NPS Comments	Response
Overall the document appears to be well written and professionally executed.	Comment noted.
In general the NPS is concerned that the suggested screening risk assessment approach is on the low end of the spectrum of risk assessments, and risks to humans and ecological receptors could be missed with application of this approach.	A number of changes have been made to the revised workplan to increase its conservativism.
The use of safety factors applied to LOAELs and NOAELs for human and ecological receptors may be unsupported statistically, which is used mainly for low budget, first look (screening level) risk assessments.	This is a standard practice adopted by the State of Alaska and EPA.
We are concerned the risk assessment process would terminate if minimal risks are determined with the screening tests. If screening level assessments show minimal risk to humans and ecological receptors at this time, we encourage ADEC to revisit this issue periodically in the future. We suggest this for two reasons: 1) Lead and zinc sulfides also containing cadmium are still being transported across the DMTS daily and fugitive dust with these heavy metals will continue to be dispersed into the environment, even with improvements to truck designs and loading and unloading facilities; and 2) Lead and zinc sulfides with cadmium may oxidize and change chemically over time in the various environments along the DMTS, particularly wetland areas, becoming more bio-available in the future.	A risk assessment (Method 4) is the only cleanup method that addresses ecological receptors. If new information is found in the future that indicates changes to risk at the site, DEC may require Teck Cominco to amend the risk assessment.
The NPS is concerned the proposed risk assessment method to determine potential adverse effects to human health and the environment should more carefully evaluate data gaps and uncertainties to guard against allowing persistent metals contamination to occur, even if some cause and effect relationships are not *yet* fully established scientifically.	Data gaps and uncertainties are more fully identified in the revised workplan.
Page 7, Tracking along the DMTS road: This section states ore concentrate is tracked out of loading and unloading facilities on trucks and deposited onto the road. This is not entirely correct. Though fugitive dust is deposited on the road, the study by Ford and Hasselbach (NPS 2000) clearly shows fugitive dust makes its way to the adjacent tundra. Some enrichment over background levels was demonstrated at distances of up to one kilometer and one mile from the road surface. As written this risk assessment minimizes characterization of the actual area of contamination.	This issue is addressed in the comment response below.
Page 7, Mechanical or wind generated dust from road or tundra surfaces, Last sentence: We are not sure what is intended by the phrase, "Dust could be blown from tundra surfaces along the road." Do the authors intend to state dust could be redistributed by wind along the affected area? If the intention is to indicate dust containing metals could be blown onto the road from adjacent mineral rich tundra areas, we think this is a mistake and incorrect. The NPS moss-metals study also sampled soil at depths to 50 cm and found low levels of lead and zinc in the soil, thus proving the high levels on mosses and lichens were derived from external locations,	The sentence referred to the possibility that dust might be blown from tundra surfaces where it had previously been deposited by the wind. The wording has been clarified.

NPS Comments	Response
and likely from the road corridor, because levels increase dramatically as one approaches the road. Also the road bed material below surface levels has been shown by Exponent to have low concentrations of the heavy metals. We agree dust from truck tracking that is deposited on the road and onto the adjacent tundra areas could be re-mobilized by subsequent wind. This however, is not clear form the phrase noted.	
Page 17, Worker's Subsistence Exposure: This section fails to recognize some workers from Kivalina and Noatak villages may also participate in subsistence activities when off duty. Most workers work one or two weeks on and one or two weeks off. The assessment should consider the possible cumulative effects to workers who also participate in subsistence in the affected areas.	The dual exposure scenario has been added.
Page 36, 4.2.1 Lead, Paragraph 2: This section notes lead in water is most soluble and bio-available under conditions of low pH, low organic content, low concentrations of suspended sediments, and low concentrations of various salts. The site description should indicate some of these factors (water pH, sediments, salts, etc.) to inform the analysis of lead bio-availability. We are concerned the finely ground lead ore concentrate with a vastly increased surface area would be subjected to increased rates of oxidation and ionic changes than the parent material, which could lead to increased rates of lead methylation. Water hardness in water bodies along the road corridor should also be assessed.	Available site-specific hardness data were used to adjust hardness-dependent ambient water quality criteria (used as ecological screening benchmarks for surface water) in the ecological risk assessment. For the purposes of the screening risk assessment, metals are assumed to be 100 % bioavailable. No pH adjustments appear necessary.
