APPENDIX C
DEQ RESPONSES TO PUBLIC COMMENTS

As described in Section 7.0, the formal public comment period for the Water Quality Restoration Plan and Total Maximum Daily Loads for the Ninemile Planning Area, extended from November 19, 2004 to December 17, 2004. Four individuals/organizations submitted formal written comments. Their comments have been summarized below and organized by primary topic heading. Responses prepared by DEQ follow each of the individual comments. In some cases, multiple comments were addressed under a single response. The original comment letters are located in the project files at DEQ and may be reviewed upon request.

In addition to the comments below, several general comments that mainly included grammar errors and incomplete information, were addressed by modifying the final document. These comments were all addressed and since they were minor in extent, are not summarized below.

1. Public Involvement, document downloading and timing of the Public Draft

Comment: Several comments were provided to DEQ regarding difficulty in obtaining draft copies of the report and difficulty in reviewing the documents given the timeframes and time of the year.

Response: The courts and our constituents have been asking for DEQ and EPA to increase the pace of TMDL development since the program officially began in Montana in the late 1990's. The pace of TMDL development in Montana has increased annually since the year 2000 and is expected to continue to increase. This, inevitably, will result in an increased burden on the public to review more and more TMDL documents on an annual basis. This is a fact that we will have to accept.

To date, the timing of the release of public review drafts has largely been driven by a rigorous, court-imposed schedule with annual milestones. Given a court-imposed schedule, Montana's TMDL Program has operated on a calendar year basis since the year 2000, with TMDL documents scheduled for completion by the end of December every year. This has resulted in the release of most of the public review drafts in October, November, or December on an annual basis.

Nonetheless, DEQ appreciates the challenges the public may face when multiple draft documents are published at the same time. DEQ is working to address numerous issues including:

- Developing standard procedures for notification of document availability,
- Pre-specifying convenient locations for the public to review the drafts (such as local libraries),
- Standardizing text viewing software for review of the documents electronically, and
- Creating a streamlined process for receiving and recording public comment.

It is also important to note that DEQ is strategizing on ways to better inform the public on upcoming public draft releases so that the public can prepare and schedule appropriately with the timing of the release of each draft document.

Further, although many public review draft TMDL documents will continue to be released in the last three months of the year, some future modifications to the release of TMDL documents are planned. For example, a phased approach will be taken for some of the larger and more complex TMDL Planning Areas, where the required TMDL elements will be presented in a series of "volumes". The first volume for a given TMDL Planning Area may contain the first two sections or chapters of the typical TMDL document (i.e., Watershed Characterization and Water Quality Impairment Status). The remaining sections of the typical TMDL document (i.e., source assessment, total maximum daily loads, targets, allocations, margin of safety, etc.) will be presented in subsequent volumes, as appropriate based on the scale and complexity of the TMDL Planning Area. In 2005, it is envisioned that the first "volumes" (i.e., Volume I) of several TMDL documents will be released during the first half of the year. Subsequent volumes will then be made available to the public when they are completed. This will provide the public with more time to review DEQ's more complex TMDL documents and will ensure that the entire public review time period is spread out throughout the year, rather than waiting for the last three months of the year.

Additionally, some TMDL documents are scheduled for completion throughout 2005. These will be made available for public review as soon as they are completed, again avoiding the last three months of the year.

2. Timber Harvest History and Effects on Watersheds

Comment: We would argue that an area that has been in a rest rotation for 25 years should not be treated as a clear-cut but even more important, this area burned in 2000. Relying on the ECA assumes facts not in evidence and should be stricken from the TMDL analysis. We contend that any current and/or potential changes in runoff are not due to dated timber harvesting practices but to soil conditions as impacted by severe fire. This section further indicates that these harvest disturbances have affected about 25.5 to 26.4% of the watershed. However, as shown in table 4.3 only Cedar and Ninemile Creeks record any sediment due to past timber harvest practices with all other drainages reporting zero sediment loading. Even as such, section 3.1 reports Ninemile Creek as fully supporting its industry and agriculture beneficial uses. Not only has DEQ incorrectly used the ECA criterion which adversely affects 10 watersheds and several Ninemile face areas, we strongly argue that any potential hydrologic changes would be due to fire effects and not timber harvest practices from 25 years ago.

Response: Equivalent Clear-Cut Area (ECA) is a method of accounting for vegetation removal in standardized quantities. The ECA method takes into account both fire and timber harvest as potential sources of vegetation removal, and it includes consideration of post harvest/fire recovery and of vegetation removal at intensities less than clear-cutting. In the scientific literature (Troendle and Leaf, 1981; Troendle and King 1987; Jones and Grant, 1996), ECA has been correlated with increased water yields, which have in turn been correlated with increased sediment yields. Because ECA is relatively simple to measure, it has been included in the suite of supplemental indicators for the Ninemile TPA as a proxy

measure of human (timber harvest) and natural (fire) impacts that could be expected to increase water and/or sediment yields and thus threaten or impair beneficial uses.

As implied in the comment, ECAs in the listed watersheds, where known, are typically below the supplemental indicator threshold of 25%, except in Big Blue Creek, where the fires of 2000 have resulted in elevated ECA levels. Throughout the NTPA harvest-induced sediment loads are relatively low. In no case did ECA levels result in a stream being determined as impaired, and in no case did ECA levels keep a stream impaired when it might otherwise have been not impaired. Instead, ECA was included in the suite of indicator variables as a means of gauging the level of future impacts in the listed streams. Based on the literature values cited above, it appears that ECA levels less than 25% are not likely to induce hydrologic changes that would increase sediment loads to levels that would impact beneficial use support. ECAs above 25%, however, will provide a warning flag that the watersheds may be nearing thresholds at which beneficial uses could be affected. ECA will never be used in and of itself to make an impairment determination, but instead COULD be used as part of the suite of targets and indicators with which use support is evaluated. ECA is a useful and cost effective tool for watershed analysis and will remain in suite of supplemental indicators for purposes of this Water Quality Restoration Plan (WQRP).

