Inupiat life, social structure, diet, health, and wellbeing. Adverse subsistence impacts are therefore of

Comment ID: 59.010

Response

The discussion of global climate change under the cumulative effects analysis cites the IPCC and EPA. The cumulative effects discussion’s purpose is to consider project impacts in addition to other projects (or in this case, natural phenomena). Changes related to climate change are presented, although the SEIS notes that the outcome of these changes is unclear. From a geotechnical standpoint, mine-related activities are not anticipated to have cumulative effects when considered with global climate change. The loss of permafrost is a primary concern from global warming in terms of geotechnical stability. Permafrost has already been lost below the tailings impoundment and dam. Other than the issues already discussed, the loss of permafrost is not expected to be a factor in long-term dam stability.

Comment ID: 59.011

Response

Please see the response to Comment ID 12.001 related to the effects of thawing permafrost on seepage from the tailings impoundment and dam stability. URS 2007 presents a detailed seepage discussion for future dam raises. Seepage is already managed through the existing collection and pumpback system and volumes are being evaluated for each subsequent raise (see URS 2007). With the addition of TDS control under Alternative B and marine discharge under alternatives C and D, the previous issues related to discharge volumes will be resolved and future changes in precipitation rates and runoff volumes will be less of a concern.

Comment ID: 59.012

Response

Recognizing that the effects of climate change are difficult to predict, the final SEIS incorporates the best science currently available to predict how climate change could affect the mine and potential impacts on the environment.

Comment ID: 59.013

Response

Requiring ground water flow monitoring is beyond EPA’s authority in the NDPEs program but can be required by the State. As discussed in the response to Comment ID 12.001 EPA has recommended in the final SEIS that the State, through the solid waste and/or Dam Certification program, require continued monitoring of temperature and ground water underlying the impoundment.

Comment ID: 59.014

Response

Mitigation, including road and port closures, has been included in the final SEIS for all alternatives. The discussion notes that these measures would not be effective because Teck has indicated through its draft SEIS comments that these are not operationally feasible and EPA does not have the authority to require them under the NPDES permitting program. There is no authority to require subsistence monitoring under any of the agencies’ programs although the issue could potentially be addressed through the fugitive dust risk management plan being developed by Teck in cooperation with ADEC. EPA identified Alternative C as environmentally preferred, in part, because it addresses the impact that the road has had on caribou harvest by Kivalina.

Response

59.014
(cont)

great concern to us. The DSEIS concludes that caribou and beluga harvests have likely been adversely affected for Kivalina, largely through the impact of disturbances (port and DMITS traffic). Only alternative D, however, suggests mitigation (the closure of the road during WAH migration, and delayed port opening). These mitigation measures should be considered under Alternatives B and C as well as D. Additionally, the SEIS should identify subsistence monitoring as a key component of any management plan for the observed impacts.

Section 3.17 Socioeconomics

This section identifies the importance of income and employment directly or indirectly related to Red Dog mine to the local economy and social systems. We have several suggestions regarding this section:

59.015

1. Alternative A demonstrates marked adverse socioeconomic effects as compared with other alternatives (Section 3.17.3.3). These changes have not been anticipated by the NWAB or villages, who generally expect mine revenues to continue past 2012. Particularly because the communities have not had the opportunity to plan for the potential loss of mine revenues, this section should identify potential mitigation measures to avoid, minimize, or mitigate this sudden, unanticipated change. We suggest that EPA should develop appropriate mitigation measures in collaboration with socioeconomic experts.

59.016

2. Alternatives B-D also involve substantial loss of revenue and employment in 2031: while this loss would occur farther in the future, mitigation targeting this difficult change would be reasonable to include for consideration in the DSEIS.

59.017

3. In the discussion of impacts of Alternatives B-D, the DSEIS often concludes that the Alternative would have no impact, because mining would continue. For example, under Alternative B, Impact on NWAB (page 3-321), the DSEIS states: Alternative B would have no impact on the NWAB government. Teck would continue to pay PILT at the current rate because increased mining costs would have not impact on the PILT.” It may be more accurate to conclude that the Alternative would have no impact until the cessation of mining activities, which is anticipated to occur in 2031.

ACIA. 2005. Arctic Climate Impact Assessment. Cambridge University Press, 1042p.

ATSDR. 2007. Toxicological profile for lead. Agency for Toxic Substances and Disease Registry. Atlanta, GA. Available at <http://www.atsdr.cdc.gov/toxprofiles/tp13.html>

IPCC. (2007). Climate Change 2007: Synthesis Report. Intergovernmental Panel on Climate Change Secretariat, Geneva, Switzerland. Online at <http://www.ipcc.ch/ipccreports/ar4-syr.htm>

Comment ID: 59.015

Response

A premature closure of the mine is a possibility that has existed throughout the life of the project since its operation is subject to the volatility of commodity prices. As the NWAB has the authority and responsibility to provide municipal services throughout the region, it presumably has, either through its Economic Development Commission or other mechanism, taken this possibility into account in its contingency planning processes. However, the SEIS includes a mitigation measure suggesting that the NWAB undertake adequate measures to address an unplanned or premature closure of the mine and subsequent loss of PILT.

Comment ID: 59.016

Response

The impact analysis assumes responsible leadership on the part of NANA and NWAB in terms of dealing with the loss of employment and PILT income in 2031. Since these entities are most familiar with needs of their respective shareholders and constituents, EPA does not consider the loss of PILT income in 2031 an effect that would warrant the identification of mitigation at this time. Mine closure at that point would represent a predicted change in the regional economy for which the NWAB should be well prepared.

Comment ID: 59.017

Response

The text in Section 3.17.3.3 has been revised to state that the effects would not occur until the mine closed in 2031. It goes on to note that the effects are not expected to be significant since the borough should have adequate time to plan for the loss of the PILT.

Oral Comments (from recorded testimony) and Responses

Commenter	Comment	Response at Hearing/Additional Responses ¹
KIVALINA PUBLIC MEETING (JANUARY 12, 2009)		
Ms. Adams	<p>I've got some comments. One reason I've been having -- thinking about some kind of a problem we have in Kivalina. People of Kivalina have a lot of problems of their lives. I'm 73 years old. I find out they've been having problems. And all this time since 1950 we tried to move to a new location, new town site, and it was put out by one vote. One vote. And then during about 1970s, '80s, we tried to relocate again. And then my sister is planning on making a report about that because all we get, the report from you people, all the time from any kind of meetings they have we accepted your report. And I would like to make a comment report so maybe you could pass it on to Governor Palin or President Obama. Write it down and pass it on for me, if you could.</p> <p>Since we've been having our problem with this town, the families have no houses to live in with their little children and it's more benefit -- some houses are about -- like one family I know had 20 -- almost 20 kids in one house, a little three-bedroom house. Right now it's like that in our village. And here the relocation has been put out because of some little minor problem comes from one person. It should have been from all -- this whole town population could report different than one person or two persons.</p> <p>We the persons wanting to relocate out so there will be more jobs for our young people. Our young peoples are growing up and they needed that relocate. Since you know that report today we're in a dangerous part, too, because of this -- what you call it? Since we're in a dangerous part today, we're accepting any time in the whole time that we'll be covered by water, so that's the report I made.</p>	<p>Hearing Response: None</p> <p>Additional Response: EPA realizes the importance of Kivalina's relocation to the residents of Kivalina. However, the relocation is beyond the scope of this SEIS, which is focused on evaluating impacts of the Red Dog Mine and Teck's plan to extend the life of the Red Dog Mine by mining the Aqqaluk deposit.</p> <p>Maniilaq's approach to how it apportions its funding and support of its patients is also beyond the scope of the SEIS.</p> <p>The pipeline would be built adjacent to the existing road and would be well outside the areas currently under consideration for the Kivalina relocation.</p>

¹ For some comments, oral responses were supplied at public hearing. To complete the final SEIS, additional responses were added for clarification or to complete the response. These are identified as additional responses are in parenthesis.