Pages 37 and 39, Sections 4.2.2 and 4.2.3, Zinc and Cadmium: We have similar concerns for chemical changes to zinc and cadmium fugitive dust particles from oxidation and ionic changes as stated above for lead.	See comment response above.
Page 42, Section 4.4 Last two sentences: The Dames and Moore, Exponent, and NPS studies generally show levels of heavy metals in soils along the DMTS Road, other than immediately adjacent to the Red Dog Mine, are generally low. The exposure of fugitive dust releases would likely represent the major exposures to these metals for non-mobile plants and resident fish, birds, and small mammals.	Comment noted.
Page 45, 4.5.1 Terrestrial Receptors: Though caribou are an important subsistence resource, moose also occur in the project area, and are less transient than caribou. Moose are also being used for subsistence. We recommend considering moose as an ecological receptor because they reside in the area and bear young near the road corridor.	Moose have been added as an ecological receptor representing terrestrial mammalian herbivores.
Page 53, 4.6, Screening Level Ecological Risk Assessment: The screening level benchmarks and toxicity reference values seem to be lacking for many of the identified ecological receptors. How will this be addressed?	Ecological screening benchmarks are presented in screening results tables and are discussed in the revised text. Avian and mammalian TRVs are presented in Table 3-28.

NPS Comments	Response
	Appropriate screening benchmarks and TRVs were not available for some chemicals. These exceptions are discussed in the text.
Page 56, 4.6.4 Freshwater Aquatic Life Assessment: Again, we feel that water and soil pH and hardness values should be measured along the DMTS. We do not think it is adequate to defer to a default hardness of 100 mg/L.	See previous comment response regarding water hardness and pH.
Page 62, 4.6.9 Uncertainty Analysis and Identification of Data Gaps: This is perhaps the largest hole in the proposed screening level ecological risk assessment. This issue is also noted under risk characterization on page 29. The NPS is concerned the lack of TRVs, exposure parameters, and accumulation factors for selected receptors are not available. The public has a right to know how major sources of uncertainty would be addressed ***before*** we would be willing to accept the results of the proposed screening level ecological risk assessment.	The revised workplan discusses how major sources of uncertainty will be addressed.

Peabody Comments	Response
Based on some research that I have done recently, it seems that blood lead levels may be elevated in people who live near lead mines, not to mention people who subsist on wild foods near lead mines. Furthermore, there is clear evidence from several reports that heavy metals are elevated in the vegetation along the Delong Haul road, around the port site, and at the mine. It is also known that natives residing in the surrounding area hunt and gather within the boundaries of the elevated heavy metals. Therefore, it is my opinion that this risk assessment is an unwieldy and lengthy process that doesn't evaluate the health risks of the local subsistence users who have been exposed to contamination for the last 14 years. This risk assessment will probably take many months to complete and at a minimum it will establish some arbitrary threshold of contaminant levels that will permit Red Dog to operate at a level that is economically viable, regardless of human health risks.	The Department of Health and Social Services released a report in 2001 entitled "Public Health Evaluation of Exposure of Kivalina and Noatak Residents to Heavy Metals from Red Dog Mine." The report states that lead bioavailability is low and not problematic for the residents of Kivalina and Noatak. The risk assessment is designed to evaluate multiple contaminants and multiple exposure scenarios. After the risk assessment is completed, cleanup levels or management measures will be established that are protective of human health and the environment.
Doesn't it seem more straight forward to require Red Dog to operate in the cleanest, safest manner while evaluating the health of area residents on a regular basis. For instance, study the level of heavy metals in the caribou and other animals that live and forage in this area.	Human health risks associated with exposure to site contaminants will be calculated using actual biota concentrations. Supplemental modeling may be considered in the event that data gaps still exist after the summer 2004 data collection effort.

