



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
WESTSIDE BUSINESS PARK
2175 UNIVERSITY AVENUE, SUITE 201E
FAIRBANKS, ALASKA 99709-4910

EI-17942

February 17, 2009

Regulatory Division
POA-2008-53

Mr. Dave Navecky
STB Finance Docket No. 34658
Surface Transportation Board
395 E. Street, S.W.
Washington, DC 20423-0001

Dear Mr. Navecky:

We have completed our review of the Draft Environmental Impact Statement for the proposed construction and operation of the Northern Rail Extension by the Alaska Railroad Corporation. We are enclosing a copy of our comments. We have also submitted these comments electronically to ensure prompt receipt.

We appreciate the additional time you allowed us to review the document and believe it improved the quality of our review. We also appreciate the clear organization, careful editing and well-written text of this document.

We do still have substantial concerns about the description of the purpose and need, the apparent combination of two distinct projects in this analysis, the lack of non-rail alternatives, and the lack of information about projected use of the rail line, bridge design, and trail access. These concerns will have to be addressed prior to any decision regarding permit issuance under Section 404 of the Clean Water Act, and/or Section 10 of the Rivers and Harbors Act.

If you have any questions or concerns regarding these comments or other issues concerning this project, please contact me by telephone at 907-474-2166, by email at Christy.a.everett@usace.army.mil, or by mail at the above address.

Sincerely,

Christy Everett
Fairbanks Field Office Supervisor

Enclosures

February 17, 2009
POA 2008-53, Tanana River
Addressed to: Mr. Dave Navecky
STB Finance Docket No. 34658
Surface Transportation Board
395 E. Street, S.W.
Washington, DC 20423-0001
Comments on: Draft Environmental Impact
Statement for the Proposed Northern Rail Extension

Copies Forward:

STB: david.navecky@stb.dot.gov
Entrix: mnagy@entrinx.com
ARRC: LindamoodB@akrr.com
HDR: mdalton@hdrinc.com

Cooperating Agency Contact List:

ALCOM: Marc.Hoffmeister@us.army.mil
BLM: gary.foreman@ak.blm.gov
USDOT: carrie.deichl@dot.gov; John.Winkle@dot.gov
USCG: jhelfinstine@cgalaska.uscg.mil
USAF: christopher.pike@elmendorf.af.mil
Eielson AFB: james.nolke@eielson.af.mil
ADNR: donald.perrin@alaska.gov

COMMENT FORM

DOCUMENT: Surface Transportation Board, <i>Draft Environmental Impact Statement for the Proposed Northern Rail Extension</i>	COMMENTOR: Christy Everett, Sharon Seim, Shannon Morgan
VERSION: Draft EIS for Public Comment	ORGANIZATION: USACE Regulatory
DATE OF DOCUMENT: December 12, 2008	TODAY'S DATE: February 13, 2009

Chapter or Appendix No.	Page No.	Paragraph	Comment or Recommended Change
General Comments			Summary should summarize major direct and indirect impacts for all resource areas.
			The purpose and need statement and alternatives analyses need to be improved before USACE can use them to meet our 404(b)(1) guidelines. Otherwise, a supplemental EIS may be necessary..
			USACE finds the analysis of project effects at the Tanana River Bridge crossing to be insufficient. We recommend an appendix be added to the EIS in which the hydrology and hydraulic analyses (even if preliminary) for all large bridges be disclosed and discussed. The appendix could have a similar section for small bridges, if data and analyses are available.
			In general it would appear ARRC has done an incomplete job assessing trails and access, especially on the west side of the Tanana River. There are obvious conflicts between ADNR public use requirements and ARRC's management of the proposed ROW. Further, ARRC has not identified any grade-separated crossings for recreation along the entire NRE. ARRC needs to do more to assess recreational access and put forward proposed resolutions rather than just closing access. If ARRC is not able to rectify access concerns prior to the FEIS, then mitigation measures need to be included to require resolution prior to taking ownership of the ROW and prior to construction. [Note: SEA preliminary mitigation measures 55, 60, 61, and 62 in section 20.2.10, pages 20-20 and 20-21, appear to satisfy many of these concerns.]
S.6.1	S-12	2	Details of overburden removal/stockpiling are needed for DA permit
S.6.1	S-12	3	These are effects on the proposed project, not impacts of the project. Throughout the document, we recommend adding sub-headings to distinguish paragraphs that discuss impacts of the environment on the project (such as failure during an earthquake or flood). These paragraphs then need to disclose what effect the environment might potentially have on the project (e.g., failure),

COMMENT FORM

			as well as the resultant impacts to the environment (e.g., portions of the rail line falling into a waterway, which could result in contamination, fill, altered stream flow, etc.)
S.6.2	S-13	1	Culvert impacts include most of the same impacts as bridges, as well as the additional ones listed here.
S.6.2	S-13	4	Groundwater contamination could occur from borrow areas that intercept groundwater, as well as boreholes.
S.6.3	S15	1 & 2	Vegetation resources would incur secondary impacts of dust and sedimentation, which could result in additional loss; this should be included in the Summary.
		3	Last sentence, use commas instead of periods between phrases.
		6	What about non-game wildlife?
S.6.4	S-17	Line 23	Add (PA) behind Programmatic Agreement if this is the first location mentioned.
S.6.5	S-17	1	Yukon River Fisheries Management Unit 6C includes the Tanana River from Nenana to Salcha and subsistence fish harvests are reported from this unit between 1975 and 2008. The Summary (and Chapter 7) does not adequately explain/disclose why these subsistence fisheries data are collected even though they are from the Fairbanks non-subsistence area. There is almost no mention of non-moose subsistence uses/resource. Section S.6.5 seems biased towards moose.
S.6.6	S-18	1	Would be more relevant to compare to CO2 emissions in FNSB, than in entire state, if data available. In the 14 th line in this paragraph, missing the word "to" in "...greatest increase compared the existing..."
S.6.7	S-18	1	Not clear whether the noise receptors would experience an increase due to construction or rail operation or both. Final sentence in paragraph does not seem to agree with text earlier in paragraph.
S.9	S-19	2	This paragraph states that 63 railcars of hazardous material would be hauled on the NRE annually. Please briefly disclose what material would be hauled. Also, please cross-reference where in the document hazardous materials are further discussed. Where in the document are impacts incurred from leakage or spills discussed?
S.6.11	S-21	2	Would there be a similar decrease or denial of access to subsistence users? Decreased access to hunting or other recreational activities on public lands would be a major change. What steps are being taken to ensure public notification of this pending change?
S.6.11	S-21	3	Impacts to trails should be discussed in DEIS. How many trails? How big an impact?
S.6.13	S-22	1	Why would Salcha Elementary have to be moved? It seems the highway could be relocated to the other side of the existing school.

COMMENT FORM

			Would the project have any effect on commercial fisheries?
Table S-2	S-24 to S-39	Water Resources	Throughout table, include as a potential impact those instances when the alignment would be inside the 100-year floodplain rather than noting when the alignment would be outside of it (e.g., page S-29).
		Biological Resources	When quantifying impacts to raptors, state "known pair". For example on page S-31, you state "1 pair great horned owls affected." It would be more accurate to state "1 known pair great horned owls affected." We do not have reliable enough data to state that one and only one pair of great horned owls would be affected by an entire segment.
		Footnotes	Recommend adding a footnote explaining assumptions used to calculate acres of impacts to wetlands, vegetation, habitat, etc. For example: Assumed the rail would be centered in the ROW and would be x feet wide with x-foot long by x-foot wide sidings placed every x miles, that the maintenance road would parallel the entire extent of the new line, would be x feet away from it, and x feet wide and....
Glossary			Recommend adding the following terms: "Section 4(f)," "Aggradation," "Wetland Flow-way," "Culvert Battery," "Channel Planform," and "Hyporheic Zone."
	1 st page	Alluvial Fans	Do not use the term "fluvial" in the definition of alluvial – if someone doesn't know alluvial, they won't know fluvial either.
	3 rd page	Consist	Is this term a typo? The definition seems valid, but not the term being defined.
	last page	Wapiti	Recommend deleting this term from the Glossary, and simply defining wapiti in the text when it is used (as was done in Chapter 6.2.1 on page 6-1).
1.2	1-4	1 & 3	The purpose of the project is to provide "freight and passenger rail service." It is not clear how this statement of purpose results in a combined road-rail bridge over the Tanana for the military. There seem to be two distinct purposes, yet the DEIS is lumping them as if they are the same.
1.3.2	1-5	last	There is a grammatical error in the sentence "Construction proposed rail line..."
		last sentence	Recommend changing this sentence to read "USACE may use this EIS to fulfill its NEPA requirements..."
Table 1-2	1-10	After section 1.5	Recommend table be moved to end of Section 1.4.2 on page 1-9.
1.5	1-9 to 1-10		Add a sentence explaining how direct, indirect, and cumulative effects are handled within the document.
2.1	2-1	all	Discussion on the need for the rail extension for expanded use of military training lands seems overemphasized. This document does not adequately address the existing need for rail service to Delta (especially business, industry, and community need and passenger/tourism need). At a minimum, equal discussion should be provided on the two aspects of the project purpose: access to military training areas, and