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>And another thing, the report is about a lot of patients that go to the hospital, that are going to the hospital -- this goes to Maniilaq. I always noticed that they needed -- financial problems, you know, give them money to have charity. Like I got -- one time they got to go to Seattle three times. I went and just tried to look for money for her. And I was like -- the money should be open more for the patients that are going because they're not -- it's not that close for that person to go to Seattle. And she needed to -- when she stopped in Kotzebue and Anchorage, she needed money. She needed money. I would like that to open up more for our families and our people in Kivalina.</p> <p>I have one more little bit I forgot -- I think about during the meeting. Since the plan is to build a lot of road and this pipeline stuff, that's going to take our land where we are going to have to relocate if we're starting to relocate. Too much road.</p>	
<unattributed>	<p>My comment is referring the – the choices that you have posted, Alternative C, which is the preferred by EPA but it's not going to happen because of the cost. So I would suggest that they add another alternative or another choice, Choice E, which would be combined with Alternative B, adding the wastewater pipeline to the port. That would be more feasible.</p>	<p>Hearing Response: None Additional Response: EPA has determined that Alternative C is the environmentally preferable alternative and Alternative B is the preferred alternative, the alternative that EPA plans to permit. However, after the SEIS is final and the permit for the Red Dog Creek discharge is final and effective, Teck plans to apply for the wastewater discharge pipeline and a marine discharge at the port. EPA will process that application after it is received.</p>
NOATAK PUBLIC MEETING (JANUARY 13, 2009)		
Kenneth Norton	<p>My name is Kenneth Norton. And I was wondering about the impact on walrus that we had --that the port site had because -- I don't think it's working; is it? Has anyone done an impact survey on the walrus that we used to hunt right outside of port site because, you know, we did before port site opened and now I haven't seen anything since, you know, the port site opened. And they must be going a different way, they are. So have you guys done your survey then?</p>	<p>Hearing Response: MR. NEGRI: We didn't specifically look at walrus. There is some information pre-mining, pre-port that Steve looked at when he was looking at the subsistence use of the areas. But to my knowledge, if you're saying that you used to hunt off the port site and now you don't see any, I'm not sure if it has more to do with the port or with the changes in the ice.</p> <p>Additional Response: See response to comment below.</p>

Commenter	Comment	Response at Hearing/Additional Responses¹
Kenneth Norton	<p>What about considering the months of operation on the port site? You guys could be operating or Teck Cominco could be operating the port site during the time the walrus are making their migration. Is there something you guys can do about that? That's about the time we used to hunt them, right around open water almost. Right before the open water, anyway, break-up time.</p>	<p>Hearing Response: MR. BRAUND (: We conducted interviews in Noatak and Kivalina. We had 42 hunters. We did interviews with hunters, walrus was included in that, and did a household survey. I don't recall offhand -- walrus doesn't stick out as a problem. We'll go back and look at the data and we can certainly answer your question. I know we had at the time maybe in the total counts per capita in walrus, if I recall, but I can confirm that. We did get harvest areas close to Kivalina and Noatak. So I think the best thing we can do is take your comment, go back and look at our data if it was included in our baseline studies, and see if we come up with any answers.</p> <p>Additional Response: The subsistence section of the SEIS determined that there was not information that indicated that walrus were impacted by the port. However, Alternative D includes a component that would require Teck to keep the port closed until beluga migration was over and that could also benefit walrus.</p>
	<p>I have another one for the water quality lady there. I, myself, was a water treatment operator up on Red Dog and, you know, I think I was aware of some of the violations that we were creating, but do you know if -- you most of all are probably aware of all the litigation that's going on and you guys want to reduce your monitoring? I think that's a mistake.</p>	<p>Hearing Response: MS. GODSEY: Well, the reduction for some of the monitoring wouldn't be for pollutants that they had violations for, but there are some parameters that are included because they have to be included not because there's a water quality issue with them. And if the mine doesn't have the reasonable potential to violate the water quality standard, then you basically get a reduction in monitoring. But there is no reduction in monitoring for things like TDS and there won't be -- and there will be the same amount of monitoring for some of the new parameters like the ones they're going to have mixing zones for.</p> <p>Additional Response: None</p>

Commenter	Comment	Response at Hearing/Additional Responses¹
Peggy Wilson	I was wondering if just a sample of Red Dog ever quit and you guys fixed the ground, what are you guys going to do with the road from Red Dog to the port site even though it's contaminated on the side of the road? Are you guys going to get rid of that road or are you guys going to leave it like that where the caribou can eat right on the edge of the road? So what are they going to do about it if it ever closes? What are you going to do with that road? Are you just going to leave it like that?	<p>Hearing Response:</p> <p>MS. McGRATH: In response to that, we did not look at different closure options for the road. But, I mean, is that something that you guys looked at?</p> <p>MR. DiMARCHI: As part of the Dog Mountain transportation system, it's not necessarily a foregone conclusion. I think that it would be closed and removed with the mine closure. So there isn't a final plan for the road at this time.</p> <p>MS. McGRATH: EPA doesn't have authority over the road and we didn't look at closure options for the road. Well, generally what would happen is that the landowner would determine what the final use of that road would be. And if there needs to be reclamation work, then Teck Cominco would have to perform that work. But I don't think there's a plan in place right now because I don't believe it's been determined what the final use is.</p> <p>Additional Response: The Fugitive Dust Risk Management Plan implementation plans being developed by Teck include a component of remediation (cleanup). The details of the remediation have not been determined. ADEC is the agency that would ultimately require implementation of the Risk Management Plan implementation plans.</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
Frank Adams	<p>I live here in Noatak. If you look at the alternatives, Noatak is on this side of the hills and we have fewer impacts than Kivalina. It seems like the overall picture is of the impact of -- the impact, they're all from Kivalina side, what you see here in red and white and yellow. Noatak is not impacted by Red Dog because maybe -- a few dust maybe. Caribou. Our caribou migrate from the coast and towards Noatak and they come from the east and go up towards Kivalina. You might have to seek caribou, but we don't have that much of an impact on caribou here. And we don't have a river that flows to Noatak where we drink the water. And what I see is a proposal -- what NANA is trying to propose is -- you know, we operate, I think --in my view, I think we operate the same because Noatak is not that much impacted by all of these like -- we go hunt beluga down on the Norton Sound. Caribou subsistence, we hunt them up here. Berries, we pick berries all over, all over down river, up the river. Let's see, fish, we got our own river. We don't have no problems with any kind of sick fish or anything that --as I've heard. We have no trouble with our drinking water like Kivalina has. In my view, it's all the same as before. That's my view.</p>	<p>Hearing Response: None Additional Response: Thank you for your comment.</p>
Viola Norton	<p>Shortly after the Red Dog Mines started, they came to Noatak, I remember, and they took samples, blood samples, and see how much iron -- lead we had in our blood. I remember even my children took that test. And at the time, my children's lead level was low but my husband and myself, they were a little bit high. And so I wonder if in the future if you're ever going to do it again, see how much, you know, people have lead in their blood now, how it's affecting them.</p>	<p>Hearing Response: MR. BRUBAKER: I'm one of the representatives of the team along with Maniilaq to work on public health. And your question about lead levels, one of the recommendations that came out of the health impact part of the document was to look at what are the types of health monitoring that might be of value. There is -- if you work at the mine, there is a lot of occupational testing that goes on, but the sampling that has been done for public health for the community has been less. And as a side note, there are a lot of people around the state of Alaska who have concerns about lead levels and there is some programs available both through the State of Alaska but also through the tribal health system where people can participate in sampling their hair for contaminant levels and sampling their blood for contaminant levels. And also there's a program which I believe Maniilaq could engage in and probably has in the past, which provides an opportunity for mothers when they're pregnant because the moms are really the most sensitive members of the population. And usually what people have been looking at around the state when they have had</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
		<p>that kind of testing done is concerns about natural levels of contaminants in the subsistence diet, and so there's that happening all over Alaska. Levels have usually been very low and they haven't found any instances that would cause a change in dietary recommendations about the lead. So the conventional understanding is all over the state that lead levels are low and that people should be confident and continue as much as possible with a traditional diet. But if you as an individual or as a community have questions, there is the kinds of recommendations pointing out that there has been limited human testing in the past but also there is other opportunities that are available for villages all over the state.</p> <p>Additional Response: None</p>
	<p>If you guys were going to be issuing another permit, would this permit be more stringent, shall we say, or less, the air or the land or the water quality permits?</p>	<p>Hearing Response: MS. McGRATH: EPA only issues the permit for water quality for the wastewater discharge from the impoundment. The State issues permits for the air and a solid waste management permit, so I'll have Cindi talk to the question about the water permit.</p> <p>MS. GODSEY: For the water quality permit for the limits, some of the limits are going to be a little more stringent, some of the limits are going to be a little less stringent, and that's generally a result of the statistical analysis and having more data, being more certain of what the value -- what the range of the value is. And it's a value as it gets narrower, you know, as they hit a target range, if they stayed within that range, then you could be more specific and the limit can be a little less stringent. But if you have it varying widely all over the place, then it kind of buckles down on its own. So there are things that, from the previous permit, get more stringent because of that and there are things that get less stringent, so it's not an overall across the board for change one way or the other. Now, for the parameters where they have mixing zones, none of the -- well, a couple of the parameters weren't limited. We were collecting data during the last permit cycle and so there were no limits and so now we're going to limit. And then the mixing zone for the pH is keeping the limit the same as it was before.</p> <p>Additional Response: None</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
Mr. Norton	As a former operator at the Red Dog Mine, like I said, I am in favor of this permit, EPA reissuing this permit, but it wouldn't hurt to see more stringent water quality standards. That's just my only concern right now.	Hearing Response: None Additional Response: Thank you for your comment.
Wendell Booth Sr.	<p>I've been here most of my life and I know the area of Noatak. And yesterday we went through this. Jim Kulas, he give us report about this over at Kivalina. He made a good report to us. We went through that in the room. And when he report, he talk about this, all this here, so sometimes I do understand. Most of them, not all of them. He make a good report out of it because he knows what he is doing and I like that. And on that mine, how long will it run? He said it will be another 31 years from now. Go ahead and do that. I liked Viola and her son talk. That's what we want to understand. Only way is to ask. And on that mine, that part that we hear from this yesterday, it'll be done. It's on the steepest part right now where they are digging. Soon as that is done, they'll move to other side. Somehow they'll do that. They got a way of making safe after the mine is done. So we got a good report. We got a good report. I do understand most of them, not all of them.</p> <p>And the one thing about that mine and what's going on, it's the only way to let it run. Sometimes we as a subsistence committee we sometimes argue a little bit in our meetings. Jim Kulas knows that. And then keep on asking like Viola and her son over here wanting to know. Yes, we want to hear that. And on that water quality, on Noatak side, I want to hear that, how much damage it caused from that, what they blast off. It is what our river is through. We want to hear that. We want to have a report out of it.</p>	<p>Hearing Response: MR. RIMELMAN: Hopefully I can answer the question. We didn't -- as you know, the discharge from the mine is provided to the Wulik River drainage, so that's where we focused the analysis in the SEIS, looking at, you know, again, primarily those impacts. I think of the major streams even along the transportation corridor, nine of those drain down into the Wulik River. We didn't see any difference upstream and downstream generally of that, of the transportation route, in terms of water quality impacts. Again, we can go back and see if there's additional data. Again, when we looked at the impact analysis, it looked like there wasn't going to be effects coming from the Noatak River drainage. It was primarily to the Wulik. That's what most of the data in the SEIS points out. We can go back and take a look at it for the final.</p> <p>Additional Response: Based on the impacts of fugitive dust observed to date from both the DMTS activity and from blasting and other fugitive sources near the mine, there is no reason to believe that effects would be seen in the Noatak River drainage. The drainage is in the opposite direction of the prevailing wind patterns (based on years of observations of wind speed and direction). Most of the dust from blasting would be deposited in the direction of the mine facilities and Red Dog Creek rather than east toward the Kelly and Noatak rivers. Fugitive dust from the pit would have lower concentrations of lead and zinc than the lead and zinc concentrates that contributed to the fugitive dust issue along the DMTS. Further, Teck has a management plan for blasting that focuses on reducing impacts to air and water quality.</p>
<unattributed>	On your operating and same as existing, it shows medium impact. Is that alongside the road? And just recently Park Service found a high level of toxins alongside the road. Do you think that's the amount?	Hearing Response: MS. McGRATH: When we did this impact analysis, we looked at a comparison to the other alternatives. So some areas right next to the road was high; further out, not as high in impact. And the