Peabody Comments	Response
Perform a detailed health evaluation of the local people, esp. the children, i.e. blood testing and questionnaires. Moreover, ask them how to do this in a culturally appropriate way so that they might gain your trust and respect. This seems like a direct way to deal with this issue, rather than using a bulky risk assessment.	As stated earlier, the Department of Health and Social Services conducted a health evaluation in 2001.
Finally, listen to the people whose lives are being impacted on a daily basis from the operations of this mine. REALLY listen to them and more than likely they will provide you with the answers you seek without having to complete an untimely and perhaps unproductive risk assessment.	A risk assessment is a viable and legal method to assist in determining cleanup levels at a site. DEC will make every attempt to listen to affected residents of the area as the risk assessment proceeds.

Trustees Comments	Response
Introduction According to section 1 of the draft work plan, the purpose of the risk assessment is "to assess whether adverse impacts to human health or the environment could occur as a result of direct or indirect exposure to metals from fugitive dust from the DMTS transportation corridor. The results of the risk assessment will help risk managers to determine what actions, if any, are necessary to reduce those impacts." (page 1) (emphasis added). The Alaska hazardous substance regulations mandate that persons responsible for the release of any hazardous substances promptly clean up the contamination. 18 AAC 75.315 (initial response action), 75.325–75.396 (site cleanup). Cleaning up hazardous substance releases is not optional, so it is inappropriate for the discussion to suggest, by means of the emphasized language "if any," that cleanup action may not occur.	While spills must be reported to DEC per 18 AAC 75.300, DEC is not obligated to require cleanup at all sites. Per 18 AAC 75.310, DEC or the Commissioner can waive cleanup if the release is technically not feasible or if the cleanup will cause more harm than the release itself. DEC has not at this time waived any requirement to perform cleanup at Red Dog, and it is awaiting the findings of the risk assessment prior to establishing cleanup levels. Teck Cominco has performed some cleanup along the DMTS road in the port area in 2002, and has begun cleanup of some of the truck rollover sites. Further cleanup is expected at the Red Dog site. DEC will review each cleanup plan in terms of whether the proposed action may cause more environmental harm than benefit.
Introduction — This discussion in the work plan is also problematic in that it does not identify the legal authority for this risk assessment. Alaska's hazardous substance regulations have established cleanup levels for various hazardous chemicals in various media. Cleanup levels for hazardous substances in soils can be developed using one of four	The revised workplan addresses the cleanup method to be used. However, the risk assessment process does always result in cleanup levels that are more stringent than those provided in Table B1. Unlike methods 1

Trustees Comments	Response
methods outlined at 18 AAC 75.340. Method two involves remediating hazardous chemicals (other than petroleum hydrocarbons) in soils as prescribed by the levels set out in Table B1 of 18 AAC 75.341(c). 18 AAC 75.340(a)(2). Table B1, in turn, establishes cleanup levels for a list of chemicals for three exposure pathways (ingestion, inhalation, migration to groundwater) in three geographical areas (Arctic zone, under 40-inch zone, over 40-inch zone). Methods three and four involve the development of site-specific alternative cleanup levels. The work plan should explain this regulatory structure and explicitly state that the purpose of the risk assessment is to develop site-specific alternative cleanup levels for fugitive dust at DMTS under method three or four of the pertinent Alaska regulations (if that is, in fact, the correct presumption). More importantly, the work plan must justify the decision to undertake a lengthy and time-consuming risk assessment rather than immediately cleanup the fugitive dust contamination under method two, using the cleanup levels established in Table B1. Specifically, the work plan must provide an indication that the risk assessment process is substantially likely to result in more protective cleanup levels than those provided in Table B1.	and 2, methods 3 and 4 are approaches to determine alternative cleanup levels based on site specific conditions rather than conservative, default exposre scenarios. Methods 3 and 4 may either be more or less stringent than levels prescribed by methods 1 and 2. Text has been added to the work plan describing the regulatory structure under which the risk assessment will be completed.