COMMENT FORM

			providing rail service between North Pole and Delta Junction.
		last	Recommend a more equal discussion of the dual-modal bridge over the Tanana and the 80-miles of rail extension, in accordance with the stated purpose of the proposed project. Also, need to discuss why dual-modal bridge is proposed only for Tanana bridge. Wouldn't same purpose (year-round access to Donnelly and Tanana Training Areas) be served by dual-modal bridges across Delta River and Delta Creek? Would the footprint of the dual-modal bridge be any different than a purely rail bridge?
2.2.1	2-4	Figure 2-2	The dismissed Richardson Highway alternative should show on the map (also in Figures D-1 and G-1 in the appendices). USACE will likely require additional information about this alternative should a permit be requested.
2.3.1	2-7	1	Further discussion of the differences between Class 5 and other class standards would be helpful in determining alignment flexibility.
Table 2-1	2-8	Eielson Area (Chena Overflow)	Since there is an ADOT project for a grade separation of the Richardson Hwy from the ARRC crossing, practicability of this alternative should not be based on the current grade crossing.
Table 2-1	2-8	Richardson Highway	Access to military lands is not required under the purpose statement of rail service to Delta from North Pole. This argument does not seem to be a valid reason for dismissing the alternative (hilly topography is, however).
	2-9	Alaska Range	Recommend "Non-Rail" alternative be listed separately. While non-rail does not meet the stated purpose of providing common carrier rail service, the Corps would need to consider such an alternative if a permit application is received.
2.3.1	2-7	2	Why would there not be vehicle access over the Salcha and Delta Rivers? Would rail line maintenance access be provided by existing roads?
2.3.1	2-7	last sentence	Recommend cross-referencing the section in the EIS where private land acquisition is discussed in more detail.
Figure 2.4	2-10		Why does the typical cross section differ between one side of the Tanana and the other? The development plan depicted in the bottom section (i.e., "West Side") would appear to have a larger footprint (thus more direct impacts) than would occur on the "East Side." Under Section 404 of the CWA, the footprint needs to be the smallest practicable.
2.3.2	2-17 and 2-20	Figure 2-9 and Central and Donnelly Alts	The last sentence under Central Alternative Segment 1 states that Central Alternative Segment 1 would not connect to Donnelly Alternative Segment 2 due to "terrain considerations". These considerations are not readily apparent or otherwise discussed. Since this significantly affects the range of alternatives, a more complete explanation is required, and should be provided in the Summary, Section 2.2.2, and Appendix D.

COMMENT FORM

2.3.2	2-20	Last	The discussion of the Delta Creek paleochannel implies that the channel could only become active during periods of high flow. In braided glacial streams such as this waterway, there is also a relatively high likelihood of avulsion into the paleochannel.
	2-22	Delta Alts	Recommend adding a sentence or two about Delta Alternative Segment 2 – where it would cross the river and whether it would impact private lands. Treat each alternative equally.
2.3.3	2-22	Rail Line Access Roads, first	"The access road would be constructed before the rail line." The entire access road would be built in advance? Or would segments of the access road be built in advance of segments of rail line? How would the project be phased? We wouldn't want funds expended on a road without assurance of the rail line.
2.3.3		last two	It is not clear why a 13-foot road is acceptable on the east side of the river but a 24-foot wide road is needed on the west. If the road needs to be wider to accommodate construction equipment, that should be stated.
	2-23	first	Correct typo: "the military could also sue the road" should read "use the road." Why would the offset be 40 feet or greater? Would there be places where the offset would be less? If no offset is needed on the east side of the river, why would it be needed on the west side? This is not adequately explained.
		Railbed Construction	In some areas (e.g., permafrost-laden soils), excavating and backfilling would not be recommended. This should be disclosed here.
	2-23 to 2-24	Rail Line Materials, subballast and borrow sites	How was the optimum distance between material sites (3-5 miles) determined? How was the maximum depth of 20' determined? Material sites in the Fairbanks area are frequently excavated to depths of 40-60'. Were existing material sites investigated for the North Common, Eielson and Salcha alternatives? Why or why not? Recommend further discussion. Does the applicant have any existing information to ensure the correct types and volumes of material are present along the rail line? Even if specific borrow areas have not been identified, is it reasonable to presume the requisite material exists and that these sites could be developed with success? Without any additional information, this seems overly speculative. Does the Curry quarry have sufficient volume of armor rock/shot rock to complete any one of the four Tanana River bridge crossing alternatives? If not, are there other sources of the material? Would the lack of material preclude any of the crossing options? Please disclose out-of-project-area borrow and quarry site development impacts, e.g., at the Curry quarry.
	2-24	Construction Staging Areas	Please include and reference a Figure(s) showing the locations of the Eielson Construction Staging Area and Delta Construction Staging Area. How were the sizes of the staging areas and construction camps determined?

COMMENT FORM

			Are these minimum or maximum potential areas?
	2-25	first	Potential construction of the Tanana River bridge prior to any rail line implies independent utility. If the bridge is a stand-alone project, or has the potential to be a stand-alone project, then it may require its own environmental analysis.
		Construction Camps	Please include a Figure(s) showing the proposed locations of these camps, and cross-reference the figure(s) in the text. If the precise location has not been identified, the general location should be depicted.
	2-28	Bridges and Culverts	This paragraph states that in general, conveyances were sized to equal or exceed the measured channel width or 90% of bank full width. However, on page 2-33, paragraph 7, and throughout Chapter 4, the discussion indicates that both bridges and culverts were designed to convey 100-year flows, and that the majority of the channel would be filled. This should be reconciled. The Corps supports the design criteria used in this paragraph, rather than the 100-year flow conveyance standard.
	2-28	Table 2-3	Do these numbers reflect just the bridges and culverts for the rail line, or both the rail line and the access road? The numbers of additional crossings for the access road should be disclosed in this table or in a similar table at this location in the document.
	2-29	Salcha Alt 1 Tanana Bridge	Was a full span of the entire river channel considered? If so, why was it rejected? Reasons for rejection should be clearly explained. What cost threshold was used to eliminate the alternative, and why? Would a cost difference of \$50 million be practicable? If cost alone was the reason for rejection, a full-span bridge would still be a reasonable alternative that should be analyzed in the EIS. Other constructability constraints (e.g., grade) could remove it from consideration.
		Salcha Alt 2 Tanana Bridge	Although the 6100 foot span would be more expensive, it still appears to be a reasonable alternative that should be analyzed under NEPA, unless there are other constructability constraints (e.g., grade).
	2-33	3	It seems that the dual modal design proposed for the Tanana River crossing could be utilized for all bridge crossings, thus greatly minimizing the impacts to waterbodies. Please discuss why this would not be a practicable alternative for construction and maintenance of the rail line west of the Tanana River.
	2-37	Construction Schedule, 3	If the Tanana River Bridge is constructed "years" in advance of the rail line, then there appears to be a separate purpose and need for the bridge and its impacts and permits should be analyzed and considered separately.
	2-38	Grade Crossings	What are the design/footprint implications for grade separations at trail crossings? Why are grade separations not proposed for other crossings? What are the estimated sizes of the additional staging areas for grade separation projects?
2.3.4	2-39	Figure 2-21	Difficult to read – recommend improving colors, contrast, and/or scale.

COMMENT FORM

	2-41	Section Facilities	Please define the term "Section Facilities" in the text and/or in the glossary. What would be the estimated sizes of these facilities? Please add figures showing their proposed locations.
		Communication Towers	Please add figures showing the proposed locations of these sites. If specific locations are not known, the figures should depict the general area under consideration for the sites. What would be the estimated widths of any newly constructed access roads to communications sites?
		Site B Tower	Would the ADNR winter trail be upgraded to an access road? If not, how would access be obtained outside winter months?
	2-41 to 2-42	Track Sidings	What does "in-clear length" mean? Provide drawings of a typical siding.
	2-42	Offloading Facilities	If the need for military offloading facilities is not certain, how is it that the purpose and need and background statements in the EIS discuss military activities and growth as if there is need? Is the military on board with this project or not? Disclose the extent of expressed (not presumed) military need.
		Rail Line Operations	Please disclose from what data the estimates of freight and passenger train frequency were derived. Would train frequency expect to vary by season? For example, it would seem passenger demand might be lower in winter than in summer (when we have an influx of tourists), resulting in the need for fewer trains.
2.4.1	2-43		Add sentence or two about earthquake-induced impacts
2.4.2	2-44	Surface Water and Quality, 2	Discussion on water quality is very cursory. Would fill and other materials introduced from material sites and quarries (some quite far from the project site) have the potential to introduce contaminants? Would there be any potential impacts to water quality from petrochemicals, de-icing compounds, etc. during rail construction and/or operations? Would there be any potential effects on the temperatures of surface waters?
	2-45	Wetlands	Describe the nature of the wetland impacts, in addition to the acreages.
2.4.3	2-45 to 2-46	Vegetation	Any potential for fragmentation of vegetative communities? Additional losses of plants and plant communities could be incurred through dust deposition.
	2-46	Wildlife	Impacts to non-game species should also be discussed. Noise and other effects of construction and operation activities (e.g., human presence) could disturb or displace individuals. The rail line and access road could act as a barrier, limiting or altering movement
	2-46 to 2-47	Birds	Recommend using the word "known" when discussing raptor nests; our data set is not good enough to be confident these are the only nesting pairs – they are the only known nesting pairs. Carry "known" throughout document, especially