3. Large Woody Debris

Comment: Large woody debris (LWD) is a critical component of quality salmonid habitat, and it is a primary influence on stream function, including sediment and organic material transport, channel form, bar formation and stabilization. Large woody debris plays a significant role in the creation of pools and favorable aquatic temperatures. Currently within the Lolo National Forest, LWD is found at 156 pieces per mile in 3rd and 4th order streams (Riggers et al., 1998). As LWD in riparian Class I and Class II streams is protected by the Montana Streamside Management Zone, we support the management of LWD across stream channels as dictated by current law not as a percentage based on reference counts.

Response: Our use of the weight of evidence approach as described in Section 3.3 of the document is predicated upon the fact that there is no single parameter that can be applied alone to provide a direct measure of beneficial use impairments associated with sediment. The LWD supplemental indicator was selected specifically to provide one measure of potential sediment impairment associated with the cold-water fisheries beneficial use. The information provided by this parameter was then used in combination with the information provided by all of the other targets and supplemental indicators to reach conclusions about water quality impairment.

Additionally, irrespective or current management practices, DEQ must utilize reference conditions in compliance with our narrative water quality standards, when determining impairment status. However, it is also important to note that beneficial use support and management practices can occur together in a watershed.

4. Suspended Sediment Concentration and Turbidity

Comment: The DEQ indicates that suspended sediment monitoring provides a direct measure of sediment transport while turbidity provides and indirect, but more easily conducted measure of sediment. However, it is difficult to monitor suspended solids and turbidity leading to a lack of current credible data. Therefore, more flow data should be required.

Response: Comment noted. DEQ agrees that flow data would need to be obtained as well. However, it is important to note that suspended sediment and turbidity are used as supplemental indicators as described in response to comment 3 above and in Section 3.3 of this document. The intent is not to require this monitoring, but utilize the data if it becomes available and encourage the future collection of this data.

5. Watershed Assessment and Modeling Exercises

Comment 5a: The LoloSED computer model was used to analyze potential sediment production from forest roads at the watershed scale. Sediment production from roads was determined using coefficients for closure level and natural re-vegetation, presence or absence of best management practices (BMPs), time since construction or re-construction, and baseline sediment rates.

As indicated through the assessment, the two primary pollutants within the Ninemile TPA are metals and siltation. All sediment concerns pertaining to timber harvesting can be addressed through the application of BMPs and adhering to the SMZ regulations. The primary function of the use of BMPs and the SMZ rule is to mitigate for culvert failures, stream bank instabilities, channel and stream bank alternations, and channel encroachment, fish passage assessment and road construction and re-construction. When BMPs and SMZ rules are properly applied within timber harvest areas, all sediment and watershed assessment issues are mitigated for with an audited 97% - 99% success rate.

We agree with the watershed assessment that timber harvest in the Big Blue, Josephine, McCormick, Kennedy, and Stony Creeks have not contributed to yearly sediment loads. Due to the effects of 2000 fires Cedar and Ninemile Creeks have contributed minimal yearly sedimentation. Therefore, we do not agree that it is reasonable to propose no future increase in sediment loading associated with harvest and/or forest roads. Long-term beneficial uses of applying BMPs and measuring their effectiveness within a project area balances the short-term impact of such practices.

Response: DEQ applauds the land managers of Montana for successfully developing and maintaining a voluntary program (Forestry BMPs) that fosters land management practices aimed at protecting soils and water quality. However, DEQ feels that BMPs do not equate to all reasonable land, soil, and water practices until such time it is demonstrated that they can achieve water quality standards. Additionally, we do not agree that that the “BMP Audits” accurately measure the *effectiveness* of BMP mitigation application. The audits are an objective, one-shot, visual observation of management/mitigation effects on the ground. This does not imply that the audit process is not a success, because it does present a great added value in education and provides a mechanism by which to improve, as necessary, on the

application of practices across the State. It is DEQ's position that BMPs do not equate to "all reasonable land, soil, and water practices in all cases. Therefore, it cannot automatically be assumed that BMPs equal beneficial use support.

Irrespective or current management practices, DEQ must utilize reference conditions in determining compliance with our narrative water quality standards, and evaluating impairment status. However, it is also important to note that beneficial use support and management practices can occur together in a watershed.

Finally, it is important to note that future allocations must be applied so as to ensure that beneficial uses are not only met, but **maintained** through time. The intent of a future allocation is to ensure that beneficial uses are met and maintained with future anticipated land management activities. Even if future management activities include all reasonable land, soil, and water conservation practices, small increases of a pollutant can be expected. The future allocation is not likely to be met if management activities occurred in the absence of all reasonable land, soil, and water practices.

Comment 5b: Page 142: Beware of giving actual LoloSed numbers: See Post Burn EIS for guidance.

Comment 5c: Page 186: A definite source of uncertainty are the numbers generated by LoloSed. We may need to discuss their use.

Comment 5d: Page 145, 4.5.1.3. Not sure it is valid to develop a percent reduction of LoloSed road sediment model estimates based on reducing contributing road areas in the watershed to a recommended max of 200 feet of contributing area. Anytime we use LOLOSED at the project scale to identify the existing sediment condition from roads and then look estimate model reductions based on road closures and BMPs we typically do not see the projected benefits that your estimates are generating. This comment carries through to each watershed where applied.