This section of the work plan also states, without citation to any legal authority, that the risk assessment will exclude the entire mine area as defined by the 1999 mine site ambient air boundary. This ambient air boundary is drawn generously and includes a significant stretch of the DMTS road. We disagree with the decision to exclude such a significant stretch of the road and mine site from the risk assessment and remediation. As we explained in a detailed letter to former ADEC commissioner Michele Brown (attached hereto and incorporated by reference), there is no basis in the regulations to exclude the mine site from the fugitive dust cleanup plan. If the risk assessment is to go forward, then it is critical that the scope be broad enough to fully address the fugitive dust contamination problem. Given that the issue at hand is fugitive dust, which can be transported miles from the site of origin by wind, the work plan will fail to be protective of human health and the environment, as mandated, should the mine site and any portion of the road be excluded from cleanup.	Ongoing releases of ore concentrate at the mine site are, and will continue to be, governed by permits. Particular spills at the mine site will be dealt with by DEC as they occur; however, the ultimate cleanup of the active mine site, including the impact of fugitive dust from past mining operations, will be handled under the state's reclamation laws. DEC's position on this issue is based on the advice of the Department of Law, and has not chnaged since the letter to Trustees from former Commissioner Brown dated January 14, 2002. .
Section 2.1 identifies lead, zinc, and cadmium as the three chemicals of potential concern that will be addressed in the risk assessment. Table 2, however, indicates that multiple chemicals are present in the fugitive dust at concentrations that exceed ADEC's regulatory cleanup levels, found at Table B1 (Method 2 — Soil Cleanup Levels Table) of 18 AAC 75.341. Antimony occurs at 16,000 ppm, well over the 55 ppm cleanup level for soils in the Arctic Zone. Arsenic occurs at 4,000 ppm, well over the 8 ppm cleanup level. The list goes on:	Risk screening is conducted using 0.1 times the values in Table B1 of DEC's *Risk Assessment Procedures Manual.* With respect to chromium, many analyses do not distinguish the ionic state. If the ionic state is not known,

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Barium occurs at 24,000 ppm; the cleanup level is 9,600 ppm. Cadmium occurs at 12,000 ppm; the cleanup level is 140 ppm. Chromium occurs at 677 ppm; the cleanup level for Chromium +6 is 410. (It is worth noting that Table 2 does not identify which type of Chromium — Chromium +3 or Chromium +6 — occurs in the fugitive dust.) The other chemicals that occur in the fugitive dust at levels that exceed ADEC's cleanup levels must be included in the risk assessment.	the more conservative value is used for screening. The "arctic zone" is defined as areas north of latitude 68° north, although areas south of that latitude can be considered an "arctic zone" on a site-specific basis, based on a demonstration that the site is underlain by continuous permafrost. The DMTS road crosses latitude 68° north, so the mine site and a portion of the road are within the "arctic zone." The rest of the DMTS road corridor and the port site are underlain by continuous permafrost and therefore may also qualify as "arctic zone" areas."
Table B1 is misleading in that it presents chemical concentrations in three different units — percentage, grams per ton, and parts per million. All of the concentrations should be expressed in the same units to facilitate their review by members of the general public reviewing the document and to show more clearly the relative concentrations of various hazardous chemicals.	Units are expressed in parts per million.
Section 2.1 This section contains other analytical flaws as well. The section states that arsenic will not be considered a chemical of potential concern because it "does not appear to be significantly elevated around the DMTS relative to background . . . ." (page 5) (emphasis added). Appearances are not enough for a technical workplan such as this one; rather, ADEC's Risk Assessment Manual requires that whether chemical levels are significantly elevated be demonstrated with a 95% UCL calculation. In addition, whether the arsenic level in the fugitive dust is elevated over background levels is in the end irrelevant. Unlike background levels, which are bound up in the soil and not especially mobile, the arsenic and other chemicals that occur in the fugitive dust are mobile and available for ingestion, inhalation, and all the various exposure pathways.	The revised workplan provides a modified CoPC screening analysis.