Commenter	Comment	Response at Hearing/Additional Responses ¹
		<p>alternatives that had -- we didn't determine that any of them were as high that they went into kind of that red highest category. Would you like more information on some of the concentrations or how far the contamination was?</p> <p>MR. HELFRICH: As I said when I had the chance to speak at the very beginning of the meeting, there's a part of the haul road that passes through Cape Krusenstern National Monument. So if you imagine that this line was the haul road, all 50 miles of it, perhaps the last 20 miles passes through Cape Krusenstern. And we have done some studies that look at metals coming off of the concentrate trucks and off of the road bank, particularly zinc and lead and cadmium. And what we found was that there is some distribution of these metals out to about a thousand yards from the road to either side. And we have done some analysis of the impacts to vegetation and to small mammals. And what we find is that there is a lot of effect very close to the road on these nonvascular plants. For example, lichen. So we see a lot of effect when you're quite close to the road and then very little effect by the time you get out to a thousand meters or a thousand yards or two thousand yards. Now, we haven't analyzed whether these metals are getting into vascular plants like berries. We only know the impacts on nonvascular plants.</p> <p>MR. WEGLINSKI: The data is limited. Most of the Parks Service -- most of the data we used was from the Parks Service. We had a little bit from Teck Cominco but they collected similar data. And it's mostly based on what's on the surface so they looked at, as he said, mosses and lichens and things like berries, what was on the surface of the berries, not what was taken up by the plant. So we don't have that data and that's something that may need to be collected in the future. The other piece you mentioned wanting to know about was what the Parks Service did, because the other piece that plays into this is the risk assessment and that was done by Teck Cominco. Our team looked at that data and EPA also looked at that data and, essentially, there are areas, particularly around the port and then very close to the road, where dust levels could be high enough to</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
		<p>be somewhat of a concern but generally they weren't. So the dust is causing some impacts but it really is limited to, like George said, less than a thousand meters or a thousand yards from the road.</p> <p>Additional Response: None</p>
Ms. Wilson	That's why I was talking about the roads. What are you guys going to do about it? Clean it up or leave it like that so the caribous and the animals could die off of it?	<p>Hearing Response: MS. McGRATH: Well, one thing that Alaska Department of Environmental Conservation is doing is working with Teck Cominco on a dust -- fugitive dust management plan. And as I mentioned earlier, Teck has already made some improvements to their management of dust by keeping better covers on the trucks, using truck washes in the summer, installing filtering equipment different places in their operations to reduce dust, so there's things that they have done. There's some other techniques that they are proposing to use, and this is all laid out in the risk management plan that is currently a draft right now that EPA has commented on and I think other agencies have commented on. I know there was some public process for that and I'm not sure if anyone from the State wants to add to this, because this is an action that the State is currently taking right now is looking at whether or not anything needs to be done in terms of cleaning up the contamination along the road.</p> <p>MR. WEGLINSKI: I just want to talk on that as well. The Park Service has collected additional data that since the first steps we've used back -- collected in 2000, the early 2000s, so we're hoping that data will be available for the final EIS so we can see -- have an idea of whether the concentrations in those areas are getting better or getting worse based on the things that Teck Cominco has done on the mine to reduce the dust. So that's one piece of information we hope to have as we go to the final EIS. We'll let the State talk a little more.</p> <p>MR. DiMARCHI: We do not have a representative here from the Contaminated Sites Program with the Department of Environmental Conservation. That's the part of the State that's working with Teck Cominco on this risk management plan. And</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
		<p>the risk management plan as it stands right now is really just an umbrella document. And in the future, the company will work with DEC to develop a number of sub plans. And because those sub plans have not been worked out, we really can't comment on exactly what the company may or may not do on the road, but I'd be happy to talk to you later and give you some contact information and keep you up to date on the progress of the sub plans.</p> <p>Additional Response: As discussed in Chapters 1 and 2 of the draft and final SEIS, Teck has not yet finalized its implementation plans for additional dust controls or remediation. Therefore, it is not certain as to what Teck's final actions will be or what ADEC will require. The SEIS identifies EPA's recommendations for mitigation and monitoring associated with fugitive dust and our determination that implementation of the concentrate pipeline would go the furthest to minimize future dust generation.</p>
Mr. Norton	<p>So far up to date all the fines that have been paid for by Teck Cominco, where is the money going? I understand it's not Kivalina. And if it ain't, could you reconsider maybe, let's say, reallocating some of that money to maybe health care for Kivalina, maybe a water treatment plant that can, you know, filter out some of these contaminants?</p>	<p>Hearing Response: MS. McGRATH: In terms of fines that EPA has levied on Teck Cominco by, basically, federal law, those payments of those fines, that has to go to the treasury, so it can't go directly to the community. That's the way the law is written. But instead of paying fines, Teck Cominco can perform what's called a supplemental environmental project, and they've done a number of those over the years relating to improve water treatment, monitoring around the tailings impoundment, those sorts of things. We haven't issued any penalties or fines to them related to impacts to people's health in Kivalina; therefore, we haven't required any supplemental environmental projects in those areas.</p> <p>Additional Response: None</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>Do you guys -- you guys are saying maybe -- I know you guys haven't done any testing on the people of Kivalina so far, so are you guys ever going to start? I mean, I see you guys are doing, you know, studies on fish and water and everything, but ultimately it's the people of Kivalina that are going to feel the impact. Why not test them?</p>	<p>Hearing Response: MS. McGRATH: In the past there has been blood lead testing done with folks of Kivalina and Mike can talk about those results. One of our -- because of some of the uncertainties with our analysis, as I mentioned earlier, we want to do a dietary survey. We're recommending that a dietary survey be done and that would be asking people what they eat and how much do they eat in order to see if their diet has changed, which could cause a health impact.</p> <p>We're also recommending that a committee be formed, a regional health committee, that would look at not just impacts due to the mine but other changes in culture that are -- that could create health impacts, and so that committee would include people from Kivalina, people from the borough, people from health agencies, that would look at kind of what information does need to be collected to try to address these questions that come up about health that we tried to answer in the EIS and acknowledge that there are still more questions that need to be answered. So the dietary survey and the health improvement committee is recommendations. One thing I want to repeat that I said a little bit earlier is EPA's authority in this process relates to the Clean Water Act. So those recommendations in our EIS are things that we, under our authority, cannot require Teck Cominco to do. We can disclose the fact that we think that they're important and need to be done, but we can't require them to do it. So we're looking to other agencies or Teck Cominco voluntarily to take on some of these things. So people's comments and what they think about the alternative measures are important for us and for Teck Cominco.</p> <p>Additional Response: None</p>
	<p>So are they going to get a better water treatment plant or have they already?</p>	<p>Hearing Response: MS. McGRATH: Well, in terms of water treatment, I think Cindi addressed the question a little bit earlier that their current plant with -- one thing that we're going to require in the permit is additional management of total dissolved solids will enable them to meet the permit limits. And what we determined in the EIS</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
		<p>process is that for all the alternatives, if they follow what we lay out in the alternatives for them to do, that they could meet the permit limits.</p> <p>Additional Response: None</p>
	<p>The lawsuit against Teck Cominco, was it before this survey was given out?</p>	<p>Hearing Response: MS. McGRATH: Yeah, the lawsuit was filed some years ago. I'm not sure I know the exact date, but it was filed before we started this environmental impact statement process. When we determined that one of the outcomes of this survey might -- one of the outcomes of the lawsuit might be the wastewater discharge pipeline, changing the outfall discharge from Red Dog Creek to the Chukchi Sea, we added that in as an alternative so it could be evaluated now in case it needs to be permitted later.</p> <p>Additional Response: None</p>
<unattributed>	<p>I just got a question. When I was looking at your map here -- I was just looking at the map here where Red Dog Mine site is and where Noatak is. And on the picture where -- the blast dust mining. When they're blasting the -- blasting for lead or zinc, my concern is when they blast the mine, I think we should be concerned about where they blast now that dust rises and where it goes over to where the wind blows. That dust might even go into the Kelly River. I think Noatak should be concerned about when they blast, when they blast in that mining. And my question is, shouldn't they be concerned where they blast? There's that dust from the mine that rise up and goes over the mountains and into the Kelly River, no? We all know where the Kelly River is and that's the river straight to the Noatak River. I think Noatak should be concerned about that blasting because in the future mining when they blast, all that dust might go over the mountain and go right into the Kelly River. We should be concerned about that lead and zinc going into the Kelly River. The Kelly River goes straight into the Noatak River. I think Noatak should be concerned about that, about where -- the future mining where they blast now that dust rises up and where all that lead and zinc go, you know. Thank you.</p>	<p>Hearing Response:</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>I'm concerned right where the Kelly River goes, right where they're blasting. Right on the map here, the Red Dog Mine site. The Kelly River is here where they're blasting. The Kelly River goes right into the Noatak River. And when they're mining, as soon as when they do that mine, all that dust goes – Noatak should be concerned about that dust going into the Kelly River and all that going into the Noatak River, all that lead and zinc poison. We should be concerned about that dust and mining.</p> <p>Excuse me. But, you see, the wind can change because it could be coming from the north or the south. That wind could just change and go back over the mountain and goes into the Kelly River. That Kelly River goes straight into the Noatak River, you know, and then you'll see mining blast, lead and zinc especially. That lead poisoning would go into the animals and then in the people also, that lead</p> <p>How about if it blasts, how about that dust going into the animals like the caribou? Should we be concerned about that, where the dust is going into the animals? And the lead and zinc from the roads could go into the animals that lead and zinc going in them. It</p>	<p>MR. WEGLINSKI: We could look in a little more detail about dust and the direction -- wind direction. Where the dust goes obviously is which way the winds blows, so we'll look at that kind of stuff. For the final, we can look at it in a little more detail from the data that we have. The thing about – and maybe Ron could speak to this. The thing about dust falling in the water, if it falls in the water, it's going to move. So I'm not sure that it does fall in this direction, but even where it does fall –</p> <p>MR. WEGLINSKI: I think the easiest thing to say is that we could look at it in a little more detail in the document. Part of the State's air permit – and maybe Tim could speak a little bit about it. The State has an air permit that governs some of this stuff, and the mine tries to -- it's required to keep the dust under control. So knowing what's going on in the past along like -- the road, for example, has been a dust problem. I think they're paying more attention to that. It could be that more sampling is put in place to monitor what goes on with the dust and, again, based on wind direction. And, again, some kind of monitoring program maybe, too, to address that. Again, we could look at that in the EIS. Whether EPA or the State or somebody can do that or not, we'll have to figure that out, but it's something we can look at in a little more detail.</p> <p>MR. PILON: Regarding the Department of Environmental Conservation, they have an air permit and the air permit has controls in place to minimize and control dust at the mine and over the years added lots of controls, bag houses and shrouds and some covers, in a lot of different areas to try and control them. But you spoke specifically about blasting so I'm not going to talk about this stuff. I'm just saying they try to control those things, they address them to the best of their ability, and they are prohibited from dust leaving. However, no one can see a dust particle from a blast.</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>affects the animals and, you know, the water also. That's lead and zinc poisoning. What are you going to do about that? The way the land here, the dust blast that spreads and has lead and zinc into the animals -- because subsistence is our way of life, you know. I have that problem. If we have lead and zinc going to the animals, it affects individuals that live on the subsistence way of life, you know. poisoning.</p>	<p>MR PILON: Those are the primary concerns and those are the essential concerns that involve the mine. And it's not just water. It's the fish, it's the plants, it's the caribou, it's the people. It's everything. And specifically regarding those concerns, I do know that at the mine every year they sample the fish and the drainage that goes through Red Dog and down the Wulik on the other side of the river. Those are the most concerned areas that are targeted. They're not turning up any negative effects. Those are really good indicators. There's a lot of concern in those areas and the water is being tested constantly. And your concerns are well embraced. And if there are additional concerns, absolutely we need to know about them.</p> <p>MS. McGRATH: So what we'll do is in the final EIS we will express the concerns about the blasting in the impasse, and that's something that we can focus on in responding to your comment in the final document and go back and look at the information that we have.</p> <p>MR. BRUBAKER: I just wanted to try to maybe help address your question from the human health side because there's lots of different places where you can look for pollutants. You know, you can look at them in the air, you can take samples of the water, you can take samples of the animals, you can take samples at the end of a fork after the food has been cooked. But sometimes the best measure of really what's happening is to look at what's inside people. And there isn't a whole lot of data looking at what's inside people in the village, but there is some. And so at the end of the day, you know, what kind of exposure are people in Noatak having to some of these contaminants?</p>