COMMENT FORM

			Chapter 5.6. Noise and other effects of construction and operation activities (e.g., human presence) could disturb or displace individuals or breeding pairs.
2.4.5	2-48	Subsistence	This paragraph is confusing. If the entire project area is within the Fairbanks non-subsistence area and any harvests within the area do not qualify as subsistence, then how could there be impacts on subsistence? Perhaps "subsistence" needs to be defined here in the text. Are there differences between State and Federal lands? Are subsistence activities occurring even if they are technically not counted as subsistence because they occur in the Fairbanks non-subsistence area?
2.4.10	2-50	Navigation	"ADF&W" should read ADF&G" Include the potential for closure or limited access to navigable waters as a temporary impact during construction.
2.4.11	2-51	Section 4(f)	Insert "U.S. Department of Transportation Act" before first mention of Section 4(f)
		Hazardous Materials	Would any hazardous materials be transported via the rail or access road during construction or operation? If so, disclose the type, amount, source, and potential impacts.
Table 2-5	2-53 to 2-63		Same three comments as for Table S-2, above
3.4	3-6 to 3-9	All	Would appreciate a Figure showing mapped soil series in the project area.
3.4.2	3-7	Construction Impacts	Equipment maneuvering in temporary work areas could compact soils. Since temporary work areas are to be restored, how would soil compaction be addressed? What are the estimated acreages of impacts by soil type per rail segment?
3.5.2	3-10 to 3-11	Construction Impacts	Should overburden be removed, where would it go? In other words, what are the indirect impacts of overburden removal.
	3-11	Table 3-4	The header over the column on the right should be edited for clarity – recommend removing the phrase "(ice content)".
3.6.2	3-15	Common Impacts, all	What effects would an earthquake have on the large bridges, especially that across the Tanana River? Is ARRC required to engineer the rail line, bridges, and/or access road to meet a maximum potential or a design-standard earthquake?
		1	In the 7 th line, missing a word in "...Alternative Segment 2, which would within the Salcha..."
4	4-1	1	In the first line, missing the word "to" in "...impacts to water resources due proposed..."
4.1.1	4-1	2	Clarify that the two Executive Orders are not administered by the US Army Corp of Engineers, but are independently required for federally funded, managed, or permitted actions.
4.1	4-1 to 4-2	USEPA and	Distinguish the roles of these two agencies re: Section 402 CWA roles and

COMMENT FORM

		ADEC	responsibilities.
4.2	4-3	Figure 4-1	Recommend darkening the hatched lines depicting "Tanana River Valley and Major Tributaries" because it is hard to see the pattern where it is adjacent to the Tanana River.
4.2	4-4	Table 4-1	It would seem feasible to estimate drainage areas for all major streams and rivers, using available data and GIS. Recommend replacing ND with estimates for Piledriver Slough, Moose Creek, Twenty-three Mile Slough, Providence Creek and Jarvis Creek, or provide explanation why data is not available.
4.2.1	4-5	2	Typo in middle of paragraph: "Lakes and ponds are found...for to supply water." Delete either "for" or "to."
4.2.1	4-5	3	These oxbow ponds usually transition to wetlands as they accumulate organics and sediment. This should be mentioned here.
4.22	4-9	Water Supply Extraction, 2	Wells would be a more likely source of potable and water at camps than rivers, lakes, and ponds.
	4-12 and following	Tables 4-3 through 4-10	Not clear why the footnote for Wetland Flow-way is necessary or useful. Recommend removal.
	4-13	2 nd to last	Were other design considerations given to this crossing that would result in fewer impacts? Why restrict flow from 35 to 20 feet? "The proposed battery culvert would cause some construction at the crossing site because the bankfull width of the channel would be reduced from 35 feet to less than 20 feet by the use of two 10-foot-diameter culverts." "...could cause backwaters to form upstream, which would increase the potential for flooding and sediment deposition upstream, and/or channel scour downstream..." In instances like this, it seems battery culverts are inadequate and not the best design. Need to find out why other crossing designs were not proposed at this and other locations of similar impact. See also comment regarding Bridges and Culverts in Section 2.3.3, above.
	4-16	Eielson Alt 3	It appears from Figure 4-3 that a minor relocation of this alignment could substantially reduce the number of crossings. Please discuss.
	4-16 to 4-20	Salcha Alts	Need to disclose the impacts of channel plugs, channel modifications, and revetments that would be constructed as part of either Tanana River bridge location – both during construction and long-term.
	4-33	Delta Alt 1, 3	Jarvis Creek overflows often run north through the town of Delta. How would Delta 1 Segment construction impact these flows? How would these flows impact the rail line?
4.3.2	4-39 to 4-40	Salcha Alts	Disclose the effects the proposed channel plugs and channel modifications associated with the Tanana River bridges would have on groundwater. The modified side channels are at least partially groundwater driven.
	4-43	Operations	Section 4.4 does not appear to disclose operations impacts to groundwater, just

COMMENT FORM

		Impacts to Groundwater	to surface water and water quality.
4.4.1	4-43	1	Please clarify: no current water quality data from established USGS sites. The sites are established but are not actively collecting data, are collecting data other than water quality data, are not being monitored, are abandoned, or...?
4.4.2	4-44 and 4-45	Construction and Use of Unpaved Access Roads, last bullet	Degradation of permafrost could also result in lowered dissolved oxygen levels, especially in stagnant or slow-moving water bodies.
	4-47	Salcha Alts, 3	Sediment loads in the Tanana vary widely over the year, so the statement that impacts would be low due to high sediment loads is not necessarily accurate. Timing of work would be important to determine potential impacts.
	4-48	3	Missing the word "in": "...to water quality the long-term."
	4-48 to 4-50	Bullets re: gravel roads	Surface run-off could transport gravel and/or other sediment to nearby water bodies.
4.5	4-51	last sentence	There are no USGS or State of Alaska wetland data in Appendix E. There are some USFWS data, however. Please correct.
4.5.1	4-51	first	Either delete the last sentence or add: "USACE is responsible for determining the jurisdictional status of these potentially isolated wetlands and other waters." Recommend deletion, since these wetlands are subject to EO11990, whether they are jurisdictional under USACE regulations or not.
4.5.2	4-55	second	Riparian habitats also provide food, shelter, breeding sites, and travel corridors for a variety of terrestrial wildlife and bird species. This discussion would also be appropriate in the Vegetation section of Chapter 5.
	4-57	Table 4-13	The values in the "Wetland Proportion" column of Table 4-13 do not match those in the first column of Table 4-11. Why or why not? They are closer to, but not identical, to the values in Chapter E.5, page E-105. Please clarify the differences between the data sets or correct any errors.
	4-57 to 4-58	Operation Impacts to Wetlands	Access roads and the rail line could be a source of noxious weeds that could compete with native wetland plants, thus changing the character and/or functions of affected wetlands.
	4-59	Eielson Alts, last sentence	Awkward sentence: Is it saying the water quality of ROW wetlands and Tanana River riparian communities could be affected?
	4-64	Salcha Alts, first full paragraph	Placement of riprap could also affect the flooding regimes that recharge wetlands within the floodplain. This could affect wetlands outside the ROW. When using the term "rip rap" are you referring to the "shot rock revetments" identified in Figures 2-15, 2-16, and 2-17? If so, use consistent terminology. If not, then discuss impacts of the proposed revetments.