Comment 5e: Page 135: LoloSed-- presenting absolute LoloSed-generated tonnage values is a problem. Need to look at the Post Burn EIS for a safe/reasonable way to present results.

Comment 5f: Page 135: We should discuss the last 2 sentences of the paragraph that begins "Natural sediment production...". Could be some misinterpretation here.

Comment 5g: Page 134, last sentence of first paragraph after Table 4-2. I don't believe that the natural component of stream bank sediment load is a part of LoloSed.

Response: The final document has been modified to address comments 5b – 5g.

6. Monitoring Strategy

Comment 6a: One of the more complex problems the state faces is the ongoing monitoring of each watershed as required for the mandated 5-year review. With a very limited staff, it is very important to base monitoring on performance-based targets. The ultimate goal should be the de-listing of 303(d) water bodies.

Response: DEQ agrees that meeting the current 2012 schedule while conducting 5-year reviews is a difficult and complex task that lies before us. We are currently developing measures by which to achieve these goals. One measure is the recent development of an "Implementation" Section within the Water Quality Planning Bureau at DEQ. When this Section becomes fully staffed and funded, it is envisioned that they will become part of an expanded team to assist with on-the-ground implementation projects following approved TMDLs, as well as measuring the success of these projects in meeting water quality standards.

"Performance-based" is a term typically used in the allocation component of the TMDL process, not water quality targets. An allocation is that portion of a receiving water's loading capacity that is attributed to one of its existing or future pollution sources. A "performance-based" allocation is used when the actual loading capacity cannot be determined, but the sources and reasonable mitigation is known. Performance-based refers to future actions that can be linked to pollutant load reductions, that, in turn, are likely to result in achievement of water quality standards. Since targets are quantitative values used to measure whether or not the applicable water quality standards are attained in a given waterbody, the "performance-based" term and/or concept is not typically applied to the "target" component of the TMDL process. Targets must represent attainment of water quality standards and are the end-point goal of the TMDL process. Performance-based actions, therefore, can be the means by which the goals will be achieved (i.e., an allocation), but cannot be the end-point goal (i.e., the target).

Finally, DEQ's goal is not to de-list waters. DEQ's goal is to attain and maintain water quality standards to ensure all beneficial uses are fully supported.

Comment 6b: Page 199: How long would monitoring continue? What about reporting of results? We may have a problem with annual monitoring of sediment and turbidity: any possible funding for monitoring? Are there any DEQ standards for turbidity sampling? We don't have a turbidimeter-- does anyone else?

Comment 6c: Page 200: Who would monitor metals-- DEQ? For how long?

Response: It is important to note that most of the monitoring suggested in this WQRP is strictly voluntary in nature. Under State law (MCA 75-5-703(7)), after control measures have been implemented (incorporation of waste load allocations into discharge permits and application of reasonable land, soil, and water conservation practices), the Department of Environmental Quality is responsible for determining if State water quality standards are being met. This determination is a part of the State's 305(b) Report/303(d) list, which DEQ

produces on a biennial basis. DEQ is interested in a voluntary collaborative and cooperative approach and encourages land management agencies and private property owners to work with DEQ in future implementation and monitoring activities.

Again, DEQ encourages a collaborative effort in implementing recommendations in the Water Quality Restoration Plans. This collaboration can take many forms. This plan does not articulate who is responsible for writing the monitoring report because this has not been determined. What has been determined is that a number of groups have monitoring resources and that coordination of these resources is appropriate. However, in order to realize the potential gains in implementation, monitoring of these activities would only serve positively to land managers. Therefore, DEQ feels that a collaborative approach between all land managers in the NTPA and DEQ should occur as feasible. DEQ will assist with these efforts as practicable.

Finally, DEQ does have protocols for the types of sampling addressed in comment 6b. However, it is important to note that turbidity monitoring is not intended to be used solely as a measure of sediment impairment. It was suggested as a supplemental indicator because it can be used, where feasible.

7. Target & Supplemental Indicator Data

Comment 7a: Page 61: Why isn't there any information on longitudinal stream gradients? (this applies to all streams).

Response: DEQ was unaware that any such data existed in the Ninemile TPA. While we are uncertain (without looking at the data) whether or not it could have been used in our target/supplemental indicator approach, it could have possibly been used as "additional information." However, we do not believe that this data could have changed the outcome of this WQRP.

Comment 7b: Page 72 (applies to all streams): Why wasn't 2004 stream temperature data included? Too late?

Response: Yes, due to the timing of temperature data collection and the analysis required, DEQ could not incorporate the 2004 temperature data into this WQRP. Additionally, since no NTPA streams were listed as thermally impaired, it was not a priority.

Comment 7c: Page 54, second paragraph, related to use of limited Lolo Wolman pebble count data with supplements from the B-D and greater Yellowstone E. data, would be nice to contextualize these other data sets to establish legitimacy of combining with Lolo data. For, instance, are they from similar geologies? Did you do comparison of two multiple data sets that would indicate compatibility of these data and legitimacy of combining?

Response: We agree that geology is an important control on expected sediment size. Unfortunately, reference data were very limited, forcing us to rely on data from outside of the NTPA. The % <6mm data from the greater Yellowstone were not accompanied by geology,

so no comparison could be done. However the D50 data did include geology, and a comparison is presented in Tables C-1 and C-2 below. Table C-1 presents the D50 values that were included in the TMDL. These were based on reference data from the LNF combined with reference data from the Yellowstone area, regardless of geology. Table C-2 presents the D50 data from the combined database after the least similar geologies have been removed. No granitic, volcanic, rhyolitic, or metamporphic streams are included; only sedimentary, belt, and limestone geologies were combined with the LNF data.