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		<p>And I just wanted to share three numbers with you here. There has been blood lead testing done in Noatak and Kivalina. In Noatak, there's been sampling done on two occasions that we have in our data, and the first time was in 1990. And there were - just in the adult part of the population, there were 158 samples collected. And the average concentration in people's blood was 7.8. And I won't get into the units, but the level was around 7. Now, EPA's safe level that they monitor is 10. So as long as you're below 10, EPA feels fairly comfortable that it's a safe level. Now, the highest level, the highest level in these people's blood that was measured back in 1990 was 34. So there were some people that were higher. They might have been working at the mine. There's other reasons why their levels might be high.</p> <p>But samples were collected again in 2004. And in 2004, there were a total of 46 samples collected. The average was 2 and the highest was 7. And that's the same for Kivalina, is that the average blood lead levels of the people in the village has been coming down, and that mirrors what's happening nationally. One reason is because lead has been taken out of gasoline and so everybody who's around gasoline doesn't breathe any lead fumes any more and there's a lot of things in lead fumes. But the point is that the levels have been going down and the average levels in 1990 were below the EPA concentration level where they're concerned. And the levels where they were most recently, there wasn't anybody who was above 10. So it's good to continue to monitor because sometimes what's inside people really helps answer the questions and I hope that helps answer your question a little bit because what's actually at the end of the day coming to people in the village in some of these metal concentrations are quite low, and so that's why there hasn't been any health recommendations presented, say, stop doing anything because the levels seem to be safe.</p> <p>Additional Response: Based on the impacts of fugitive dust observed to date from both the DMTS activity and from blasting and other fugitive sources near the mine, there is no reason to believe that effects would be seen in the Kelly River. The river is</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
		<p>more than ten miles from the mine and in the opposite direction of the prevailing wind patterns (based on years of observations of wind speed and direction). Most of the dust from blasting would be deposited in the direction of the mine facilities and Red Dog Creek rather than east toward the Kelly River. Fugitive dust from the pit would have lower concentrations of lead and zinc than the lead and zinc concentrates that contributed to the fugitive dust issue along the DMTS. Further, Teck has a management plan for blasting that focuses on reducing impacts to air and water quality.</p>
<unattributed>	<p>It [recommended blood levels] could be low right now but in the future, the children you see here, it might need to go higher. You just had that health percentage right now, but in the future -- in the future concern, there needs to be concern about the future, you know, about their young children. You know, it might go up. It might go down. We need to be concerned, the caribou and fish, you know. Some of them you don't, but in the fish you know, it could go up, it could go down. But in the future, you have to look at the future also, about how it can go up and go down.</p>	<p>Hearing Response: MS. McGRATH: And we're assuming as we wrote the environmental impact statement that Teck Cominco is going to continue to do a lot of the monitoring that they've been doing. In addition, we recommend that the advisory committee be established that would include people in the villages, the borough, Maniilaq, any other health organizations that might be interested, to work with the villages to try to determine if monitoring -- like monitoring you suggest, children or others, is needed to continue in the future to make sure that there are no health impacts and there continue to be no health impacts. So that's one of the recommendations that is part of our environmental impact statement.</p> <p>Additional Response: None</p>
Michael Sherman	<p>I just got here a few minutes ago. I was just looking at this Alternative A, no action -- for the gentleman from human health that was just speaking up here. No action, the human health impact is medium. How could that be if we were to close that the health impact is a little bit higher than if you were to go through Alternative B, C, or D? The human health impact, it says there's no impact when there's a risk already there. With no action at all we already have a health risk. How could that be that if we were to go through with this permitting and extend the life of the mine, how could that that the health impact go down to none?</p> <p>How could you -- if you were to do no action, the impact is going to be higher than if you were to do B, C, or D. How could the health impact theoretically go down?</p>	<p>Hearing Response: MS. McGRATH: And I explained earlier that we didn't believe that there was a health impact due to the mine, but there are some factors where we believe more information needs to be collected because we recognize at least in Kivalina there's an impact on their subsistence, which in turn could be a health impact, but we need additional data to figure that out.</p> <p>In terms of the no-action alternative, which is mine closure, we determined that the stresses the mine closure would have on the community in terms of loss of income and not having the income to do as much subsistence activities, loss of medical services due to the loss of payments to the borough for those services, would have a different kind of an impact. So that's what our thinking</p>