The section also states that arsenic will not be considered in the risk assessment because it "is present in a much lower proportion in the concentrates than lead . . . ." (page 5) This too is irrelevant. The presence of arsenic in the fugitive dust has an impact on the total contaminate load, which in turn will affect the Hazard Index that must be calculated as part of the risk assessment. In addition, the particular human health hazard is different for each metal, so it is critical that	See above comment response.

Trustees Comments	Response
each be included in the assessment.	
Section 2.2 introduces the sources and transport mechanisms of fugitive dust at the DMTS. The section correctly identifies deposition in surface water and soil, with subsequent uptake into plants and animals, as a potential exposure pathway. The section fails, however, to identify surface deposition on plants as a potential exposure pathway through ingestion and dermal contact. This exposure pathway exists for both people and animals that subsequently contact and consume the plants.	Ingestion of dust deposited on plants is evaluated as an exposure pathway. The soil ingestion estimates used in the ingestion pathway include exposure to metals in soil and dust by ingestion, dermal contact, and inhalation of airborne dust. Thus, separate quantification of exposure by dermal uptake is unnecessary and would be duplicative.
Section 2.2.3 describes the changes in fugitive dust transport mechanisms resulting from ongoing efforts to reduce emissions. One such change is "test paving of the road near the port." (page 9) Paving the road will not help to control fugitive dust from the trucks.	The text has been clarified.
Section 3.1.2.1 describes subsistence use in the terrestrial environment and the potential exposure pathways that occur through such use. This section makes the erroneous, and completely unsubstantiated, statement that "[t]he large distance between the dust sources and the villages likely precludes transport of fugitive dust to the villages of Kivalina and Noatak (i.e., minimum of 15 miles from DMTS operations)." (page 15) It is well-known that dust can be transported by wind and air currents for thousands of miles (indeed, dust from Africa has been found on the west coast of the United States). This statement should either be substantiated or deleted, and the assumption removed from the work plan.	The revised work plan clarifies the statement regarding fugitive dust transport to the villages. It also clarifies how the ambient air boundary will be used in the risk assessment.
Section 3.1.2.2 describes subsistence use in the marine environment and potential exposure pathways through such use. This discussion cites to the sediment quality standards established for Washington State — which are based on conditions in Puget Sound, a completely different ecosystem than that at the DMTS port site — without providing a scientifically sound justification for doing so. This section should either provide a justification for using Washington standards, or choose and justify a different set of sediment criteria from a region that has conditions similar to those at the DMTS port site.	Where appropriate, criteria listed in the NOAA Screening Quick Reference Tables (SQuIRTs) are used in the CoPC screening process. Other criteria are discussed and presented for comparison.
Section 3.1.2.3 describes subsistence and residential use in the freshwater environment and also makes a mistake with respect to water quality criteria. This section discusses sampling of Kivalina drinking water for comparison with water quality criteria, but fails to identify which water quality criteria will be used.	The revised workplan screens against the appropriate water quality criteria during the CoPC selection phase.
Section 3.1.4.1 addresses lead exposure. The discussion of lead in soil makes an assumption that adults are the "appropriate receptors" for soil lead exposure during subsistence harvesting because children under the age of 6 "are not likely to be participating in this activity near the DMTS for any appreciable amount of time." (page 20) This assumption seems incorrect in that it is possible that young children may accompany the adults in their berry-picking and other subsistence	The revised workplan has been modified to evaluate exposure to lead in the subsistence use scenario using the IEUBK (i.e., child) lead model. The adult lead model will be used to evaluate exposure to lead in the

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harvesting activities. This assumption needs to be either substantiated or eliminated, and children added as appropriate receptors.	combined worker/subsistence use scenario.
Section 3.1.4.1 This discussion also sets forth an equation that will be used for estimating average blood lead level based on additional exposure to lead in soil and air. The discussion fails to identify the data that will be plugged into this equation. A model is only as accurate as the data that is put into it, so the inputs must be identified. (This comment applies as well to the other models given in this section.) Excluding these input parameters from the risk assessment work plan deprives the public of the opportunity to review them.	The input parameters are included.
