Segment	Size (mi)	Impaired Uses	Probable Cause
Tongue River (Hanging Women Creek to diversion dam) (Middle Tongue River)	117.6	Agriculture Aquatic life Warmwater fishery	Flow alteration Metals Other inorganics Salinity/TDS/chlorides Suspended solids
Tongue River (diversion dam to mouth) (Lower Tongue River)	20.4	Agriculture Aquatic life Warmwater fishery	Flow alteration Metals Other inorganics Salinity/TDS/chlorides Suspended solids
Hanging Woman Creek	30	Agriculture Aquatic life Warmwater fishery	Flow alteration Metals Salinity/TDS/chlorides
Otter Creek	53	Agriculture Aquatic life Warmwater fishery	Metals Other habitat alterations Salinity/TDS/chlorides Suspended solids
Pumpkin Creek	87	Agriculture Aquatic life Warmwater fishery	Flow alteration Salinity/TDS/chlorides Thermal modifications

Source: MDEQ, 1996.

37 cont.

The more recent Montana 303(d) lists show water quality impairments for:

-Tongue River from just above Pumpkin Creek to its confluence with the Yellowstone River is listed as water quality impaired, with probable causes of impairment identified as flow alteration;

-Tongue River Reservoir with probable causes of impairment identified as algal growth/Chlorophyll a (nutrients);

-Hanging Woman Creek with probable causes of impairment identified as siltation;

-Otter Creek, Pumpkin Creek, and other segments of the Tongue River have not been assessed.

Stream segments designated as "water quality impaired" and/or "threatened" listed on State 303(d) lists require development of a Total Maximum Daily Load (TMDL). A TMDL:

Identifies the maximum load of a pollutant (e.g., sediment, nutrient, metal) a waterbody is able to assimilate and fully support its designated uses; allocates portions of the maximum load to all sources; identifies the necessary controls that may be implemented voluntarily or through regulatory means; and describes a monitoring plan and associated corrective feedback loop to insure that uses are fully supported; Or can also be viewed as, *the total amount of pollutant that a water body may receive from all sources without exceeding WQS*; Or may be viewed as, *a reduction in pollutant loading that results in meeting WQS.*

Montana's approach is to include TMDLs as one component of comprehensive Water Quality Restoration Plans (WQRPs). TMDLs/WQRPs contain eight principal components:

1. Watershed characterization (hydrology, climate, vegetation, land use, ownership, etc.)
2. Description of impairments and applicable water quality standards.
3. Pollutant source assessment and estimate of existing pollutant loads, including pollutant loads in tributaries to 303(d) listed waters..
4. Water quality goals/restoration targets.
5. Load allocations (i.e., TMDLs).
6. Restoration strategy
7. Monitoring Strategy
8. Public involvement (30 day public comment period, informational meetings, etc.)

37 cont.

The load allocations and targets established by TMDLs/WQRPs inform land managers how much sediment, nutrient or other pollutant discharge may be too much (i.e., prevent support of beneficial uses). A WQRP provides a means to track the health of a stream over time. If a WQRP has not restored beneficial uses within five years, the Montana DEQ conducts an assessment to determine if:

* the implementation of new and improved BMPs are is necessary;
* water quality is improving but more time is needed to comply with WQS; or
* revisions to the plan will be necessary to meet WQS.

The Montana Dept. of Environmental Quality (MDEQ) and EPA are under a Court Ordered schedule to prepare TMDLs. Montana has divided the State into TMDL Planning Areas, grouping streams with similar water quality problems and land ownership as much as possible on a watershed basis. Each TMDL planning area may include 4 to 10 impaired watersheds that have specific TMDL preparation needs. Pending completion of a TMDL in Montana, new and expanded nonpoint source activities may commence and continue, provided those activities are conducted in accordance with (MCA 75-5-703). The Administrative Rules of Montana (17.30.602) define these as "methods, measures, or practices that protect present and reasonably anticipated beneficial uses."

"Reasonable soil, land and water conservation practices" include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Appropriate practices may be applied before, during, or after pollution producing activities. It is important to note that "reasonable soil, land and water conservation practices" are differentiated from BMPs, which are generally established practices for controlling nonpoint source pollution. BMPs are largely practices that provide a degree

of protection for water quality, but may or may not be sufficient to achieve Water Quality Standards and protect beneficial uses. "Reasonable soil, land and water conservation practices" include BMPs, but may require additional conservation practices, beyond BMPs to achieve Water Quality Standards and restore beneficial uses.