COMMENT FORM

			Disclose impacts from the proposed channel plugs (Salcha Alt 1) and channel modifications (both Salcha Alts). "Changes in flow" should be discussed in more detail in Chapter 4.2.2, Environmental Consequences to Surface Water.
		Salcha Alts, last paragraph	Which side of the Tanana River is the "north bank"? Earlier in the document, reference is to the east and west sides of the river – be consistent.
	4-65	Donnelly Alts, last sentence	Please explain how the glacial nature of the Little Delta River and Delta Creek could negate water quality and especially habitat impacts. Water quality impacts would be dependent on the time of year, but habitat impacts would not seem to be dependent on turbidity and sediment loads.
	4-70	Donnelly Alts, last paragraph	Change "southern bank" to "western bank" to be consistent with the rest of the document.
	4-58 to 4-73	Construction Impacts to Wetlands by Alt	Under each alternative, the sentence, "The direct loss of wetlands would occur as a result of excavation, filling, or other construction activities" (or something very similar) is repeated. Recommend adding a sentence such as: "Disturbances to wetland hydrology and the clearing of wetland vegetation could also directly impact wetland functions, as discussed on page 4-56." Otherwise the EIS emphasizes complete loss and de-emphasizes the loss of functions – both of which are important project impacts.
	4-73	Operation Impacts	Section 4.4 does not describe operations impacts to wetlands. It describes impacts to water quality. Rather Section 4.5.2, Operations Impacts to Wetlands (pages 4-57 to 4-58) describes operations impacts to wetlands.
	4-75 to 4-76	Table 4-25	What is "+ Extra" in this table? It is not explained in the text or in the footnotes. Recommend removing the word "Vegetated" from the label on the last column (redundant, since wetlands are vegetated by definition).
4.6.1	4-78	2, first and last sentences	First sentence is grammatically incorrect – there is an extra word. Last sentence should say "Census Area" instead of "Borough".
4.6.2	4-78 to 4-79	Construction Impacts to Floodplains	The rail line itself is a linear feature, and as such it can inhibit the flow of floodwaters to portions of the floodplain. Disclose and discuss here. Is ARRC required to have an engineer-of-record certify the project would not have an adverse impact on flood elevations? Bridge crossings and culverts are designed to the 100-year flood, but in 1967 there was a 333-year recurrence interval flood. Thus floods larger than 100-year are possible. Impacts of the project on larger flood events should be disclosed. Also, the impacts these flood waters would expect to have on the project.
	4-79	Salcha Alts	Indicates flooding upstream as a result of ice jams from slow melt of ice roads/bridges would be a low impact. If homes/property flooded, impacts would appear to be moderate at best. Incomplete disclosure/discussion of river training and channel plugs on

COMMENT FORM

			floodplains. They "stabilize the river from lateral migrations and/or avulsions" – what does this mean? How would flood waters behave if the structures contain the flood? Would the floodplain narrow in the vicinity of the river training? If so, what are the environmental effects of a narrowed floodplain? Would flood waters of a certain level overcome these structures? If so, what would be the anticipated effects, at the site and downstream? Salcha Alternative Segment 2 would also cross the 100-year floodplains of streams tributary to the Tanana River, such as the Salcha River. Disclose and discuss impacts to these floodplains.
	4-80	Central Alts, Connectors, and Donnelly Alts	Central Alternative Segment 1 may be outside the 100-year floodplain of the Tanana River, but it does cross the 100-year floodplains of minor streams tributary to the Tanana River. Disclose and discuss the impacts on these floodplains. Similarly, the five Connector Segments and both Donnelly Alternative Segments also appear to cross the 100-year floodplains of minor streams. Disclose and discuss project impacts on these floodplains.
	4-80, 4-81	Donnelly and Delta Alts	Discussion of floodplain impacts very general. More detail on specific impacts to floodplains would be helpful
5	5-1	1	Impacts to non-game species should also be disclosed.
5.2	5-6	1, first sentence	To what region are the first two words on this page referring? The Tanana-Kuskokwim Lowlands eco-region?
5.3.1	5-7	last	What is the successional process in wet areas? The iprocesses are identified in well-drained areas, but not in poorly drained areas.
5.3.2	5-11	Vegetation Clearing	What will happen to cleared and felled trees in the large needle-leave and broad-leave forest areas? Will they be salvaged? Stockpiled? Burnt? Windrowed?
5.3.2	5-12	Wildland Fires, last sentence	Please provide data substantiating beneficial impact. Alaska has a let-it-burn policy (limited protection) where there are no private lands or structures and we are not aware of a fire protection plan for late-succession riparian forests. Private property is primarily restricted to the east side of the Tanana River, where numerous roads already provide fire protection for private property. It would seem the NRE would provide little additional benefit on the east side. There are few private properties proximate to the NRE on the west side of the Tanana River, so any fire protection the NRE would provide to private lands would be minimal.
	5-12 thru 5-13	Maintenance Clearing	Recommend adding: Ongoing maintenance activities could further compact soils and/or compact soils in new areas.
5.3.2 and 3.4	5-13 and 3-6 thru 3-9	Chemical Spills and Runoff/ Sedimentation	Recommend adding the effects of chemical spills and pH to Chapter 3.4, Soils.

COMMENT FORM

	5-14	Common Support Facilities, 1	Borrow areas may convert to ponds, depending on depth of excavation, soils and groundwater levels. However, borrow areas may also remain dry unvegetated scars, unless rehabilitated. Please clarify.
5.3.2	5-14	Table 5-4	Add footnote explaining how acreages were derived (i.e., from the relative proportion of each vegetation type within the project area, and not from actual data at specific locations within the project area). Do impacts include any off-site impacts, e.g., at the Curry quarry or at other quarries or material sites that may be used to generate the volume of materials needed for the project? Recommend disclosing these impacts somewhere in the EIS, perhaps in a new paragraph after the final paragraph on page 5-14.
	5-17	Salcha Alts, 2	This section states that the potential to spread invasive plants would be low on the west side of the Tanana River. USACE disagrees. Since trains and construction equipment are coming from the east side of the river where there are, relatively-speaking, many invasive species, trains and construction equipment themselves are the vectors by which invasives would be dispersed to the west side. Newly introduced invasive species would become established in disturbed soils associated with NRE, and would have many miles over which to spread. This is not a minor effect of the proposed project.
	5-20, 5-23, and 5-24	Central Alts and Connectors; Donnelly Alts; South Common Segment	Same comment as above, although dispersion would be expected to be less in the short-term (due to distance from current sources). However, as invasives become established along the west side of the Tanana River along the NRE ROW, every segment would be expected to be impacted over the long-term. The Delta community is an important source of non-native species. It would be reasonable to expect these to spread along the NRE on the east side of the Delta River, and then these would be expected to be introduced to the South Common Segment, even though this segment is "remote."
5.3.2 and 5.3.3	5-12 thru 5-30	Operations Impacts (and assoc. tables) and Summary	Acres of vegetation impacts would be much less if the project plan were the same on the west side of the Tanana River as on the east side. Currently ARRC is proposing a much larger footprint on the west side. The footprint should be the minimum size necessary to accomplish the project.
5.3.2	5-28	No-Action Alt	Add a comment about invasive species (i.e., process would expect to continue on east side of Tanana River, but no measurable impact on west side).
5.4.1	5-32	1	There is no mention of either Central Alternative Segment in the combination of segments with the least number of fish or fish habitat stream crossings. Please correct.
5.4.2	5-38	Table 5-18	Table 5-18 (and in Appendix F, Table F-10) states crossing 105 is 20 feet wide, yet in Chapter 4.2.2, page 4-13 (second to last paragraph), says the channel is 35 feet wide. Which is correct?
		Table 5-19	Crossing 13 is 80 feet wide, yet the bridge would only be 60 feet. Bridges should

COMMENT FORM

			be appropriately sized for the stream channel (at least as long as the channel width).
	5-39 thru 5-48	Figures 5-11 thru 5-14	Recommend changing color of gray circles depicting culvert crossings – hard to see.
	5-44 and 5-45	Table 5-21 and Figure 5-13	Crossings 85 and 396 appear to be in the same location (if they are different crossings, a magnified view should be added to Figure 5-13). Are they one and the same? The table states the channel width is 80 feet, yet the bridge crossing size would be 40 feet. This appears to be undersized, unless the two 40-foot crossings combine to form the needed 80 feet. Please clarify or correct.
5.5	5-52 thru 5-74	Game Mammals	There should also be a section on non-game species. There may not be a lot of data to discuss, but impacts to prey species and those that are not typically harvested should be disclosed. Some non-game species are highly localized in their movements and do not range far. Thus, local populations could be impacted by the project through habitat loss or alteration, disturbance, movement barriers, train or vehicle collisions, etc. Impacts to prey species are briefly discussed under the Central, Donnelly, and Delta Alternative Segments write-ups on pages 5-67 and 5-71, and in Table 5-26 on page 5-28.
5.5.1	5-55 and 5-56 thru 5-57	Figure 5-17 and Moose	Write-up does not adequately address the moose migration arrows depicted in Figure 5-17. Female moose migrate across the Tanana twice each year. The first is a migration to the west side to reach their calving grounds and the second is in fall/early winter with their calves, to reach willow shrub and warmer winter habitats in the hills on the east side. The migration is tied to forage availability and quality. Are there differences between male and female moose migrations? Also, the write-up should disclose/discuss the calving area in GMU 20A.
5.5.2	5-62 thru 5-63, 5-65, and 5-66	Moose and Salcha Alts	The importance of the migratory corridors is not adequately addressed in these analyses. If the majority of females migrate to and from the calving ground, they will cross the NRE, along with their calves. These migration corridors are important and heavily used. Thus the potential for construction and operation-related disturbances and moose-train collisions would be higher in that portion of the NRE in GMU 20A than along other segments of the NRE or elsewhere on the Alaska Railroad where migration routes would not be bisected (such as in GMU 20B). Annual moose-train collision rates from GMU 20B may not accurately estimate moose-train collisions in GMU 20A.
	5-66	Salcha Alts, 2	By "bank armament" are you referring to the shot-rock revetments? If not, please discuss the impacts of the revetments on mammalian movement/habitat.
5.6.2	5-78	3	Increased edge effects could have a beneficial effect on some avian species.
5.6.3	5-82 thru 5-83	all text and	Are there confidence intervals associated with the estimated number of