The discussion of lead in section 3.2.1 is lacking some important current information about lead exposure and its consequences. For instance, the discussion focuses on blood lead levels, but in fact bones can contain 95% of the total body lead burden. The discussion focuses on the recent decline in national average blood lead levels, which is irrelevant to Alaska, but fails to give any similar statistics for Alaska. The discussion cites to the screening level of 10 micrograms/deciliter for children set by the Centers for Disease Control in 1997, but fails to mention than current prevailing scientific opinion is that there is no safe blood lead level in either children or adults. The discussion also fails to mention that adults can absorb 10–15% of ingested lead while children can absorb 40–50%, or that 30–50% of airborne lead — obviously an issue with lead-laced fugitive dust — can be absorbed. Finally, this discussion identifies federal workplace guidelines for lead exposure but gives no indication that particular attention will be given to the multiple exposure pathways experienced by mine workers who also engage in subsistence activities in the contaminated area.	The IEUBK model has a "biokinetic" component that addresses transfer of lead between blood and other tissues in the body (including bone). Although the model uses blood lead as a measure of body burden, the model takes into account that only a portion of lead in the body will be in the blood. Blood lead levels have decreased throughout the U.S., primarily as a result of 1) a decrease in the amount of lead used in gasoline, 2) elimination of lead-based paint, and 3) a decrease in the percentage of food and soft drink cans that use lead solder (MMWR 1997). These factors would also be relevant for Alaska. The Centers for Disease Control and Prevention (CDC) (MMWR 1997) states that "the effects of these changes benefited all U.S. population groups studied." Robin et al (1997) reported that blood lead levels in Alaska children in the early 1990s were low in both urban (geometric mean [GM] = 1.5 ug/dL) and rural (GM = 2.2 ug/dL) settings, and the prevalence of blood lead levels greater than 10 ug/dL was very low (0.6 percent). Children in the general U.S. population had a

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	similar blood lead level during the early 1990s (GM = 2.3 ug/dL) (MMWR 1997). The CDC currently recommends a childhood blood lead level of concern of 10 ug/dL. The U.S. EPA (2004) currently regulates lead exposure based on that level of concern, and requires that lead concentrations at a site must be at or below a level where lead modeling would predict a 95% or greater probability that blood lead levels would be below 10 ug/dL. If the modeling predicts less than a 95% probability that blood lead levels are below 10 ug/dL, it does not mean that any individual will have a blood lead level above 10 ug/dL, but it does suggest that further evaluation and/or intervention may be necessary. As required by federal regulations, the risk assessment will be conducted under these requirements. Lead absorption/bioavailibility are dependent on a number of factors, including the geochemical form of lead, the media in which it is ingested (e.g., food, soil, etc...), and the age of the person exposed. All of these factors are addressed in the revised workplan and will be taken into account in the risk assessment. EPA. 2004. The IEUBK model. United State Environmental Protection Agency website (http://www.epa.gov/superfund/programs/lead/ieubk.htm) MMWR. 1997. Update: Blood lead levels - United States, 1991-1994.

Trustees Comments	Response
	Morbidity and Mortality Weekly Report, 46(7):141-146. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. Robin, L.F., M. Beller, J.P. Middaugh. 1997. Statewide Assessment of Lead Poisoning and Exposure Risk Among Children Receiving Medicaid Services in Alaska. Pediatrics, 99(4):e91-e96.
In the discussion of zinc in section 3.2.2, the work plan fails to give a citation for the proposition that 20–30% of an oral dose of zinc is absorbed through the gastrointestinal tract.	The relevant citation has been added.