Even in the larger of the two databases, where we did not eliminate streams based on geology, sample sizes were very small, ranging from 27 to 12. Because of this, we decided not to stratify by geology in order to maximize the limited reference data available to us. We recognize, however, that the results are a compromise, and that sediment targets may need to be revised as additional reference data are collected, and that D50 and %<6 mm targets need to be interpreted in the context of the other sediment targets, supplemental indicators, and estimated sediment loads.

Table C-1. D50 Targets by Rosgen Stream Type (mm), LNF and all Yellowstone Data.

Rosgen stream type	B3	B4	C3	C4
Mean	81	38	81	34
+/- one std. deviation	50-112	25-51	49-113	22-46

Table C-2. D50 Targets by Rosgen Stream Type (mm). LNF Data Plus Yellowstone Data from Sedimentary, Belt, and Limestone Geologies. No Granitic, Volcanic, Rhyolite, or Metamorphic.

Rosgen stream type	B3	B4	C3	C4
Mean	92	37	67	38
+/- one std. deviation	62-122	25-49	56-78	28-48

Comment 7d: Page 58, last paragraph under Individual Metrics" the EPT metric. Again, here, or perhaps in monitoring section the method should be identified for future consistency in measurement. For instance 22 EPT is the indicator, but based on what size sample as it is not presented in a per unit area.

Comment 7e: Page 59, the percentage of clinger taxa, "A higher percentage of clingers suggests little impact from sediment" If this metric is used, then need to identify, if possible, at what percentage and above is indicative of "less impact from sediment".

Response: This response is intended to address comments 7d and 7e. The macroinvertebrate metrics used in the Ninemile document are the best available at this time and we feel that they provide a reasonable measure of sediment impairment when used in the context of a supplemental indicator. In other words, we are not sufficiently confident in these metrics to use them alone to make final decisions about water quality impairment, but when used in combination with the other targets and supplemental indicators they provide a useful “piece of the puzzle” in the weight of evidence approach described in Section 3.3. DEQ and EPA are currently evaluating all of our biological metrics and hope to develop more rigorous macroinvertebrate metrics within the next two years.

Comment 7f: Page 65, top of page, qualitative stream assessment values, here presented as 93%. I don't remember this evaluator being discussed or the ranges of condition class.

Response: This evaluator/parameter was not discussed in our target/supplemental indicator discussion (Section 3.3), because it was not used in this manner. In addition to following the target/supplemental indicator approach, DEQ utilized any additional data that might indirectly provide further useful information.

8. Water Quality Impairment Status

Comment 8a: Page 67: Near the bottom of the page, where it says that no TMDL will be developed for Big Blue Creek.... does that mean it will be removed from the 303(d) list in the future?

Comment 8b: Page 203: First paragraph-- if beneficial uses are supported, would the 303(d) list be amended, too? Should state so, if true.

Response: This response addresses comments 8a and 8b above. The Ninemile WQRP, does not formally list or de-list any waterbodies in the Planning Area. DEQ's Sufficient and Credible Data Beneficial Use Determination (SCD/BUD) process is the mechanism that lists and "de-lists" waterbodies on the 303(d) list. These decisions are reflected in each biennial Integrated Report (IR). The SCD BUD process will utilize all information provided in this WQRP during the 2006 upgrade of the IR. It is anticipated that Big Blue Creek will be listed as fully supporting of its beneficial uses on the 2006 303(d) list.

Comment 8c: Page 168: Why is there a sediment TMDL for Stony Creek, when fine sediments have not been identified as a problem (per field data)?

Comment 8d: Page 172: Same as previous, but for Cedar Creek.

Comment 8e: Page 125 and 126, for Stony and Cedar where data indicates no impairments in areas above roads 456 (Stony) and 5515 (Cedar), is it possible to segregate out these sections similar to what was done for upper McCormick?

Response: The following response addresses comments 8c – 8e. Our use of the weight of evidence approach as described in Section 3.3 of the document is predicated upon the fact that there is no single parameter that can be applied alone to provide a direct measure of beneficial use impairments associated with sediment. Several targets were selected to provide measures of potential sediment impairment associated with the cold-water fisheries beneficial uses. The information provided by these parameters was used in combination with each other and the supplemental indicators were necessary to reach conclusions about water quality impairment.

In the case of both Stony and Cedar Creeks, one of the selected targets (Clinger Richness) was not met. Therefore, the supplemental indicators were evaluated. Both streams met most

of their supplemental indicators, however not all were met. The primary supplemental indicator that was not met for both streams was sediment sources from human-caused activities. In both cases, roads were found to be contributing sediment to the stream channels.

Overall, both streams appear to be showing a trend in the positive direction. It also appears that upper reaches of both streams appear to be in better condition than the lower reaches. However, this WQRP utilized a watershed approach that addressed the entire stream and did not attempt to segregate. It is feasible that segregation of these streams could in fact occur during the 2006 update of the 303(d) list.

9. Phased Approaches/Restoration, and Implementation

Comment 9a: Page 98: First paragraph states that there's "on-going restoration work in lower Kennedy Creek". We're not aware of this-- where and what is it?

Response: To the best of our knowledge, there is a plan in place to restore the lower section of Kennedy Creek back to its channel so that it has connectivity with Ninemile Creek. This project is a collaborative effort between the Montana Department of Transportation, local landowners, and possibly other constituents.

Comment 9b: Page 191: In the bulleted restoration activities, what about dealing with diversions? Are there any assessment of septic impacts in the Ninemile floodplain?