COMMENT FORM

		Table 5-30	displaced birds? It would help to have some idea as to how accurate these estimates are.
	5-84 thru 5-85	Table 5-31	Too many commas. Information in the "Habitat Impact Description" column would be easier to read if semi-colons (;) were placed between phrases, e.g., "300 acres shrub habitat removed, fragmented; power line, communication tower collision mortality"
6.3.5	6-14	all	This is the only chapter in which it is disclosed the no-action alternative would have effects on a resource. We recommend deleting reference to highway widening unless this is a reasonably foreseeable action (in which case other resources, such as vegetation and game mammals, would also incur impacts and descriptions of impacts under the no-action alternative would need to be revised). We also recommend dropping reference to "increased traffic" since no data have been provided to indicate this would be an outcome of the no-action alternative.
7	7-1 thru 7-11	Subsistence	Chapter 7 seems to be highly moose-biased and does not disclose much about other forms of subsistence such as berry picking, resident and anadromous fish harvest, trapping, game mammals other than moose, non-game species, birds, wood-gathering, etc. Subsistence fish data are available. Are data available for other subsistence resources? If no data are available, this should be stated. If there are data, the data should be presented.
7.2	7-3	1	Yet ADFG tracks subsistence fish harvests even within their sport fishing regulations. Why?
7.3.2	7-9	1 and 3	The first paragraph states that no data are available for Delta Junction or Salcha. However, the third paragraph says direct effects would have the greatest chance of affecting Delta Junction and Salcha. Please clarify if the greater effects are assumed based on use areas or if it is known from data on specific uses or specific subsistence resources.
7.3.3	7-9	last	At the public meetings you held in January 2009, you asked people to identify access routes along the NRE. Has any effort been made to obtain subsistence routes? As discussed in Section S.6.11 regarding recreation resources, would subsistence access be denied or decreased as a result of the NRE?
7.3.4	7-11	1	What effects would operations have on subsistence fisheries and other subsistence uses (e.g., trapping)?
8.1.1	8-2	last	This section adequately explains why there is no need for a Class I analysis, but please include some statement of expected effects on Denali Park based on the amount and frequency of emissions and prevailing winds/climate.
8.1.2	8-3	1	Please disclose any secondary impacts the project might have on the North Pole and Fairbanks maintenance areas.
8.2	8-5	Table 8-2	Are there no more current data than 2003-4?

COMMENT FORM

8.3.3	8-9	2	Please summarize the effects on Fairbanks North Star Borough or Interior Alaska emissions too.
		3	Please present data demonstrating a substantial enough reduction in the number of cars and trucks on the highway that would then result in a measurable decrease in CO ₂ . (Also see your discussion of energy resources and transportation in Chapter 10.2.2, pages 10-2 thru 10-3).
9.2	9-2	Affected Environment	In Delta Junction and along much of the route west of the Tanana River, current noises include those associated with nearby military training .
9.3.1	9-4	Methodology	Did noise models and noise exposure estimates take into account differences between summer and winter? In very cold still air, sounds (especially low frequency sounds) can travel further and be more impactful. Also, in winter, there is little vegetation to buffer noise effects.
9.3.2	9-5	2 and Table 9-3	Would like text to better explain "estimated distances to the 65 DNL noise contour" as shown in Table 9-3. Not clear how to interpret the contours identified in the table. Needs to be written for the lay person. It would help to include the definition of "noise contour" here, even though it is in the Glossary. It might also be helpful to move Table 9-3 until after the explanation of the contour maps that currently is in the first paragraph on page 9-6.
	9-7 thru 9-12	Figures 9-2 thru 9-7	Yellow noise receptor locations very hard to see except on Figures 9-5 and 9-6. Please make color stronger and/or select a different color.
	9-14	Construction Noise and Vibration, 4	Recommend including Table J-3 from Appendix J, so that readers may easily compare estimated noise to FRA guidelines.
10.2	10-1 to 10-3	All	No mention of construction-related impacts on energy resources, e.g., increased fuel consumption due to construction vehicles/equipment/machinery/trains.
11.2.3	11-5	Transportation Delay, 1	Please include a brief parenthetical definition of LOS D in this paragraph (even though it is defined in the Glossary).
11.3.2	11-7 thru 11-8	Hazardous Materials Safety	Would ARRC be required to develop a hazardous material spill operation plan? While we agree that the consequences of a release would depend on the material, the location, the amount of release, weather, etc., please outline any general procedures ARRC would be required to follow. Of particular concern would be hazardous materials entering streams or rivers. How would these spills be contained and then cleaned up?
11.3.3	11-8 thru 11-9	Road Transportation Safety	Make sure this section (or somewhere in Chapter 11) addresses the effects of new roads built to access staging areas, construction camps, borrow areas and communications towers.
11.3.5	11-14	Table 11-3	While the values cited in this table are small, the percent change for many of these crossings appears large (e.g., Old Steese Highway would have a 53% increase, and Laurence Road would have more than a 200% increase). Were

COMMENT FORM

			statistical analyses performed on these data? Which of these crossings would have a statistically significant change? The reader needs more information with which to interpret the data in this table.
K.3	K-4	Paragraph below first 4 bullets	Potential typo in last sentence: "that-grade" should read "that at-grade"?
	K-5	1	Potential typo in second sentence" "that-grade" should read "that grade"?
K.4 and K.2	K-8 thru K-9 and K-2 thru K-3	Table K-4 and Table K-2	Why are the data in the "Average daily traffic in both directions" column in Table K-4 different from the data presented in the "2008 AADT" column in Table K-2? Without additional explanation, it would appear the data should be identical.
12.3.3	12-5 thru 12-8	Impacts by Alternative	In the text describing bridge crossings within Salcha Alternative Segment 2 (referring to the Salcha River crossing), Donnelly Alternative Segments 1 and 2 and Delta Alternative Segments 1 and 2, you state bridges would be the length needed to span the 100-year floodplain. Was the 100-year floodplain considered for any of the other bridge crossings discussed in this chapter? Why or why not? Recommend that discussion clearly state river stage used to design crossing structures to allow passage of types of vessels currently capable of navigating the waterway (e.g. ordinary high water, bank full, etc.?).
13.1.3	13-4	Common Impacts to Land Use	Be specific – how would ARRC acquire rail line ROW? Would the method of acquisition vary dependent on whether lands are government-owned or privately owned or in a trust? What is the range of techniques available for acquisition: administrative, purchase, forced acquisition? What happens if a property owner refuses to grant the ROW? Include info on the Uniform Act and/or cross-reference Chapter 15.3.3. Please prepare the reader for the segment by segment discussion in this chapter: What is meant by direct effects to lands? What is meant by direct effects to residences? What is meant by indirect effects to lands/residences?
13.1.3	13-6	third complete	What about material/borrow sites, staging areas and construction camps? While these may not be permanent ancillary facilities, they would occur (at least in part) outside of the ROW. How would these facilities affect land use?
	13-8	Construction Impacts to Land Use	You do not disclose land use impacts from the potential armor rock staging area or alternate material staging areas along the existing Eielson Branch as depicted in Figures 2-13 and 2-14.
		North Common Segment	The Moose Creek Bluff Tower and the Eielson Construction Staging Area are not shown in Figure 2-6, but rather in Figure 4-3. Recommend adding them to Figure 2-6. It is not clear whether the Eielson Construction Staging Area would be wholly within the USACE-managed CRLFCP. Please clarify if other land owners would be impacted by the staging area.