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		<p>was at this stage. But, again, this stage we're in a draft and we're taking your comments and based on the comments, we'll do some more thinking and see if that's how we -- what we still believe in the final. Mike helped write the health section of that.</p> <p>MR. BRUBAKER: I think Patty answered it pretty well, but I think what I understand what you're saying is if you look at Option A it says there's a medium health impact but if you look at B, C, or D, there's no impact. Now, this is a really good question because you're right. When you look at it, unless there's some explanation behind it, it's confusing and I totally agree.</p> <p>Additional Response: None</p>
	<p>Now that these people are giving me more of the bigger picture -- back on the other gentleman that was speaking a few minutes ago. Our future, until they come of age to understand business and politics and all these hearings and environmental impact statements, we need to keep that venue open for when they come of age and they have children. And if we were to not -- if we were to go through Alternative A, where's our future going to be? And if we go through B, C, or D and extend the mine, we need to try to ensure that our future understands what's going on. Thank you.</p>	<p>Hearing Response: None Additional Response: Thank you for your comment.</p>
KOTZEBUE PUBLIC MEETING (JANUARY 14, 2009)		
<p>Siikauraq Whiting, NWAB Mayor</p>	<p>I'm the mayor for the Northwest Arctic Borough. Welcome. I'm also a member of the Cape Krusenstern subsistence commission with the National Parks Service. So thank you for coming and taking our comments this morning.</p> <p>You know, the Red Dog Mine is the lifeblood for what we do at the Northwest Arctic Borough. Without the Red Dog Mine we wouldn't be able to provide all the services that we offer for the region; from public services to planning to all our search and rescue needs, our trail staking, helping to purchase all the schools in the region. About 80, 85 percent of our revenues come from the mine and the majority comes from grants and contributions to operate our services, so it's really critical that we continue this relationship with the mine as we continue to seek other sources of revenues.</p>	<p>Hearing Response: None Additional Response: Thank you for your comments. The SEIS includes discussions of subsistence and local socioeconomic conditions, as well as appendices on social conditions and descriptions of Kivalina and Noatak. These discussions are included to provide a more complete picture to decision makers and the general public of the complexities of pursuing a subsistence lifestyle while living in a remote location and having limited sources of both employment and income.</p> <p>Representatives from Maniilaq (representing the interests of nine tribal governments) and from the Northwest Arctic Borough have participated as cooperating agencies in working with EPA to represent local interests and provide a local perspective</p>

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	<p>So that we're not only tied to the revenue source that we have right now with the Red Dog Mine, we're in the process of reviewing a pilot agreement and we are trying to increase that so that we can continue to offer more services while simultaneously looking at other sources of revenue so that this is not just our one bank for the work that we do here at the borough.</p> <p>We -- it's critical also to continue the partnership that we have with our cooperating agencies and as a region so we all know what we are doing so that it's not just the borough, it's not just NANA, not just Maniilaq, that's offering services but that we supplement and partner with each other so that we don't compete against each other but that we complement each other in offering services for the people of this region.</p> <p>You know, our economy is really weak right now. When you go to some of the villages -- you think the prices are high in Kotzebue. The prices are even higher in the villages. I encourage you to go to the stores while you're here to take a look at the prices that we have to deal with every single day. With the mine, a lot of people are moving that are employees because the -- not just with the mine. People are moving, period, just because the prices are so high and the cost of living is so high in this region. So I know a lot of people that work there that prefer to live in Anchorage, Wasilla, Palmer. My brother is one of those just because he can -- let his dollar stretch a lot farther. So we are seeing a lot of people moving out of the region and we want to make sure that people have the opportunity to stay here.</p> <p>We have a world class mine in the region yet we have the highest cost of living in the region in the state so we're trying to work on ways to bring down the cost of living so people will want to live in their villages and not have to move. We've seen a lot of people also moving to Kotzebue because the cost of living is a lot cheaper here than it is in the smaller communities.</p> <p>And I wanted to make sure that -- and acknowledge the work Teck Cominco has done with looking at subsistence use as a priority</p>	<p>throughout the development of the SEIS. We conducted a number of public meetings, for both scoping and following the release of the SEIS in order to get input from local residents in Kivalina, Kotzebue, and Noatak. We believe that the concerns of the residents of the Northwest Arctic Borough have been well represented in the decision-making process.</p>