The discussion of cadmium in section 3.2.3 states that knowing the particular form of cadmium is important when determining the risk of potential adverse health effects, but itself never identifies the form of cadmium that occurs in the fugitive dust from Red Dog. This discussion also supplies an entire paragraph on the amount of cadmium that a person can intake from smoking, and mentions the amount of cadmium in an average American's diet — a discussion clearly intended to make the cadmium exposure from Red Dog fugitive dust sound minimal by comparison. If this discussion is left in, then it should identify specifically the cumulative risk for local residents and workers from the extra cadmium exposure from fugitive dust.	The form of cadmium used in the risk assessment has been identified and the wording clarified. The discussion on cadmium intake from other sources has been retained to provide perspective on the sources and relative amounts of exposure.
Section 3.3 begins by providing the "hazard quotient" that will be used to evaluate risks associated with exposure to noncarcinogenic chemicals (zinc and cadmium). That quotient should specify that "intake" means "chronic daily intake" of all chemicals combined.	The hazard quotient text has been clarified.
Section 4.6.2 discusses existing data available to inform the ecological risk assessment. The section states that metals data are not available for marine invertebrates and fish, so they will be estimated. That is not adequate for a risk assessment. If such data is needed, then it should be obtained. In addition, there is some data from the study area on metals in sediment and water, and these should be used.	It is standard risk assessment protocol to model contaminant distribution in the food chain. Conservative modeling will be supplemented by additional biota sampling scheduled for summer 2004.
Sections 4.6.3 and 4.6.4 state that maximum chemical concentrations in soils and sediments will be compared to toxicological benchmarks for effects on other species (microbial heterotrophs for terrestrial plants and soil fauna, *Hyalella azteca* and *Chironomus riparius* for freshwater aquatic life). This needs to be supplemented by a discussion of why these benchmarks are appropriate for flora and fauna in the northwest Arctic and how the concentrations can be compared.	The revised work plan describes the ecological screening benchmarks, their applicability to the risk assessment, and how they were used to select CoPCs.

Trustees Comments	Response
Figure 11 provides a conceptual site model for the DMTS human health risk assessment. The site model charts a number of exposure pathways but leaves out at least one. The model does not include an exposure pathway involving a "surface deposition" transport mechanism, "biota" exposure media, and "dermal contact" exposure mechanism. This is an obvious exposure pathway for persons who are gathering berries and plants for subsistence uses, and it should be included.	Ingestion of dust deposited on plants is evaluated as an exposure pathway. The soil ingestion estimates used in the soil ingestion pathway include exposure to metals in soil and dust by ingestion, dermal contact and inhalation of airborne dust. Separate quantification of exposure by inhalation or dermal uptake from soil would be duplicative and is unnecessary. .
Figure 12 provides a conceptual site model for the DMTS ecological risk assessment. Again, some exposure pathways are missing. For aquatic ecosystems, aquatic vegetation is a primary receptor category for dissolution of chemicals in surface water with contact as an exposure mechanism. Aquatic vegetation lives in the water and obviously comes into contact with any substance that is dissolved in that water. The same is true for benthic macroinvertebrates, which should also be identified as a primary receptor category. Benthic macroinvertebrates should also be identified as a primary receptor category where deposition is the release mechanism and dust subsequently settles into the sediments; benthic organisms are exposed to these chemicals in sediments through both contact and ingestion/uptake. For terrestrial ecosystems, soil fauna should be identified as a primary receptor category where contaminated fugitive dust is incorporated into the soil, where it is then both contacted and ingested/uptaken by fauna in the soil.	The refined CSM presents separate exposure pathways for each ecosystem and shows all complete pathways.
The draft risk assessment work plan for the DMTS fugitive dust is incomplete and has not been adequately justified. The appearance of this work plan is that the State has not taken seriously its responsibility to protect human health and the environment. The burden of proof of harm has been placed on the populations most at risk. This approach is backwards. Instead, the State should include the most conservative risk data, both in levels of exposure and in at-risk populations. We believe in order to be fully protective of human health and the environment, the State must be proactive and advocate for the most stringent cleanup possible.	The revised workplan has been modified significantly to take into account stakeholder and department comments. Pending review of the risk assessment, DEC will either implement management measures and/or establish cleanup levels that are protective of both human health and the environment.