It is EPA's policy that projects within watersheds of 303(d) listed waterbodies should avoid further degradation of the 303(d) listed waterbodies. It is important, therefore, that proposed TRR railroad construction and operation activities do not worsen Tongue River, Hanging Woman Creek, Tongue River Reservoir, Otter Creek, and Pumpkin Creek water quality impairments, and that railroad construction and operation activities are consistent with TMDLs and WQRPs being prepared for the Tongue River TMDL Planning Area. 37 cont.

Sediment loads associated with Western Alignment railroad construction are presented (Table 4-22), however, post-construction sediment loading after implementation of BMPs and mitigation measures are not presented. Without this information, we are unable to accurately determine if the proposed action will be consistent with TMDLs and in compliance with Montana's Water Quality Standards. We recommend, therefore, that post-project sediment loads be calculated including the load reductions anticipated through application of BMPs and mitigation measures. 38

It may be necessary to propose implementation of additional erosion and sediment control measures to control existing sources of pollutant loading to listed waters to offset or compensate for TRR caused pollutant loads (e.g., propose stream bank stabilization, revegetation, stream restoration, fish habitat improvements, sediment traps, other BMP improvements). Proposed rail line construction activities, including pollutant (sediment) loading and water quality improvement and restoration activities, should be discussed with MDEQ, EPA, and any local watershed groups that are involved in preparing TMDLs and WQRPs, to help assure TRR consistency with TMDL and WQRP development. We recommend that the STB and TRRC contact the TMDL Program Managers for the Montana Department of Environmental Quality (i.e., George Mathieus at 406-444-7423) and EPA (Ron Steg at 406-457-5024) to ensure MDEQ and EPA concurrence on, and coordination of proposed activities with the MDEQ/EPA Tongue River Planning Area TMDL and WQRP development. 39

We also recommend that Mitigation Measure 41 (page 7-25) be revised to include assurances that sediment loads to surface waters be in compliance with Montana Water Quality Standards (i.e., maintain protection of designated beneficial uses), and that sediment loads do not aggravate impairments to 303(d) listed streams (e.g., Tongue River, Hanging Woman Creek, Tongue River Reservoir, Otter Creek, Pumpkin Creek) and be consistent with TMDLs and WQRPs. 40

16. The DSEIS state that bridges would be constructed at two Tongue River crossings and at Otter Creek and Hanging Woman Creek, and that culverts would be placed according to 41

final engineering design, and designed to safely withstand a 25 year peak flood event with one pipe diameter of headwater (App. D, Mitigation Plan, pages 5, 6).

Stream crossings should be able to maintain the integrity and continuity of the floodplain as well as the actual channel to avoid impeding flood flows that could cause deposition above stream crossings and erosion and scouring below crossings. It will be important to assure that the bridge designs accommodate flood flows with no substantial changes to flood elevations, and bridge designs should match hydraulic traits of the natural stream, and provide for fish passage (bridge abutments should be avoided within active river channels). Size and configuration of bridges should reduce floodplain encroachment (e.g., construction of bridges on pilings, as opposed to fill, can reduce encroachment). We support provision of an adequate span on bridge crossings to minimize encroachment upon the river channel, riparian area, and floodplain. Bridges with wide spans also afford opportunities for wildlife passage, and may reduce potential for train-wildlife collisions. 41

Bridges or open bottom arch culverts that allow natural stream bed substrate and stream grade, and sufficient width and capacity to pass flood flows and bedload transport with minimal encroachment upon the river channel and riparian area are preferred. We recommend that all culverts simulate the natural stream grade and substrate as much as possible, and encourage use of open bottom culverts that provide a natural streambed.

Bridge and culvert construction work should be conducted during periods of low stream flow in late summer or early Fall to minimize impacts on the stream channel during construction. Special care should be taken during construction to avoid or minimize impacts to riparian vegetation as much as possible.