COMMENT FORM

		Eielson Alt Segment 1	This alternative would "directly affect two to three residences." What are the direct effects? Acquisition? Demolition? Be specific.
	13-9	Salcha Alt Segment 1	You state that 25-30 residences "would be affected by the staging area and access road" and that "effects to several residences within the ROW would be permanent." Be specific: what is the nature of the permanent effects? Would it be possible to move the alignment slightly so that the Salcha airstrip would not be affected?
	13-10	Salcha Alt Segment 2	Would it be possible to move the alignment slightly so that the Salcha airstrip would not be affected? It would seem the Richardson Highway could be moved such that the Salcha School building and grounds would not have to be relocated. The access road to the Flag Hill Tower "would affect less than one quarter of an acre of private land" – affect how?
	13-10 thru 13-11	Central Alt Segment 1, Segment 2, and Connector Segments A-E	"Land use would be affected by rail line construction in the ROW." Be specific. How would land use be affected?
	13-11	Donnelly Alt Segment 2	"Recreational land use would be affected by rail line construction in the ROW." Be specific – how would recreational land be affected?
	13-12	Delta Alt Segment 1	In the second paragraph you state: "Use of these facilities and residences would likely be affected by disturbance during construction." What disturbances? Construction closures? Detours? Noise? Dust? Be specific. In the third paragraph you state: "Approximately five nearby residences could be indirectly adversely affected by construction activities associated with the tower upgrade." What adverse effects? Please fully disclose/describe impacts.
	13-13	Delta Alt Segment 2	If the parcel to be used for the terminal is mostly privately owned, what is ARRC's alternate plan in case they cannot acquire these lands? What would be the "temporary adverse effects" that could be experienced by the 10 residences or businesses?
13.2.1	13-15	ADNR, 2	How will section line easements be handled should the project be constructed? During the January 2009 public meetings, STB asked the public to identify traditional access routes, but no mention was made of section line easements. Would section line easements be vacated under the terms of AS 42.40.460? Could section line easements be included to provide regularly distributed access points along the rail line (especially on the west side of the Tanana River)?
13.2.3	13-23	Construction Impacts	There is no mention of any potential effects of borrow areas/material sites, staging areas, or construction camps on recreation.
	13-24	Operations	Possible typo or missing word in first sentence. Sentence awkward, especially

COMMENT FORM

		Impacts, last	"...locations of the trail crossings conditions of the issuance..." If ARRC thinks grade separation is preferable to allow vehicles safe passage, how is it that they have not proposed any specific grade-separated crossings? Are specific proposals forth-coming?
	13-25	2	This section states that not all of the proposed small bridges would be passable, yet ADNR requires safe boat, pedestrian, etc. passage and/or the provision for alternate public access. Have specific sites been identified where there is potential conflict, and how will ARRC address the conflict? Perhaps a mitigation measure needs to be added to ensure recreational access conflicts are adequately addressed before transfer of the ROW.
		4	Missing word in first sentence.
	13-27	Eielson Alts, 1	Please further explain construction-related impacts to water quality in ADF&G-stocked lakes within Eielson AFB.
	13-31	Salcha Alts, last paragraph	The word "adverse" should be changed to "adversely" in last sentence.
13.2.4	13-39	4(f) Resources, 2	Confused by why this chapter mentions only 2 sites (XBD-293 and XBD-294) that could warrant preservation in place. Table 6-1 (pages 6-8 thru 6-10) identifies 3 sites (XBD-293, XBD-294, and XBD-295), all associated with Salchaket, for which additional data would be needed to determine National Register Listing eligibility. Is there something about XBD-295 that does not fit Section 4(f)?
13.3	13-40 thru 13-60	Hazardous Materials Sites	Not sure why the Hazardous Materials section is included in the Land Use Chapter. It may serve better as a stand-alone chapter, with cross-reference to Appendix L.
13.3.2	13-43	Affected Environment, 2	Please provide a brief explanation as to what criteria were used to determine low risk versus high risk hazardous material sites. Are there any known hazardous sites within the existing Eielson Branch alignment that could be affected by the preferred and alternate staging areas (see Figures 2-13 and 2-14)?
13.3.3	13-55	Methodology	Please define what constitutes a low risk versus high risk hazardous material site.
	13-56	Common Construction Impacts, last	This entire paragraph should be added as a mitigation measure.
		Eielson Alts	This paragraph states there are no known sites of concern on any of the Eielson Segments, other than orphan sites associated with ALCAN Highway construction camps. Yet Figure 13-13 shows site 58 being on Eielson 3 segment. Why would construction of Eielson 3 not affect (or be affected by) this hazardous material site?

COMMENT FORM

14.2	14-2	2	Clarify that settlements and developments are primarily on the east side (north) of the Tanana River.
14.3.1	14-3	2	It would be helpful to have a copy of Figure N-5 inserted into Chapter 14, after Section 14.3.1.
14.3.2	14-6	1	Surprised by the statement that neither Tanana River crossing would be visible from the Richardson Highway or other land-based KOPs. Does this mean that the bridges could not be seen anywhere from existing roadways, neighborhoods, etc.? This statement also made us want to see where the KOPs were, thus we recommend adding a figure depicting KOPs (see comment above). Would the bridges be visible from any commonly used waterway? This paragraph never really discloses the visual contrast a bridge would have over the undisturbed character of the Tanana River.
		2	You state at the end of this paragraph that the Tanana River bridge crossings create strong contrast to some landscape elements and that mitigation would be needed. While intuitively we agree with this statement, we don't understand how this conclusion is drawn given the statement in the previous paragraph that the bridges can't be seen from land-based KOPs. The effects of the Tanana River bridges on visual resources need to be better explained.
15.3.1	15-4 thru 15-5	Methodology	While construction costs and employment estimates for the Port MacKenzie Rail Extension may represent the best available data, we recommend adding a statement as to how these estimates might vary for a project in Interior Alaska (e.g., transportation costs higher, employment costs higher or lower, etc.).
15.3.2	15-6	Footnote 1	Please define "IMPLAN."
	15-9 thru 15-10	Regional Development	No mention of the military as a regional entity and what construction and operation of the rail might mean. If the NRE would increase Fort Greely expansion, that could have a residual effect on the socioeconomics of the Delta Region.
15.3.3	15-11	Effects on Communities	Be specific: what is meant by a permanent effect on a residence; what is meant by a temporary residential effect.
17.2	17-1	Affected Environment, 1	In the last sentence, is reference to "the river" the Tanana River, or did you mean to say "there is recreational boating on rivers"?
17.4	17-2 thru 17-6	all	No mention of the Richardson Highway/ARRC grade separation, including the Chena Lakes Recreation Area/DOT/ADF&G borrow pit project near the start of the NRE. No mention of the proposal to increase Tanana Valley State Forest lands near Flag Hill.
17.4.1	17-3	last bullet	Delete one of the "and upgrade" phrases.
17.4.2	17-6	Mining Operations	Recently (February 2009), the discovery of one of the largest gold sources in the world was announced. It is situated near the town of Livengood, north of

COMMENT FORM

			Fairbanks. Development of this gold mine would have considerable impacts on the city of Fairbanks and the Fairbanks North Star Borough, and be cumulative to impacts from the NRE. Not certain if it qualifies as reasonably foreseeable, but should be considered for inclusion in the FEIS.
17.5.5	17-8	all	There should be mention of non-moose subsistence uses.
17.5.6	17-8	1	Effects on CO2 emissions should include Interior Alaska or the Fairbanks North Star Borough/Delta Region – the projects included in the cumulative effects analysis have a narrower impact on emissions than statewide.
17.5.8	17-9	all	Discuss construction-related impacts on energy uses, not just operational impacts.
17.5.11	17-10	all	Need to disclose cumulative effects to recreational access – more than 4(f).
18.2.3	18-3	2	Should be some discussion of project effects on fisheries.
19.2.6	19-3	Land Use, all	Need to address access issues – to private and public lands.
20.1.2	20-2 and throughout chapter		Regulatory and legal requirements should not be included in the "Voluntary Mitigation" category (e.g., NPDES construction permit and SWPP requirements, obtaining required Federal and State permits, etc.)
20.2.2	20-4	VM-6 and VM-8	These statements could be combined into one VM.
	20-5	VM-12 and VM-13	These statements should be combined into one VM.
		VM-14, second bullet	How would soil compaction be addressed?
	20-7	11	Bridges and culverts need to be properly sized to pass the 100-year flood not only to meet FEMA regulations but to ensure channels are not constricted and natural drainage and flood patterns are maintained.
		14	USACE is not familiar with Post 1996. Are these techniques proven and accepted? USACE might consider adding this as a special condition to a permit application, but we are not certain of this statement's suitability as a preliminary mitigation measure.
	20-8	18	Recommend adding to this mitigation measure: "Bridge abutments should be situated far enough back from the channel as to not be restrictive."
		20	Add: "and within 50 feet of non-fish-bearing water bodies and emergent wetlands"
	20-9	25	The first sentence is a statement of impacts, not mitigation. Make sure the first sentence is included in Chapter 4 and then delete it from mitigation statement 25. Thus statement 25 would begin with: "Geotechnical boreholes shall be..."
20.2.3	20-11	33	ARRC is proposing a 13-foot wide road on the east side of the Tanana River and a 24-foot wide road on the west side. Recommend adding: "Access road shall be the minimum width practicable."