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	<p>utilizing the Subsistence Resource Commission. For those of you that have never met the namesake of who we are talking about, the Aqqaluk Mine, see that smiling face up here? Robert Newlin, Aqqaluk Newlin. I don't know if you've ever --you guys probably never met him. But he's the face of who we are working for. You know, if you don't mind, I would like to honor him and have a moment of silence of Aqqaluk.</p> <p>This elder was the NANA board president for many years. And as he sits here when we're talking about the usage of the land, I just want to make sure that people know, you know, with our subsistence and the way we deal with land and waters is how we take care of the land and how we take care of the resources, it will always take care of us. If we abuse the land, if we abuse our resources, our ancestors tell us that it's not going to be provided for us. So we need to make sure that as we deal with land, as we deal with water, we have a real high spirituality connection to the land. It's who we are as a people. We're looking at profitability. We're looking at money. We're looking at jobs. But at the same time, we have to do it smart. We have to do it with that same Inupiaq priority of our connection to the land. If we abuse it and start fighting over things with the land, the land is just not going to sustain for us.</p> <p>So all of the cooperating agencies, it's important to make sure that we have a foundation of that connection to our land. You'll work with NANA Regional Corporation, Kasinawuk (ph) is here, Walter is also here with NANA. They know about the connection with the land. We have got to make sure that when we develop in all of our lands, even if it's Red Dog or elsewhere in the region, that we make sure that that foundation and that connection to the spirituality of the land is not just maintained but well taken care of. There's no ands, ifs, or buts about it. That's just the way we operate.</p> <p>And if we want to maximize the profitability in the lifeline of a resource, we have to take care of the resource. The best caretakers of the resource are the people of the region. The best resource and the caretakers and the direction that you're going to get for the Red</p>	

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>Dog Mine is the subsistence commission, the subsistence committee. I know that they work with Teck Cominco. Those are the people that are going to live here.</p> <p>We're going to be here for generations to come. The mine is going to come and go. You guys are going to come and go. The people here are going to live here for generations to come. The best direction that you will take for what needs to be done is not from an agency. The best direction that you will get for where we need to go is from the people of this region. We have the -- we have the foundation. We're going to be here for generations. That biggest voice for the direction has to come from the people, period.</p> <p>When the cooperating agencies are meeting, it's critical also to have youth involved. We have to make sure that every single one of our meetings we invite students, young people to listen in, because we want to make sure that they are prepared to take our places. We want them -- when DNR, for example, EPA, Corps of Engineers, the State of Alaska, when you're making decisions on our behalf -- and we see it all the time. We see people making decisions on our behalf left and right.</p> <p>So we want to make sure that the young people are involved so that they can be a part of the State agency, with DNR, even with Teck Cominco with administration positions that those people are from this region and they have the qualifications to make those decisions because I think they're going to think twice, three, or four times harder about what's best for the people of this region because they and their families are going to be here for generations to come, not people that come in from Anchorage or Juneau or Fairbanks and think what's best for us and our land. So we need to make sure that we mentor and keep our young people involved.</p> <p>I wanted to just -- in closing, just wanted to thank Teck Cominco for providing opportunities for the people of this region and to just continue that partnership effort. And I know that the right decision will be made. At the Northwest Arctic Borough, we support the expansion of the Aqqaluk deposit because it equates to many</p>	

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>different jobs. And this -- the system that we're going through right now with the public process with the Red Dog Mine, we want to make sure that that's open in the future as we pursue other resource development activities in the future within the region because there's a lot of resource development that is available or there's a huge opportunity out there. But when that opportunity is there, we want to make sure that we do it right to make sure that the people are involved and that the people get the maximum benefit of resource development in the region.</p>	
ANCHORAGE PUBLIC MEETING (JANUARY 15, 2009)		
<p>Keith Silver, Resource Development Council</p>	<p>I'm a 48-year resident of Alaska. I'm here to testify in favor of Alternative B, the applicant's proposed action.</p> <p>The NPDES permit should be reissued for the discharge of the treated mine water into Red Dog Creek. History has shown that this has protected the aquatic life of the stream and in fact has improved it. Prior to developing Red Dog Mine by NANA/Teck Cominco, Red Dog Creek supported almost no life. And now with the discharge from the mine, the treated mine water dilutes the naturally occurring mineralization of the creek to the point the creek now sustains aquatic life that was not there before the mine.</p> <p>The Army Corps of Engineers should then issue the permits for the Aqqaluk deposit, allowing the deposit to be mined. This will allow Red Dog to proceed with continuous operation until 2031.</p> <p>The applicant also proposes to treat and discharge mine water into Red Dog Creek forever. As I understand it, Alternative B is also the EPA's preferred alternative. Thank you for your time.</p>	<p>Hearing Response: None Additional Response: Thank you for your comment.</p>
<p>Rick Rogers, Resource Development Council; Chugach Alaska</p>	<p>I'm the president of the Resource Development Council of Alaska and I'm also a vice president at Chugach Alaska Corporation, one of the 12 regional corporations formed under ANCSA. And I'm actually speaking on behalf of both of those organizations tonight.</p> <p>RDC represents mining, oil and gas, timber, seafood, tourism, most of the Alaska Native corporations, many communities' labor organizations, so it's a very widespread representation. Chugach is</p>	<p>Hearing Response: None Additional Response: Thank you for your comment.</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>one of the 12 regional corporations established under ANCSA and both of these organizations are in support of preferred Alternative B, which will allow for the continuation of what we really see as a successful model for the collaborative of rural resource-based economic development in rural Alaska. The Red Dog model really provides an economic engine to the Northwest Borough.</p> <p>And I'm not going to try to second-guess the many professionals. I'm really impressed with the level of expertise and thoughtfulness that the agencies and the consultants have put into this process, so I tend to trust that the judgment and the analysis that has come forward is going to make a continuation of a successful mine with minimal environmental impacts.</p> <p>Some of the economic impacts -- this is going back to 2007 -- is just very impressive: Over about 475 full-time jobs, a hundred seasonal jobs, \$45 million in wages, \$230 million in state and federal taxes, \$56 million in royalties to NANA in '07, and I understand that's probably significantly more for 2008. It's close to home for Chugach Alaska Corporation of course because of the revenue sharing provisions in 7(i). I hope you appreciate that those economic benefits are broadly distributed not just within the NANA region but across all of Alaska and in fact many parts of the Lower 48 where many ANCSA shareholders live.</p> <p>I can't speak for other Native corporations but in Chugach's case, our recent dividend policy actually distributes 100 percent of its 7(i) revenues that we receive to our shareholders, so we're really a pass-through conduit. And so the economic benefits from projects like Red Dog have real life meaningful impacts on lives of real people. Particularly in these trying economic times, it really does make a difference. And so I just want to extend my appreciation for everyone who is supporting the continuation of Red Dog and am hopeful that Alternative B through this process becomes a reality and the mine can move into a new ore body and continue its successful operation.</p>	

Commenter	Comment	Response at Hearing/Additional Responses ¹
James Hemsath, AIDEA	I'm deputy director for the Alaska Industrial Development and Export Authority responsible for developing and financing projects, which the DMTS is one -- an asset that we own. As owner of DMTS, both road and the port, it supports the EPA's preferred alternative, Alternative B, to protect proposed expansion of the Red Dog Mine to include the nearby Aqqaluk deposit. This expansion is critical for the long-term operation of the mine and the continuation of the economic benefit Red Dog brings to the area over the next 20 years. As said previously, Red Dog provides approximately 475 regular jobs with additional seasonal jobs which resulted in \$45 million paid out in wages in 2007. The port and road are important regional infrastructures and have the potential to promote future development opportunities, some that -- which we know and some that are still unknown. The ongoing operation of the mine assures that this infrastructure will remain operational and available for that development. Red Dog is an important long-term economic hub to the area, the state now, and in the future. We at AIDEA support the EPA's recommendation for the continued operation of this asset.	Hearing Response: None Additional Response: Thank you for your comment.
Steve Borell, Alaska Miners Association (AMA)	The AMA supports Alternative B, the preferred alternative, including reissuance of the NPDES permit with the 1500 milligrams per liter in-stream TDS limit. The Red Dog Mine has now been operating for more than 19 years and has done an excellent job and has been an example of what mining can do for this state. Red Dog has provided many hundreds of jobs for local residents of the northwest arctic Alaska.	Hearing Response: None Additional Response: Thank you for your comment.
	Before the mine began, the northwest part of the state had the highest unemployment in the state. It had all the various problems that exist when people do not have jobs that can provide for their families. The mine changed that situation and the northwest Alaska no longer has the highest unemployment rate. And the jobs at Red Dog are some of the best jobs in the state of Alaska. They are more than simply jobs. They are new careers and skills that reside in the people working at the mine. These skills of these workers at Red Dog are in demand in many parts of the world even now under the current economic downturn.	Hearing Response: None Additional Response: The socioeconomic effects of the project are presented in Section 3.17.