The proposed engineering design and mitigation measures addressing stream crossings, culverts, and bridged (i.e., Mitigation Measures 44 through 51, pages 7-26, 7-27) must assure that the principles to accommodate flood flows and minimize disturbance to stream hydrology, riparian functions, and stream banks and channel are incorporated into the design and planning and mitigation measures for bridges and culverts. 42

17. Mitigation Measure 34 (page 4-91) will require study of aquatic resources at locations where the railroad will cross the Tongue River (where the DSEIS states "extensive" riprapping would occur), including a stream habitat survey, benthic macroinvertebrate monitoring, and fish surveys. We are concerned about the suggestion that "extensive" riprapping will occur. Riprapping can lead to erosion in areas of the river/stream that are not stabilized, which often leads to the eventual need to stabilize more and more of the stream, impairing aquatic habitat and decreasing bio-diversity in the riparian system. We recommend that "extensive" rock riprapping be avoided. We encourage use of vegetative bank stabilization methods with plantings of deep rooted woody shrubs and natural looking log and root wad placements as much as possible that reduce such adverse effects. We encourage the Multi-agency Task Force that will oversee such activities 43

(Mitigation Measure 25) to require development of mitigation measures that focus on bio-engineered bank stabilization methods. 43 cont.

18. Fuels spills at rail yards with resulting ground water contamination have sometimes been issues of concern in regard to railroad operations. We are pleased that Mitigation Measure 62 requires development of a Spill Prevention Plan to prevent spills of oil or other petroleum products during construction, operation and maintenance of the rail line (page 7-29). This Spill Prevention Plan should identify preventive measures that will be employed by TRRC to prevent ground water and surface water contamination. All rail yards should be required to incorporate BMPs in and around the yards to reduce the potential of ground water and surface water contamination. We recommend that TRRC and STB coordinate with local public health and water quality agencies and the Montana DEQ when determining the actual locations of rail yard. We recommend that areas of high ground water table be avoided in siting rail yards. Proposed rail yard sites must be are compatible with Federal, state and local requirements that govern the use of land within wellhead and "source water protection" areas for public water supply. 44

Air Quality

19. The DSEIS attempts to demonstrate that overall emissions of air pollutants from the proposed Western Alignment would be lower than emissions from the previously-approved Four Mile Creek Alternative. While the narrative includes several statements to this effect, we recommend verifying or correcting the information presented and including additional information to better support the statements. Some of the technical information on the air quality analysis appears to derive from the reference, "Air Quality Impact Analysis Update TRR III Tongue River Railroad Project," April 22, 2004, by CH2MHill. We recommend including this document, or other detailed version of the air quality impact analysis, as a technical support document appended to the FEIS. 45

Please present data in units that support the claims. Three tables that present data on emissions during construction and fugitive dust emissions during operation show emissions in tons per mile per year (tons/mi-yr) but lack information on total emissions. Data on total emissions by alternative (i.e., the two entire rail segments) in tons during construction or tons per year during operation would be valuable. Expressed in tons/mi-yr, construction-phase fugitive dust emissions (table 4-32, page 4-146) and construction-phase combustion emissions (table 4-33, page 4-147) from the proposed Western Alignment would be greater than emissions from the Four Mile Creek Alternative. On the other hand, fugitive dust emissions in tons/mi-yr during operation (table 4-34, page 4-149) would be greater in the Four Mile Creek Alternative than in the case of the Western Alignment. The narrative discloses that the total construction-phase combustion emissions from the Western Alignment would exceed those from the Four Mile Creek Alternative. The DEIS does not show the total (or total annual) emissions, by alternative, in any of the three cases. While the data in tables 4-32, 4-33, and 4-34 are helpful, we

recommend that the FEIS also include a comparison between the two alternatives of the estimated total (or total annual) emissions in tons. Also, the FEIS should clarify that the Prevention of Significant Deterioration (PSD) thresholds (which should be expressed tons per year and not tons/mi-yr) are used for comparison purposes and do not have regulatory significance in this application.

45 cont.

Evidently the analysts intended to separate particulate (PM_{10}) emissions into components of fugitive dust and combustion; however, the information should be verified before it is published in the FEIS. Table 4-32 is titled "Construction-period Fugitive Dust Emissions" but also contains some particulate from combustion sources according to the footnotes. Because the fugitive dust data appear in Table 4-32, please exclude these data from Table 4-33, leaving only combustion emissions in the PM_{10} column of Table 4-33. Table 4-34 shows fugitive dust emissions during operation and a column of Table 4-35 shows locomotive PM_{10} emissions during operation; however the data are identical. Please confirm and revise these data as appropriate for the FEIS.

20. According to the last paragraph on page 4-149, "SEA's analysis determined that the approved Four Mile Creek Alternative would result in a higher level of annual emissions, because it has steeper grades that require more fuel use, and because it is longer than the proposed Western Alignment." The statement is significant because it compares the long-term impacts of the two alternatives on air quality. Consequently, we urge SEA to clarify the data that support the statement. The data appearing in Table 4-35 are supposedly in tons/mi-yr (see additional discussion below); however, the NO_x emissions of 22.9 tons/mi-yr are not consistent with the statement on page 6-23, "The operation of trains over TRRC's rail line via the proposed Western Alignment would generate 13.9 tons per year." (The Western Alignment is 17.3 miles long.) Please revise this information in the FEIS.