COMMENT FORM

	20-12	36	Recommend additional equipment cleaning measures to prevent transport of non-native species across Tanana and Delta Rivers to areas where occurrence is currently very low.
	20-10 thru 20-14	Mitigation	Recommend adding an additional mitigation measure requiring compacted soils to be scarified, lifted, or otherwise de-compacted, in advance of seeding with native species. Recommend adding a mitigation measure regarding chemical spills and hazardous waste clean-up
	20-13	43, first bullet	Need to emphasize retention of late-successional stage closed needle-leaf forest within the ROW. Retention would be beneficial to many birds, furbearers, and non-game species without increasing the potential for moose-train collisions. Current mitigation statement is so focused on management of early seral stages, the importance of retaining late-seral forested vegetation is lost. Give it equal weight. Perhaps split the early and late-seral vegetation retention/management concepts into two bullets under mitigation measure 43.
		43, last bullet	Mitigation measure is vague and not measurable. Perhaps include some examples of what can be done (or considered) in design, construction, and operation, to minimize impacts to wildlife movement and migration (analogous to what was done re: bird strikes in mitigation measure 32).
20.2.6	20-15	Climate/Air Mitigation	A mitigation measure could be added to address operational impacts on air quality:
20.2.8	20-17	VM-30	Much of the proposed NRE would pass through unincorporated areas and would not be near any public service groups. What would happen in the case of injury, derailment, or hazardous material releases in areas not serviced by public emergency response teams?
20.2.10	20-20 thru 20-22	Land Use Mitigation Measures	Add as a mitigation measure all of paragraph 2 on page 13-56.
20.2.11	20-22 thru 20-23	all	These mitigation measures, especially those referring to colors, may be appropriate during summer, but not winter. Color choices should consider all seasons. While we agree that hill cuts should be stabilized with native vegetation, hill cuts would be quite obvious when coated with winter snow, unless and until tall shrubs and trees become established.
VOLUME II			
D.1.1	D-1	first	This is not the same purpose statement as included in Chapter 1.2. This statement of purpose appears to better fit the background statement (Chapter 2.1) and the range of alternatives.
D.2.2	D-9	Tanana Xing	Even though the single-span bridge would be more expensive, it does not mean

COMMENT FORM

			Salcha Alt 2, 3	it isn't a reasonable alternative meriting NEPA analysis.
D.2.3		D-12		This alternative should be depicted in Figure D-1. Rejecting this alternative makes sense with the purpose statement provided in Appendix D, but does not make sense with the purpose statement in Chapter 1.2
E.1.1		E-1	all	Climate data for North Pole or Eielson AFB would provide a comparison to the data presented for Big Delta and would give information for both ends of the project.
E.1.2		E-1	sentence 2	End of sentence awkward – may be missing a word.
		E-3	3, sentence 1	Start of sentence awkward – may be missing a word.
E.2.2 and 4.2		E-4 and 4-2	Physiographic Regions and Figure 4-1	It would be helpful to have a duplicate of Figure 4-1 in Appendix E. Also, use of physiographic regions does not seem to be consistent throughout the DEIS. For instance, the regions used here (as described by Wahrhaftig(1965)) are not the same as in Chapter 5 (as described by Nowacki et.al (2001)). Please explain or edit for consistency.
E.2.2		E-4	Yukon-Tanana Uplands, 1	The document states the Salcha and Little Salcha rivers are the only two rivers to drain from the Yukon-Tanana region. First, recommend adding "in the project area" (clearly other streams drain the region, because it is so vast.) Second, Figure 4-1 shows Moose Creek and an unnamed creek just north of the Little Salcha River also draining from the Yukon-Tanana region in the northern half of the project area, along with Shaw Creek and an unnamed creek near Tenderfoot Creek in the southern half of the project area. Please clarify.
			Yukon-Tanana Uplands, 2	"...while sediments with instream channels..." seems to be a typo. Should probably be "while sediments within stream channels..."
		E-6	Tanana River Valley and Major Tributaries, 4	Since the water color and turbidity are discussed for the glacially dominated stream flow, it should also be discussed for the breakup stream flow, especially since it is significantly different (clear), and affects fish habitat issues, as well as construction impacts.
E.3.1		E-18, E-21, E-24, and E-27 thru E-29	Tables E-5a thru E-9b, Salcha 2	A footnote should be added to these tables explaining that the project would not cross any streams in the Yukon-Tanana Uplands, and therefore no crossings needed to be assessed. This is recommended because a cursory review of the table might lead someone to think that no crossings were assessed for the entire Salcha 2 alternative (not just that portion within the Yukon-Tanana uplands), making it appear that the alternatives were not given equal consideration. A similar footnote should be added to Delta 1 and Delta 2 under Lower Foothills.
		E-27	Table E-8	Add footnote explaining "Disc" means discontinuous.
		E-32	Table E-12	Summarize the results of these studies in a table, or explain why these data are not being included in the EIS.
E.4		E-43	Table E-19	Correct second shaded header row. Should read "Crossings Common with the Eielson Alternative Segment 2."

COMMENT FORM

	E-51	Table E-22c	Missing Header Rows: Type of Waterbody and Name of Large Waterbody (if applicable),
	E-52	Table E-23	How are channel plugs and channel modifications addressed in this table, especially those needed to train the Tanana River for the bridge? The unnamed sloughs that would be plugged or modified should be identified and the impacts of these actions disclosed in Table E-25a..
	E-53	Table E-24	Same comment as for Table E-23
E.5	E-105	last sentence	Change "hydrology patters" to "hydrology patterns."
E.5.1	E-106	1	Define "histic epipedons"
E.5 and E.5.3	E-105 and E-110	all	It is not clear the different methodologies used to characterize wetland types and functions in areas 500-feet from the alternative segments (other than ancillary facilities) versus those methods used within the 200-foot ROW. Were field data collected in both the 200 and 500-foot distances? Was computer mapping completed for both the 200 and 500-foot distances? Please clarify the methodology.
E.53	E-111	Table E-50	Since values are between 0 and 1, it is difficult to discern the significance of small variations in numbers. How are we to interpret these data? Please clarify.
	E-112 thru E-113	Table E-52	Add footnote explaining how acreages were derived (i.e., from the relative proportion of each wetland type within the project area, and not from actual data at specific locations within the project area).
	E-113 thru E-130	Tables E-53 thru E-63	Are "regions" equivalent to the number of GIS polygons of a particular wetland type within an Alternative Segment? Please add a footnote explaining this.
F.1.3	F-7 thru F-8	Fire	Would the fire protection class change to protect the NRE? In other words, if the NRE were to pass through an area of "limited" protection, would the presence of the NRE itself require the fire plan to be changed to "modified" or "full" protection? What would be the implications of such a change (e.g., increased fire suppression costs)? What effect would a fire have on construction or operation of the NRE (e.g., temporary delays)?
	F-8	last sentence	Recommend deleting (see comment for Chapter 5.3.2, page 5-12, above).
F.2.4	F-19	Table F-10	See comment for Chapter 5.4.2, Table 5-18, crossing 105, above.
	F-20	Table F-12	See comment for Chapter 5.4.2, Table 5-19, crossing 13, above.
	F-20 to F-21	last to first	There appears to be missing text between the end of page F-20 and the start of page F-21.
	F-25	Table F-16	See comment for Chapter 5.4.2, Table 5-21, crossings 85 and 396, above.
F.3	F-30 thru F-53	Game Mammals	Again, no mention of non-game species. Would like to see a section devoted to non-game resources.
F.3.1	F-39	1 and 2	This is a more thorough description of moose migration – summarize these paragraphs in Chapter 5.5.1 (see comment on 5.5.1, above).

COMMENT FORM

F.3.2		F-41 to F-46	Habitat Loss	The document does not disclose habitat loss impacts within the North Common Segment, for borrow sites, or for construction/staging areas. Please include.
		F-47	Fragmentation	What would be the impacts of borrow sites and construction/staging areas on habitat fragmentation? Not clear what is meant by "analysis block" in the 4 th paragraph. Please use different term or define term before using.
		F-52	first full paragraph	Why 40 percent higher? Explain upon what data this figure is based.
		F-52 to F-53	Moose-Train Collision	What impact would the NRE have on established migratory moose corridors, and would moose-train collisions be expected to be higher in the areas of the migratory corridors? Were migration dates considered in the dates of moose-train collisions cited in this section? The established migration routes are somewhat unique to the NRE, and the full impacts of the NRE on migrating moose and noose migratory corridors need to be disclosed.
		F-51	Figure F-16	What is the scale of each of the analysis blocks – a square mile? Scale not clear from Figure or caption.
		F-54	Figure F-19	Figure hard to read. Might be easier if displayed on white background, similar to Figures F-20 and F-21.
F.4.1		F-57	1	Any population/harvest data from Interior Alaska or within the FNSB? Would be more relevant to have local and/or regional data than statewide harvest data.
F.4.2		F-57	1	If most eagles are gone by mid-to-late September, are the eagles seen in midwinter along the Delta River a non-migratory population? If so, what is the estimated size of this population?
		F-60 and F-65	Figures F-22 and F-24	Grey dots are hard to see. Recommend using a different color, such as yellow or orange.
		F-63 thru F-64	Table F-34	If there are 9 known red-tailed hawk nests, the estimated project area population would be 18 (unless we know they weren't all active at the same time). If there are 6 known great-horned owl nests, the estimated project area population would be 12 (unless we know they weren't all active at the same time). Many raptor species have floater populations – non-nesting, non-territorial birds that live within the home range of breeding pairs. Should a mate be lost, the replacement mate often comes from the floater population. Recommend adding a footnote that project area population estimates derived from nest counts are of breeding individuals only, and that there may be additional non-breeding individuals within the project area.
		F-66	Figure F-25	Suggest using three sizes of circles to denote nests: raven would be smallest,