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>We are concerned that this SEIS has included a health impact assessment, a requirement not previously a part of the EIS process. We do appreciate that human health concerns have been raised at various times and that health monitoring is an important part of the health and safety program at the mine, however, this is a project-specific issue and should be limited to this SEIS. It should not be required or incorporated in other environmental impact statements.</p>	<p>Hearing Response: None Additional Response: EPA believes that impacts on human health can be considered in an EIS developed under NEPA, just as we might consider impacts to wildlife, aquatic resources, etc. The need for, and scope of health impact assessments in future EISs will be made on a case by case basis depending on the nature of both the proposed project and the resources that could potentially be affected.</p>
	<p>The time and cost to go through the EIS process is huge, typically taking many years and costing millions of dollars. Oftentimes due to changing customers, markets, financing, et cetera, projects have a narrow window during which they must begin operation if they are to be economic and successful and thus provide the jobs, especially the rural jobs, the state needs. If a health impact assessment was required for other projects, the result would be that those projects would not be able to meet their respective windows of opportunity.</p>	<p>Hearing Response: None Additional Response: We respectfully disagree with the commenter. Incorporation of the health impact assessment did not substantively affect the schedule or the cost of the Red Dog Mine SEIS. Based on our experience, the time frame for completing an EIS may be affected as much by project modifications requested by the proponent and by the quality of baseline data, as by the satisfaction of additional data needs.</p>
	<p>The Red Dog mine is one of only five major mines in Alaska and it pays a large amount of tax to the state and local governments. Many of the villages in the northwest part of Alaska now have new schools because of the Red Dog Mine and the stable payments it makes to the Northwest Arctic Borough. This SEIS is crucial to ensure the mine can operate and therefore can pay these taxes.</p>	<p>Hearing Response: None Additional Response: Thank you for your comment. Socioeconomics of the Red Dog Mine's operation are discussed in Section 3.17.</p>
	<p>We urge that the record of decision and the various permits be completed and issued at the earliest possible date. The Red Dog Mine is crucial to the jobs and livelihoods of more than 500 Alaskans, many who live in rural Alaska. The mine needs to begin the development of the Aqqaluk deposit area as soon as possible. Even though Teck has expended a tremendous amount of effort to understand the deposit, the real test of how the mill will function and how it will have to be fine-tuned over a period of time to recover the metal cannot occur until ore from the new deposit is actually fed into the mill.</p>	<p>Hearing Response: None Additional Response: The SEIS process has been completed in slightly more than two years. A two year time frame is reasonable time frame for a NEPA project with the amount of history, complexity, controversy, and number of stakeholders associated with this project. Our understanding is that the time line would not affect the continuous operation of the mine.</p>
	<p>Again, I reiterate, we urge the record of decision and the various permits be completed and issued at the earliest possible date.</p>	<p>Hearing Response: None Additional Response: Comment noted.</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
<p>Marlianna Soto, Resource Development Council</p>	<p>You have heard about RDC already this evening. RDC is a statewide nonprofit membership-funded organization founded in 1975. RDC's membership is comprised of individuals and companies from Alaska's oil and gas, mining, timber, tourism, and fisheries industries as well as Alaska Native corporations, local communities, organized labor and industry support firms. RDC's purpose is to link these diverse interests together to encourage a strong diversified privatized sector in Alaska and expand the State's economic base through responsible development of our natural resources. It is on behalf of this diverse membership that I would like to testify this evening.</p> <p>RDC supports EPA's preferred alternative, Alternative B, which will allow the continuation of the mine. The mine, which is one of the largest employers in that region with the majority of employees being NANA Regional Corporation shareholders, will continue to supply economic benefits to the region for the next two decades. Red Dog employs hundreds of Alaskans, paying millions in wages, state and federal taxes, and to NANA Regional Corporation. Through the sharing division of ANCSA, the mine has not only been beneficial to NANA but to the other regional corporations in Alaska.</p> <p>As proposed under Alternative B, the operations will continue to decrease naturally occurring metal levels in Red Dog Creek resulting in productive and healthy environments for fish. Further, potential concerns identified in the SEIS regarding subsistence resources are and will be addressed through the Red Dog subsistence committee on an ongoing basis.</p> <p>Red Dog Mine has been described as a model of responsible resource development based on the principles, consensus, cooperation, and mutual respect between the mining company and the indigenous people.</p>	<p>Hearing Response: None Additional Response: Thank you for your comment. Regarding effects on subsistence resources, the SEIS has identified impacts on subsistence harvest of caribou and beluga by Kivalina. One of the mitigation measures recommended in the SEIS includes evaluating the effectiveness of the Subsistence Committee and making improvements.</p>
<p>Nikos Pastos, Center for Water Advocacy in the Western United States</p>	<p>We operate in about nine different states and we advocate for communities that have water issues. I have just some brief comments. Our attorney is still looking at the EIS and will provide formal comments.</p>	<p>Hearing Response: None Additional Response: Comment noted.</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>The first one is we think that probably the tribal communities in the northwest arctic have been slighted and that the EPA has a federal responsibility for a government-to-government consultation process. And I'm not sure -- because I don't represent or speak on behalf of the tribal communities in the northwest--but I think that from some of the tribal individuals in that area that I've spoken with that there needs to be a more inclusive process, at least in the scoping for the EIS or the supplemental environmental impact statement for this project, and that the policy for EPA to consult with the tribes should be broader based.</p>	<p>Hearing Response: None Additional Response: Scoping included public notices, public meetings, and scoping summaries delivered door to door in both Kivalina and Noatak. Nine tribal governments, represented by Maniilaq, participated as cooperating agencies in developing the SEIS. EPA offered to conduct government to government consultations regarding the SEIS and NPDES permit with all of the Northwest Arctic Borough tribal governments. Prior to release of the draft SEIS, only Kivalina responded affirmatively to EPA's request for government-to-governemnt consultation. EPA and the other federal agencies (NPS and Corps) met with the Kivalina IRA Council twice; prior to the SEIS scoping public meeting and prior to the draft NPDES permit/draft SEIS public hearing. In draft SEIS comments submitted by Trustees for Alaska, the Point Hope IRA Council requested a government to government consultation with EPA. However, Point Hope has yet to respond to EPA's most recent correspondence which requested working together to set up a consultation meeting. Considering the participation by the tribal governments as cooperating agencies, public meetings in Noatak, Kivalina, Kotzebue, and Anchorage, and government to government consultation upon request, EPA has fulfilled its responsibility for government-to-government consultation. This is documented in Chapter 1 and Section 3.18.1.1 of the SEIS.</p>
	<p>Secondly, you know, it's hard to understand the authority that the -- it's confusing as a layman when you read the environmental impact statement to try to understand what the Environmental Protection Agency's decision-making authority is, so it's not clear in the EIS. Again, I'm saying what the lead agency, EPA's rationale for clarifying what their authority is. So when it comes to the NEPA process, I think there's a flaw. I think you're working on it, but it's hard for common people to understand that.</p>	<p>Hearing Response: None Additional Response: EPA's authority for developing the SEIS is clearly discussed in Chapter 1 of the SEIS. The SEIS describes that EPA has authority to develop the SEIS in order to evaluate impacts of it's reissuance of an NPDES permit for the Red Dog Mine, including the Aqqaluk expansion. Under NEPA, EPA has to identify a preferred alternative (the alternative it plans to implement) and an environmentally preferable alternative. Our selection of the preferred alternative is based upon our NPDES decision in response to the permit application submitted by Teck. Implementation of the monitoring and mitigation measures recommended in the SEIS is dependent upon our authorities under NPDES and the CWA. Table 2.5-1 in Chapter 2 of the SEIS identifies recommended monitoring and mitigation</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
		measures and the authorities, if any, under which they will or could be implemented. Chapter 2 also describes EPA's rationale for identifying Alternative B as our preferred alternative and Alternative C as environmentally preferable.
	The second one is the wastewater pipeline. From reading the environmental impact statement, it's hard to, again, understand the decision-making authority for the wastewater pipeline.	Hearing Response: None Additional Response: The proposed action (Alternative B) reflects the project as proposed by the applicant (Teck) which is to renew the existing NPDES discharge permit for discharge into Red Dog Creek, including any changes warranted from developing the Aqqaluk Deposit. The wastewater pipeline and discharge to the Chukchi Sea was developed as an alternative in the SEIS and evaluated in comparison to the proposed action. While the pipeline is an aspect of the settlement of a civil lawsuit, Teck has yet to submit permit applications for its construction or use. EPA identified the wastewater discharge pipeline as part of the environmentally preferable alternative in the SEIS; however, EPA can not force Teck to build the pipeline under its Clean Water Act authority. EPA's limitation on the selection of a preferred alternative is discussed in Section 2.7.
	Then, you know, there's a question about enforceability of the NPDES permit. There's already a long battle where Teck Cominco wasn't meeting the standards for the NPDES permit before so, you know, what kind of enforcement would there be if there's some further kind of violation of the permit?	Hearing Response: None Additional Response: NPDES comments will be addressed in the Response to Comments document for the NPDES permit.
	Then it doesn't seem until -- I mean, you know, Teck didn't acknowledge there was a problem with air quality. It doesn't seem still that there's adequate air monitoring so -- I mean, and that's indicative of the whole state, not just Teck's program, but a lot of the other mineral industries self-report air data. And particularly it seems like in the supplemental environmental impact statement there's a flaw of when you're looking at mortality or morbidity from like respiratory problems, humans as well as some of the other mammals.	Hearing Response: None Additional Response: The SEIS has evaluated air quality associated with both emissions and fugitive dust and evaluated potential impacts on wildlife and other resources. A variety of data sources were used in the SEIS analysis including monitoring and analysis conducted by Teck such as the DMTS risk assessment (Exponent 2007). The SEIS did not predict that there was or would be mortality from respiratory problems in humans or mammals. The ecological aspect of the risk assessment and SEIS did determine that there is a low risk to shrews and voles near the DMTS haul road and at the port site due to fugitive dust deposition.