46

Please verify the information shown in Tables 4-35 and 4-36, which compare the operational emissions of the two alternatives, overall and with a breakdown between Rosebud County and Big Horn County. Both tables supposedly give emissions in tons/mi-yr. However, for each combination of pollutant and alternative in Table 4-36, the sum of the emissions for Big Horn County and Rosebud County equals the corresponding emission rate in Table 4-35, casting doubt on the units. Including the phrase "Miles City to Decker" in the row headings adds to the confusion as it implies the emission rates might be in tons/mi-yr, apportioned for the entire length of the TRR. While a comparison of total projected annual emissions from the 17.3 miles of the Western Alignment and the 29.3 miles of the Four Mile Creek Alternative would be valuable, it is unclear that these two tables make the desired comparison. Please revise the two tables.

47

21. The paragraph titled "Conclusions," which runs between pages 6-23 and 6-24 cites the mitigation measures listed in the air quality section, 4.3.7. One of the measures cited is "additional air quality modeling;" however, a mitigation measure that includes modeling

48

could not be found in section 4.3.7 or in section 7.2.7, "Air Quality Mitigation." Please clarify the reference to modeling in the FEIS. 48 cont.

22. Section 8.0 addresses unavoidable adverse environmental effects. The paragraph on air quality discloses that fugitive dust emissions from construction of the Western Alignment would exceed the corresponding emissions that would occur in constructing the Four Mile Creek Alternative, as discussed above. According to our understanding of the information presented in section 4.3.7, this is erroneous. It is the combustion emissions during construction that would be greater from the proposed action, i.e., the Western Alignment, than from the alternative, i.e., Four Mile Creek (see page 4-147, lines 10 – 12). Possibly the difference is due to confusion over the use of emissions allocated per mile (tons/mi-yr) and not total annual emissions in tons. However, it is also possible that this paragraph in section 8.0 refers to other information from the air quality impact analysis; the emission rates of 7.07 tons/mi-yr and 4.39 tons/mi-yr appear to contradict the data presented in Tables 4-32 and 4-33. Although intensity of emissions should be considered for short-term local impacts, we believe that SEA should compare the two alternatives on a basis of total annual emissions, not an emission rate per mile of rail. In order to make this comparison accurately, please include the detailed technical information from the air quality impact analysis, verify the information presented, and make revisions where appropriate in the FEIS. 49

Noise and Vibration

23. The DSEIS indicates that there would be potential for blasting impacts during TRR construction on the integrity of Tongue River Dam (page 4-153), and the extent of blasting and blasting impacts is unknown at this time. It is critical that conditions be placed in project approvals to assure that appropriate geotechnical investigations are carried out prior to construction to assure that TRR construction does not affect the integrity of Tongue River Dam. We are pleased that Mitigation Measure 76 requires TRRC to conduct a seismic analysis to quantify risk of construction activities to Tongue River Reservoir and will consult with the Montana DNRC during development of geotechnical-drilling/blasting plans within two miles of the dam (page 7-32). 50

24. It is not clear to us why the TRR alignment near Miles City can not avoid the Montana Dept. of Fish, Wildlife & Parks Fish (MDFWP) Hatchery. This hatchery provides stocking sources for many species of warm water fish, including the endangered pallid sturgeon. Table 4-38 (page 4-155) shows an average of 14 coal trains per day with 113 cars per train for the Western Alignment. It is not clear if this is the number of coal trains per day that would be estimated to run at Miles City, but if 14 coal trains per day (or perhaps more at Miles City) pass within a few hundred yards of the fish hatchery, we are concerned that it may result in adverse effects to fish hatchery operations (i.e., reduce success of hatching, rearing and production of fish). 51

The DSEIS identifies potential concerns regarding vibrational effects on fish production, as well as concerns regarding coal dust and herbicide use for weeds along the railroad corridor near the hatchery (pages 5-6, Appendix F). We are pleased that Mitigation Measure 85 indicates that only mechanical weed control will be used near the fish hatchery (page 5-8), and are pleased that Mitigation Measure 86 (page 7-34) requires TRRC to continue to consult with the MDFWP. However, we are concerned that such consultation may not result in effective avoidance of adverse effects to fish hatchery operations and warm water fish stocking programs. The analysis and disclosure of potential noise and vibrational effects and coal dust upon fish hatchery operations and success in Appendix F of the DSEIS does not alleviate all the concerns. 52