Response: Diversions are addressed in the phased approach outlined in Section 6.6. Septic impacts were not addressed in this WQRP, since nutrients were not listed as a cause of impairment on the 303(d) list.

Comment 9c: Pages 203-205: Who would conduct the flow and temperature studies?

Response: It is important to note that the flow and temperature monitoring is strictly voluntary in nature. However, in order to realize the potential gains in implementation, monitoring of these parameters would only serve positively to land managers. Therefore, DEQ feels that a collaborative approach between all land managers in the NTPA and DEQ should occur as feasible. DEQ will assist with these efforts as practicable.

10. Allocations

Comment 10a: Page 149: How was the reduction in sediment loading derived (this will apply to the rest of the streams, too).

Comment 10b: Page 145: Under 4.5.1.3, I'd be curious to know more about how the sediment reduction targets are determined.

Response: Reductions in sediment loading from forest roads were estimated with the FroSAM model. The text of the WQRP was modified to better explain how this was done. Load reductions from fire and timber harvest were estimated by the Lolo National Forest

using the LoloSed model. Load reductions from mining were based on the assumption that is technically possible to restore all of the mined reaches and that over time restoration would reduce sediment loads to their natural levels. DEQ recognizes, however, that this level of restoration may be difficult to achieve with the limited resources available. Finally, the sediment load reduction from agriculture was based on best professional judgment. A 75% reduction seemed feasible from BMP implementation and, where necessary, active restoration. The remaining 25% of the agricultural sediment load remains in recognition that agriculture uses will continue in the watershed and will inevitably increase sediment loading to some extent.

Section 4.5.1.3 and the analogous sections for the other listed streams have been revised to clarify sediment reduction estimates.

Comment 10c: Page 151: I don't think the reduction with rehab of the mined section of streams is realistically going to be 100%... do you? As far as sediment without active restoration, look at the sediment calculated for the mined areas along Ninemile and McCormick: those are old tailings, and are still producing sediment. So, while sediment production will decline, it will still be significant. May also want to say that stream channel function will still be impaired if no rehab takes place. These comments apply to the other mined streams, too.

Comment 10d: Page 149, second to last paragraph, and page 150, not sure how realistic it is to get to a load allocation of 0 from restored mine sites. We are talking about millions of dollars to fix many of these areas. May want to include in additional work to further evaluate and prioritize the worst of the worst mining disturbances from a sediment perspective.

Response: The following response addresses comments 10c and 10d. The 100% reduction in sediment loading from mining is technically possible through a combination of natural recovery and active restoration and thus has been included as goal of the WQRP even though it may be economically infeasible. Many of the sediment reduction goals of the WQRP are probably beyond the capability of the resources currently available for watershed restoration. Nevertheless, DEQ has selected water quality goals that represent the best possible conditions and thus the highest probability of beneficial use support. DEQ will work to secure the funding required to implement the sediment reductions recommended in the WQRP, but the agency recognizes that adequate levels of funding may never materialize. The monitoring plan described in the WQRP will track the progress that can be made with available resources in meeting sediment reduction goals and ensuring beneficial use support. Ultimately, it is DEQ responsibility to develop watershed restoration plans that, *if implemented*, will ensure beneficial use support. Whether or not adequate resources are ever made available to implement the plan fully is a political and societal question beyond the scope of DEQ's mandate.

However, it is important to note, that one of the main purposes of monitoring and reevaluating this WQRP in the future, is to help DEQ and land managers realize the true potential of these managed stream systems. The adaptive management strategy outlined in this report provides flexibility for future decisions. Therefore strategies less stringent than those proposed today, may be possible, providing beneficial uses are fully supported.

Comment 10e: Page 185: How would metals be reduced?

Comment 10f: Page 194: 3rd paragraph-- how to "reduce or eliminate human-caused metal sources"?

Comment 10g: Metals section does not make projection on how to achieve targets as is done for sediment pollution.

> **Response:** The following response addresses comments 10e - 10g. The specific details of how metals loading reduction will occur have been left to the Implementation Team (IT). However the text of the WQRP (Section 5.2.4.3) has been revised to include several suggestions of where mine reclamation resources can be obtained.

11. General Comments Part I

In addition to the grammar and structure comments discussed in the opening paragraphs of this appendix, several “general” comments were received. These comments are summarized below.

Comment 11a: Page 6. I think the "next step" in the 3rd paragraph should actually be an important part of "the first step" in the previous paragraph, vs. a subsequent step.

Comment 11b: On page 6, the term "source assessment" comes up in the 4th paragraph. This term should be used in the previous paragraph, too, where the assessment is first mentioned.

Comment 11c: On page 6, after paragraph 4, I'd think there should be a discussion of implementation-- financial assistance, coordination, etc. Seems like there's a hole between the calculation of the TMDL and the monitoring (previous and subsequent paragraphs).

Comment 11d: Page16: Why is soil permeability important? Some interpretation would be nice (similar to what's presented for the K-factor).

Comment 11e: Page 52: First sentence under 3.3.1.1: As I read this sentence, I was thinking about causes for various size ranges of substrate, vs. the effects of it (the word "indicative" was my trigger). Substrate size is (also) indicative of the potential excess sediment being delivered to a channel, as compared to its ability to transport the sediment... think in terms of channel process, as well as effects on fish habitat. Or change the word "indicative"**.**

Comment 11f: Page 53: D50 also depends on local geology, so need to see if the geologies being used to establish reference values outside the Ninemile watershed are comparable (which may not be the case in the Greater Yellowstone, where there are more volcanics and different sedimentary rocks).

Comment 11g: Page 60: If there's any way to do it, I'd highlight section 3.3.4-- it's good, important, info.