COMMENT FORM

				northern goshawk and red-tail hawk would be largest, with an intermediate-sized circle for great gray and great horned owls. This is because in the current figure, great horned owl and red-tail hawk bullets are too similar.
		F-67 thru F-68	Table F-35	Recommend adding the definition of "BCR4" to footnote "d."
G.3.4		G-11, G-14, G-19, G-21, G-23, and G-25	Figures G-4 thru G-9	Recommend using a thicker and/or differently patterned line for anadromous streams – hard to see them against the rail line segments, especially Piledriver Slough in Figure G-4. Gray circles depicting culverts are hard to see; recommend using a different color (perhaps yellow or orange).
		G-17	Table G-10	See comment for Chapter 5.4.2, Table 5-21, crossings 85 and 396, above.
		G-29	2 nd bullet	Add to this mitigation measure something like: "River crossings shall have a final design and shall be constructed to minimize changes to Tanana River hydraulics per the results of these analyses." This will provide mitigation instead of just additional information.
Appendix H		H-1 thru H-25		The Corps of Engineers will not be a signatory to this agreement because it does not satisfy our responsibility under Appendix C of 33 CFR 325.
I.1.4		I-2	Competition	Rather than requiring the public to identify specific access routes and trails within the NRE project area, perhaps ARRC should be required to provide public crossings of the rail every certain distance. This would allow for a balance between ARRC's right to restrict access with the public's recreational and subsistence use of the area.
I.2.5		I-10	Healy Lake Subsistence Use Areas	Please depict the SRB&A 2002 contemporary use areas for Healy Lake, Lake George, Delta Junction, and Shaw Creek Flats areas in a Figure so project-area overlap can be seen.
I.2.9		I-16	Salcha Subsistence Harvests	This section states that there are no subsistence harvest data available for Salcha. ADFG Sport Fish Division has subsistence salmon harvest data for Salcha (and other communities).
Appendix J		J-1 thru J-5	all	Disclose if and how models accommodated noise and vibration differences for summer and winter (see Chapter 9.3.1 comment, above).
L.1		L-1	1	It is not clear what maps you are referencing in this paragraph and in Table L-1, nor does the reader know where to find these maps. Cross reference Figures 13-9 thru 13-20.
		L-1 and L-16	1 and Table L-1 footnotes	On page L-1 you state asterisks in Table L-1 identify "sites of concern that could present environmental consequences." Yet in the footnotes to Table L-1, you state asterisks identify "sites that present a high risk of environmental consequences." First, what are these concerns and risks? Second, we interpret "high risk" differently than "concern." Please select the appropriate descriptor for the risks associated with these hazardous material sites.

COMMENT FORM

		L-14	Table L-1 Map No. 86 and 87	Please explain the difference between "Closed" and "Cond. closure" in the footnote of Table L-1
M.1		M-2	Purpose and Need	This section provides a variant on the purpose and need statements presented in Chapter 1.2 and Appendix D Section D.1.1. Please be consistent. The M.1 purpose statement does not include access military lands as part of the purpose, but rather that it would be a secondary effect of the project.
M.3.1		M-7	Chena Lakes 6: "Unusual Characteristics"	If ARRC acquires ROW from USACE, is ARRC under any obligation to participate in flood control? What steps would ARRC take to ensure the NRE does not adversely affect operation of the flood control project or affect flood waters within the flood control channel?
		M-10	Salcha School, last	How does recognition in the FNSB Comprehensive Recreational Trails Plan affect ROW acquisition?
		M-17	ADNR Road 7: "Applicable Clauses"	Where is the reserved 300-foot ROW relative to Donnelly Alternative Segments 1 and 2 and the South Common Segment? Was the location of the ROW reservation considered when developing alternatives for the NRE?
		M-18	Rainbow Lake 6: "Applicable Clauses"	Where is the reserved 300-foot ROW relative to the South Common Segment? Was the location of the ROW considered when developing alternatives for the NRE?
M.3.3		M-21	Cultural Areas, 2	Confused why only 2 sites (XBD-293 and XBD-294) are identified that could warrant preservation in place. Table 6-1 (pages 6-8 thru 6-10) identifies 3 sites (XBD-293, XBD-294, and XBD-295), all associated with Salchaket, for which additional data would be needed to determine National Register Listing eligibility. Is there something about XBD-295 that does not fit Section 4(f)?
M.4.1		M-22	Chena Lakes	What about the effects of noise and vibrations on recreation?
		M-23	Eielson Rec Area, 2	Why not move the rail line slightly to avoid filling any portion of Scout Lake?
		M-23 thru M-24	Salcha School	Again, why would the highway be re-routed through the school and not completely avoid it? Are there grade or curvature issues that could not be met by moving the highway further to the east? Are there local regulations that would prohibit a school and its associated play areas to be sandwiched between a railroad and a highway?
M.4.3		M-27 thru M-28	Table M-2	Need more information on "Feasible and Prudent Alternative." The table's footnote explains when no analysis is done, but does not explain what "yes" and "no" mean.
M.6.1		M-31	Eielson Rec Area, 2	Why not move the rail line slightly to avoid filling any portion of Scout Lake?
Appendix N		N-1 thru N-38	all	The entire analysis assumes a summer setting when vegetation is green, water is blue, and trees provide visual screening. The analysis should also assess

COMMENT FORM

				visual effects during winter. For example, what would Figure N-10 look like during winter? Since winter is 7 months long, and summer is just 3 months, winter analysis is important.
N.1.1		N-12	Figure N-4	Very hard to see Class II colors when adjacent to the Richardson Highway (similar shading) and when in small polygons (such as around Harding Lake). Recommend using a contrasting color to depict Class II.
N.1.2		N-13	Select KOPs, 1	What were the specific criteria used to establish the 29 KOPs? What specific criteria were used to narrow the 29 KOPs to just 8? Might want to move this paragraph to be the 3 rd paragraph in this section. That would provide general information about KOPs first, followed by the details of this analysis.
N.1.2		N-14	Figure N-5	Recommend adding to this figure the other KOPs that were established but not used for detailed analysis. Use a different icon/color than for those KOPs that were retained.
		N-16	Table N-5, 2 nd page	What do the dots in the table mean (e.g., KOP 1, North Common and Eielson 1)? It appears that the dots should be checkmarks...
		N-19	Prepare Visual Simulations	Please cross-reference Figures N-8, N-9, N-10, and N-11.
N.1.3		N-22 thru N-24	Common Impacts Not Evaluated, all first complete	Consider adding a mitigation measure that would require additional visual resource assessments once locations and detailed plans are developed for permanent and temporary ancillary features.
		N-23		Culverts would be set into fill discharged into waterways. While culverts might not be visible from ground level, they would be highly visible from the waterways themselves. Thus for those waters that have snowmachine and especially boat use, culverts would have a moderate visual impact.
			last	Borrow and material sites (as well as towers, access roads, and power lines) could have visual impacts to passengers on the rail line itself. Please disclose these impacts.
O.2.1		O-5	Evaluation of Effects	You state that direct effects are most likely to occur for Delta Junction (among other communities), yet later in the paragraph you state there are no subsistence use data available for Delta Junction. Please clarify.
		O-6	1	Please have a figure depicting "Healy Lake lifetime use areas show considerable use of the project area." Include this figure in Appendix I.
			last	Another important effect of the NRE on biological resources is barrier or obstacle to animal movements (moose, furbearers, non-game, fish resources, etc.).
O.2.1 and O.2.4		O-7 and O-12	2 nd complete on O-7 and last on O-12	Since you don't have a good handle on informal traditional or recreational access routes (hence this information was asked for during the January 2009 public meetings), how can you count the number of recreation access routes per segment? What recreation access routes are you counting – established BLM

COMMENT FORM

				trails, 4-wheeler routes, RS2477 trails, 4(f) resources? Please clarify and/or cross reference where in the EIS trails information and definitions are presented.
O.2.1		O-7	3	This paragraph states that "Effects on subsistence access could be mitigated by placing grade crossings at appropriate intervals," yet this is not included as a mitigation measure in Chapter 20. Recommend addition of this measure.
O.2.1, O.2.3, and O.2.4		O-7, O-8, O-10, and O-13	Availability of Other Lands & Evaluation of Other Alternatives	These sections provide additional variants on the purpose and need statements presented in Chapter 1.2 and Appendix D, Section 1.1. Please be consistent. In Appendix O, no mention is made of the need to access military lands, which again raises questions as to the real purpose and need for the work and the range of alternatives to meet the purpose and need.
O.2.1 and O.2.3		O-8 and O-10 thru O-11	Finding	Recommend reversing the two paragraphs – explain the BLM policy first, then disclose the effects of the proposed action using that policy.
O.2.4		O-12	Evaluation of Effect, last	Add that the NRE could act as a barrier or obstacle to the movements of some animals.