We are particularly concerned about effects to fisheries programs for recovery of the endangered pallid sturgeon. The Miles City Hatchery supplies the only pallid sturgeon young for pallid sturgeon population recovery in the Missouri River above Fort Peck Reservoir, and reduction in pallid sturgeon production at the hatchery could adversely affect these recovery efforts. Mitigation Measure 87, that requires TRRC to adhere to "reasonable"mitigation conditions imposed by MDFWP, may not avoid adverse fish hatchery effects if TRRC determines what a "reasonable" mitigation condition would be. This provision of Mitigation Measure 87 should be clarified. We believe Mitigation Measure 87 should require TRRC to adhere to mitigation conditions imposed by MDFWP that effectively avoid adverse effects upon hatchery operations. We also believe improved analysis and disclosure of potential TRR construction and operation effects upon fish hatchery operations and success of hatching, rearing and production of fish are needed. Adverse impacts to warm water fish stocking programs associated with potential reduced fish production at the hatchery should be adequately considered.

Also, it is not clear to us why alternative railroad alignments that move the railroad away from the hatchery to avoid potential construction and operation effects upon the fish hatchery were not analyzed and presented. We believe alternative railroad alignments that move the railroad away from the hatchery are likely to be the most effective means of avoiding adverse effects to fish hatchery operations and fish production. Accordingly, we believe alternative railroad alignments that move the railroad away from the hatchery to avoid or reduce potential railroad construction and operation effects upon the fish hatchery should be evaluated and presented. 53

It would be helpful if a cost-benefit analysis for alternative railroad alignments at Miles City were provided to allow improved understanding of the economic advantages of the proposed alignment near the fish hatchery for comparison with other potential alignment alternatives, and associated with such cost-benefit analysis should be improved evaluation of potential impacts to the fish hatchery, and any other unquantified environmental impacts, values and amenities associated with Miles City alignment alternatives to fully evaluate all the various options and trade-offs. As noted earlier, the CEQ regulations for implementing NEPA (40 CFR 1502.23) indicate that when a cost-benefit analysis is

prepared, it should include discussion of the relationship between the cost-benefit analysis and any analyses of unquantified environmental impacts, values and amenities. It presently appears that economic advantages to the TRRC from their preferred Miles City alignment is taking precedent over alternatives that may avoid fish hatchery impacts. 53 cont.

Vegetation and Weeds

25. We are pleased that TRRC will be required to conduct a field search of the alignment during final phase engineering to identify plant species of concern and to implement appropriate mitigation measures during construction if such species are found (Mitigation Measure 18, page 4-71). 54

26. We are also pleased that TRRC will be required to implement reclamation and revegetation of the right-of-way with Task Force oversight (Mitigation Measures 19 and 20, page 4-73). 55

27. Many noxious weeds can out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife, and are a threat to biodiversity. Noxious weeds tend to gain a foothold where there is disturbance in the ecosystem, such as construction activities. TRRC should track weed infestations and implement weed control actions and monitor effectiveness of weed control actions along the railroad corridor. Early recognition and control of new infestations is needed to stop the spread of the infestation and avoid wider future use of herbicides, which could correspondingly have more adverse impacts on water quality, fisheries, and biodiversity. 56

We are pleased that TRRC will develop a written Noxious Weed Control Program in consultation with local ranchers, county extension agents, and the Task Force prior to construction of the rail line (Mitigation Measure 21, pages 4-77, 7-17). EPA supports development of the Noxious Weed Control Program for prevention, early detection of invasion, and control procedures for noxious weed infestations. We are also pleased that Mitigation Measure 85 indicates that only mechanical weed control will be used near the Miles City fish hatchery (page 5-8), and that Mitigation Measure 65 requires response to herbicide spills (page 4-135).

When herbicides are used there is a need to use such chemicals in a safe manner that ensures protection of surface water ecological integrity, and worker and public health and safety. EPA encourages prioritization of management techniques that focus on non-chemical treatments first, with reliance on chemicals being the last resort, since weed control chemicals can be toxic and have the potential to be transported to surface or ground water following application. Herbicide drift into streams and wetlands could adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species. No spraying should occur in or near streams, wetlands or other aquatic areas. All efforts should be made to avoid movement or transport of herbicides 57