Comment 11h: Page 65: Under discharge section, there is no pre-fire flow data, but I've been collecting a substantial amount of discharge data on Big Blue since the fires-- both full measurements and crest stage gage readings. I thought I'd sent those to you.... let me know if you want that info.

Comment 11i: Page 134: I didn't see any BEHI results in the stream evaluations in section 3-- it would be helpful to show this info there (with the individual stream descriptions).

Comment 11j: Page 137: section 4.2.3-- how about mentioning these results in section 3?

Comment 11k: Page 142: Rather than, or in addition to, monitoring in-stream water quality, how about monitoring activities in the watershed that might be causing degradation?

Comment 11l: Page 47: May want to note that the mined section of Josephine is on patented land.

Comment 11m: Page 17, Table 2-11a. Not necessary by any means, but it is nice in tables like these to also break down as a percent by watershed.

Comment 11n: Page 53, 3.3.1.1, first sentence, fine sediment can also be indicative of quality of salmonid rearing habitat quality (see nice field experiment article by: Suttle, K.B., M.E. Power, J.M. Levine, and C. McNeely. 2004. How fine sediment in riverbeds impairs growth and survival of juvenile salmonids. Ecological Applications, 14(4), pp.

Comment 11o: Page 54, first paragraph related to Mebane reference, could also cite Suttle article above for salmonid rearing effects, would also be nice to generally state how the sediment did negatively effect macros, salmonids and sculpins (number decreases, decreases in species taxa or richness etc.)**.**

Comment 11p: Page 64, source section, where road densities are noted. Would be good to perhaps teir to the Interior Columbia Basin Ecosystem Plan where their categorize road densities based on native fish distributions at the landscape scale as 0-.7 mi/mi sq as low, .71-1.7 as moderate, and greate has indicators of high road densities.

Comment 11q: Page 86, Table 3-18, for McCormick creek it might also be helpful to note the seven-day average range in temps which we did not see in most system, but indicative of little thermal buffering capacity and implications to fish biology.

Comment 11r: Page 118, Table 3-36, again would be good to point out the relatively high seven-day temp delta T as mentioned above.

Comment 11s: For the Ninemile watershed section, might be good to ref the Land and Water Geomorphic report for Ninemile in summary of conditions to help emphasize areas of potential problems.

Comment 11t: Page 123, fourth paragraph, talking about not meeting RSI target, and channel instability, somewhere would be good to bring in this possible connection to stream bank vegetation removal and disconnection of stream from floodplain as potential contributor?

Comment 11u: Page 129, the body of temperature data is starting to build, especially for patterns in McCormick and main Ninemile related to higher water temps.

Comment 11v: Page 151, 4.5.3.1.1, PCT is currently harvesting their section in upper McCormick, which could increase some sediment load from harvest, not sure how to get at it though.

Comment 11w: Page 137: Table 4-4: what about including crossing density (# of crossings per watershed area)? See Schnackenberg and MacDonald, 1998.

Comment 11x: Page 164, 4.5.4.3.3, may want to mention that there is likely to be some level of Forest Service harvest in all the Frenchtown Face project watersheds, including, Kennedy, McCormick, and Stony Creeks.

Comment 11y: Some additional sediment estimate from potential pipe failures could be included, I think we have fill estimates from 52 crossing in total. Not sure if this would add value or not. I think where most of our uncertainty related to sediment risk and road crossing failures is, is not at the larger crossing that we surveyed for potential fish passage barriers, but the smaller crossings on intermittent channels whose numbers are extensive. Perhaps this could be fleshed out in the monitoring plan section.

Comment 11z: Page 25, might be good to generally state where these areas in the NTPA are?

Comment 11aa: Page 28, where maps are referenced, it would be good to list data sources on the map.

Comment 11ab: Page 23: Section 2.12-- The second paragraph starts with "This section summarizes..." Need to say where this info is-- since there's nothing presented on p.23.

Comment 11ac: Thank you for providing the text of the draft Nimemile Water Quality Plan on your website. It is an impressive document! The planning document compiles a lot of useful information, but it is evident more data needs to be collected to provide a comprehensive overview of the watersheds in the planning area. As landowners on Josephine Creek, we concur with the need to collect additional data, prepare restorative plans and work collaboratively with all public and private parties to implement restoration projects within the planning area. We especially encourage collaborative work with DNRC on irrigation issues, seeking to identify inefficiencies and develop mitigation measures. We are also very interested in the potential mitigation of mining impacts on the valley's streams, especially areas characterized by coarse gravels, wide, shallow flows and sparsely vegetated banks. We look forward to working as private partners on future restoration efforts that might be planned for Josephine Creek.

Response: Comments 11a-11ac were noted. Some of the comments were already addressed in the “uncertainty analysis” portion of the document found in Section 4.7, or the document was not changed to avoid redundancy.

12. General Comments Part II

Comment 12a: Page7: I know it shows on a map, but Ninemile, MT isn't really a place.

Comment 12b: Page 23: Section 2.12-- average gradient of Ninemile Creek should also be presented as a percent grade. At the end of the paragraph (where widths and depths are given), I think the words "at the gage" should be added.

Comment 12c: Page 25: Septic Systems-- the hazard ratings only account for density of septic. The locations of septic systems (e.g., the Ninemile floodplain) aren't addressed by the rating. This needs to be addressed somewhere.

Comment 12d: Page 38: Second paragraph, rewrite sentence to read"...For example, a 100-acre stand...juvenile trees that provide 75% of the canopy cover a mature stand would provide." ECA doesn't really deal with water uptake.