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>And then when it comes to -- and it's the 404 permit in the -- I forget which was the -- for the fill, is that part of B? I think there's a -- again, this is some rough notes that I have. I think that the Army Corps of Engineers is supposed to be informed by the environmental impact statement and so I don't know if there's a separate -- if we're talking about endangered species, if there's any endangered species that are impacted. It's not clear that the EIS is completely informing them, the Army Corps of Engineers, on the 404 permit and I don't necessarily, from the folks that I've talked to, think that that's a separate process. I think it's required by law.</p>	<p>Hearing Response: None Additional Response: The Corps is a cooperating agency in developing the SEIS. As described in Chapter 1 of the SEIS, the Corps will be using the SEIS to inform its decision-making related to 404 permits for development of the Aqqaluk Deposit. In regards to the Endangered Species Act (ESA), EPA and the Corps are required to comply with the ESA . Threatened and endangered species are discussed in Section 3.9. With the exception of the polar bear, which may occur in the vicinity of the port in the winter, when activity is at a minimum, no threatened or endangered species are known to occur in the project area. The SEIS concludes that the proposed action and alternatives would not affect polar bears.</p>
	<p>And other than that, the Center for Water Advocacy is interesting in just protecting water quality and quantity for the whole ecosystem and that's – our involvement would be to continue to advocate for the cleanest water possible beyond federal standards, which we have many examples of in tribal water regulations.</p>	<p>Hearing Response: None Additional Response: Comment noted.</p>
<p>Mark Smith, Crowley Petroleum Distribution</p>	<p>I'm an employee of Crowley Petroleum Distribution. We are a vendor in support of the Red Dog operation. A little bit more about myself, I'm a commercial fishermen as well with approximately 30 years of commercial fishing experience on the Bering Sea coast. Red Dog, I think, has been an example of responsible development. As a fisherman, I'm very sensitive to that.</p> <p>Speaking on rural issues, I'm from the village of Aleknagik, Alaska, population roughly 160. I know what a difference it makes to have such a powerful economic engine nearby. Crowley provides services not just to the Red Dog Mine but to the surrounding community. And the impact of jobs and opportunities for vendors in the region has been remarkable over the last 10 years. As far as workforce development, Crowley also looks to employ locals and Red Dog Mine has definitely improved the quality of the work force in the area. We pride ourselves as being 100 percent local hire in all of our operations. We also look at western Alaska demographics. It's one of the lowest income areas in North America. And to have such a powerful force there, again, really</p>	<p>Hearing Response: None Additional Response: Thank you for your comment.</p>

Commenter	Comment	Response at Hearing/Additional Responses ¹
	<p>provides folks an amount of economic independence that really no other industry is stepping up to provide in that region.</p> <p>And so with that background, you know, I definitely want the support [Option B] -- is the only option I see that provides continuous operation to the mine.</p>	
<p>Bob Barndt, Lynden Air Cargo</p>	<p>I'm here on behalf of the CEO, Jim Jansen. Lynden has a substantial interest in the continued operation of the Red Dog Mine. The NANA/Lynden Logistics joint venture has operated at Red Dog for over 10 years providing transportation services for Teck at the Red Dog Mine. In addition, other operating companies including Alaska Marine Lines, Lynden Transport, Lynden Air Cargo, Lynden Construction -- I'm sorry, forget construction -- Lynden Logistics all provide support service for the Red Dog Mine.</p> <p>NANA/Lynden Logistics directly employs more than 50 personnel at the Red Dog Mine with an annual payroll of more than 4.2 million. Of those employees, approximately 50 percent are local NANA shareholders and residents. Indirectly, it employs an additional 500 personnel in Alaska and in the Pacific Northwest. We directly support the Red Dog Mine with marine, air, and truck transportation.</p> <p>The Lynden companies lend their full support to Alternative B of the Aqqaluk draft SEIS. We believe it is essential that Red Dog be allowed to continue operations. The NPDES permit should be reissued and permits should be issued for the Aqqaluk deposit. This mine is critical to the economic future of the region and the state of Alaska and we fully support Alternative B and agree with the EPA that this is the preferred alternative; therefore, we support moving quickly to finalize the EIS and issue the appropriate permits.</p>	<p>Hearing Response: None Additional Response: Thank you for your comment.</p>

Appendix I
List of Recipients

List of Recipients

Federal Departments and Agencies

National Oceanic and Atmospheric Administration - National Marine Fisheries Service
U.S. Department of Interior, National Park Service
U.S. Army Corps of Engineers

State Agencies

Alaska Department of Environmental Conservation
Alaska Department of Natural Resources
Alaska Department of Fish and Game
Alaska State Legislature
Representative Reggie Joule
Senator Donald Olsen

Native Villages and Agencies

Alaska Native Tribal Health Consortium
Ambler Traditional Council
Buckland IRA Council
City of Ambler
City of Buckland
City of Deering
City of Kiana
City of Kivalina
City of Kobuk
City of Noorvik
City of Point Hope
City of Selawik
City of Shungnak
Deering IRA Council
Kiana Traditional Council
Kivalina IRA Council
Kotzebue IRA Council
NANA Development Corporation, Inc.
NANA Regional Corporation
Native Village of Noatak
Native Village of Kotzebue
Native Village of Point Hope - IRA Council
Kobuk IRA Council
Maniilaq Association
Noorvik IRA Council
Selawik IRA Council
Shungnak IRA Council

Organizations and Businesses

Alaska Community Action on Toxics
Alaska Miners Association
Center for Science in Public Participation
Center on Race, Poverty & the Environment
Institute for Social and Economic Research/University of Alaska Anchorage
Landye Bennett Blumstein LLP Attorneys
National Parks Conservation Association
Northern Alaska Environmental Center
Teck Alaska Incorporated – Red Dog Operations
The Pew Health Group/Pew Trust
Trustees for Alaska