Comment 12e: Page 56: Sentence in 3.3.2.2 beginning "Active large woody debris is found..." makes it sound like EXACTLY 156 pcs/mile are found in Lolo reference streams.

Comment 12f: Page 57: Under 3.3.2.4, state that w/d = bank full top width divided by average channel depth at the bank full stage.

Comment 12g: Page 57: First sentence: w/d doesn't provide a measure of channel stability, per se, but is an indicator of it. Need to state that w/d also reflects the size of material being transported, landscape setting, etc.-- w/d varies in reference streams, too**.**

Comment 12h: Page 57: Under 3.3.2.5, I'd change the last sentence to end with "...provides an indirect, but more easily obtained measure of suspended sediment concentrations". I'd also provide a definition of turbidity--it's the amount of light scattered or absorbed by a fluid. In other words, it provides a measure of water clarity. Further down in the same paragraph, the sentence that begins "Monitoring for sediment and turbidity..." should end with "...parameters, and the relationship between them, which varies between watersheds."

Comment 12i: Page 59: 3.3.2.8-- the more correct term for the indicator is equivalent Clear-cut Area, but since the value is reported as a percent, it makes more sense to refer to an "area”. I'd rewrite the first sentence to read: "Equivalent Clear-cut Area (ECA) is an indicator of the potential for cumulative effects from multiple years of vegetation removal, taking into account vegetative recovery. Vegetation removal may affect snow distribution in openings, snow melt rates, and interception by vegetation, which may result in altered snowmelt runoff quantities and timing.

Comment 12j: Page 59: Continuing in the same paragraph, an ECA of 25% is cited as the amount of removal at which water yields may increase. That's fine, since research supports values between 25% and 30%, but 30% was cited earlier (pp. 38-39), so need to be consistent. I use 30%, since most of our channels are fairly stable types.

Comment 12k: Page 59: Last sentence in the same paragraph, delete the last part of the sentence, beyond "...post burn EIS", since WATSED doesn't enter into ECA calculations.

Comment 12l: Page 61: Before going into the targets and supplemental indicators, I'd suggest a description/mention of Rosgen channel types. (this applies to all streams).

Comment 12m: Page 63: Width/depth ratio-- suggest rewording first sentence to read "Land and Water Consulting measured bank full width/depth ratios". I'd also suggest ending the sentence with "... indicator value for B4 streams." (this applies to all streams).

Comment 12n: Page 63: Change heading to "Equivalent Clear-cut Area", as well as references to the indicator (applies to all streams). Also, consider combing water yield with ECA (applies to all streams).

Comment 12o: Page 65: Table 3-10 site name should read "Big Blue at 5498 (Foothills) crossing".

Comment 12p: Page 73: 2nd paragraph, what about the potential effect of agricultural diversion on stream temperatures (in addition to stream widening and riparian alterations)?

Comment 12q: Page 75: Shouldn't temperature be discussed under "Additional water quality issues"?

Comment 12r: Page 79: 1st paragraph under 3.4.3.4-- mention is made of "elevated sediment loading to Little McCormick"-- but what type of sediment? Fines? They were evaluated to be OK.

Comment 12s: Page 84: What's the basis for the 2100% increase in sediment load at the top of the page? It's not from LoloSed.

Comment 12t: Page 88: The last paragraph mentions "elevated sediment loading", but surveys determined the mined reach is deficient in fines, so need to clarify this.

Comment 12u: Page 107: Third line says that a sediment TMDL has been developed for Stony Creek, but what is the basis for this? Sediment appears to be OK based on survey data.

Comment 12v: Page 114: Last paragraph, starts out by implying (via "however"), that there are conflicts between the 1996 and 2000 listings, but the differences aren't apparent to me. Are there any?

Comment 12w: Page 115, last sentence-- need to complete second citation to Rosgen type (should it be C4, vs. "4"?).

Comment 12x: Page 125: second line states that all segments except Big Blue "are impaired as a result of excessive levels of sediment...". But what kind of sediment? Fines? Some data show that fines are OK, but that sometimes (especially in mined reaches) materials are too coarse. Need to explain.

Comment 12y: Page 126: Where's Kennedy? Is it the first row in the table on this page? If so, need to add metals.

Comment 12z: Page 139: Table 4-6 lacks units and the headings need more text to make them more clearly understood.

Comment 12aa: Page140: Table 4-7 lacks units.

Comment 12ab: Page 145: What's the "200 feet"? Lengths? Distances from channels? I don't see anything in the Montana BMPs about this, so don't know what this is. Also a problem for me later on-- starting on p.192.

Comment 12ac: Page 160: Not all mining in Kennedy Creek was placer-- those deposits are also from the underground mining associated with the adits. May want to proofread this section and subsequent sections that speak about Kennedy.

Comment 12ad: Page 174: I think there should be a comma, vs. a decimal, in the number 8.240 (small, but meaningful).

Comment 12ae: Page 174: Under 4.5.7.1.4, is the number 12 supposed to be 12%?

Comment 12af: Page 186: Second paragraph says that sources of sediment loading in the listed watersheds were identified. The non-listed Ninemile tributaries were excluded, so are we accounting for all the sources in the Ninemile watershed?

Comment 12ag: Page 194: Under mining, may want to delete the word "placer" in the first sentence since Kennedy had underground operations, too**.**

Comment 12ah: Page 205: We also had some temperature data in 2002.

Comment 12ai: Page 10, Table 2-4a, should identify units, acres I believe, for the Reader.

Comment 12aj: Page 23, last paragraph, talking about amount of water diverted, if this is based on water rights perhaps another way to state would be, "A total of 343,983 acre-feet per year of water "could be" diverted" instead of thought to be diverted?

Comment 12ak: Page 28, last paragraph, data we provided indicates that Cedar Creek had moderately good densities of WCT, and in the "Finally... sentence, where are the forks (is that St. Louis and Eustache upstream?)?

Comment 12al: Page 31, Table 2-21, should note that densities are in numbers/meter square. And for USDA Forest Service excerpt, should mention in introduction that this is presented in the context for the Post Burn analysis area, and is not necessarily making conclusions about the entire Ninemile watershed and its tributaries, this is alluded to in the quote but would be better to identify up front.

Comment 12am: Page 31, 4th paragraph, should not refer to Table 2-21 here because brook trout are the only non-native displayed here.

Comment 12an: Page 32, sixth full paragraph, first sentence, references map 2-20b. This map does support the text for Ninemile main stem but not for St. Louis and Beecher Creeks.

Comment 12ao: Page 52, Table 3-6, should note that w/d ratio is for bank full width.

Comment 12ap: Page 53, 3.3.1.1, third sentence is missing word "in" between gravel and place.

Comment 12aq: Page 56, LWD discussion. Somewhere, perhaps in monitoring, need to state how LWD is classified, is it based on size criteria, or functional criteria so that future attempts to follow-up monitor, the data are comparable.

Comment 12ar: Just below in the second sentence of Pool Frequency, the word "for" after "habitat should be deleted.

Comment 12as: Page 61, section 3.4.1.2, first paragraph, "No current data are available for..., juvenile trout densities..." as some data on this is presented later in this section, should probably use language "juvenile trout density trends"

Comment 12at: Page 62, Fish Populations, Insufficient data again would be more clear if stated, "Insufficient data on fish population trends".

Comment 12au: Page 66, Macros, "GT Consulting samples" should read "GT Consulting sampled".

Comment 12av: Page 93, Table 3-21, table heading acute/chronic are reversed.

Comment 12aw: Page 95 Table 3-25, if highlighted text denotes exeedences, would be good to note this is table heading text.

Comment 12ax: Page 96, last paragraph, text again notes WCT as fall spawners.

Comment 12ay: Page 101, Macroinvertebrate section, first paragraph, "were sampled" was left out after the first word "Macroinvertebrates".

Comment 12az: Page 113, Siltation (sediment adn Habitat) first paragraph, road 5155 should be 5515.

Comment 12ba: Page 115, last sentence, "...were all Rosgen 4 channel types." should be Rosgen C4.

Comment 12bb: Page 134, last sentence of first paragraph after Table 4-2. I don't believe that the natural component of stream bank sediment load is a part of LOLOSED.

Comment 12bc: Pages 59-60: Last sentence that begins on p.59 and goes to p.60 isn't correct. See Table 8-1 in Rosgen (1996)-- there are "A" channels (A4, A5) that are very sensitive to disturbance, and "B" channels that are sensitive, too.-- need to take substrate into account.

Comment 12bd: Page 175: It seems that agriculture is popping up all-of-a-sudden as the dominant sediment source in Ninemile: was this described adequately earlier? Need to correct the inconsistency on this page, too: The first line says that agriculture is the dominant sediment source, then, in the paragraph after the TMDL equation, it says that "The primary human-caused sediment sources in the watershed appear to be placer mining and forest roads." Also, if agriculture is the most important source, there should be a % reduction shown for sediment resulting from agriculture (same paragraph).

Comment 12be: Page 200: Under ECA and water yield, I've been measuring Big Blue, and we have occasional measurements and continuous gaging on Ninemile at the gage, so the statement in this section about there being no water yield data isn't quite right.

Comment 12bf: Page 109, Surface fines, where you present a number for a stream section and state it is within the target range it would also be helpful to state channel type of the sampled reach so that reference back to Target table 3-6 is easy to understand.

Comment 12bg: Page 157, first paragraph, would be good, at least for me, to better under the sediment reduction estimates based on the reducing sediment contributing areas from roads to channels to the max of 200 feet.

Comment 12bh: Page 174, 4.5.7.1.2, first sentence should read, "The Lolo National Forest analyzed the risk of potential sediment delivery..."

Comment 12bi: Page 174, 4.5.7.1.3, 8.240 should be 8,240.

Comment 12bj: Page 174, 4.5.7.1.5, Need some treatment of fish passage barriers at crossing not on Forest roads. Crossing on the main county road where there are not bridges such as at Stony, Marion, Josephine, Pine I believe are problems and are on FWP’s radar to get fixed and remedy passage issues.

Comment 12bk: Page 113: The paragraph under Siltation (sediment) and Habitat says that there are "significant near-stream agricultural impacts" along Cedar Creek, but they're not described anywhere (e.g., not on p.111). What and where are they?

Comment 12bl: Page 65. Temperature, third paragraph, state that both bull and WCT spawn in fall, should state that bull spawn in the fall (late September-early October) and that WCT are spring spawners (typically May and June, some even early July).

Comment 12bm: Page 67: 1st paragraph, under 3.4.1.4-- sentence in mid paragraph should read "...in sediment loads as a result of timber harvest, and none is proposed at this time to allow for recovery from the 2000 fires."

Comment 12bn: Page 13: What about a section 2.8.2 that discusses placer mining? A big impact in McCormick, Eustache, etc.

Comment 12bo: Page 13, first sentence, states "Mining operations have been small, but not without an effect on streams within the NTPA." Should at least briefly describe what some of these effects can be or are (I think much of our background data contains specific qualitative info for many of these mine sites). Also, maybe it should be noted that in most cases these smaller footprints of mines can have a relatively disproportionate effect based on their location (in or near the stream bottom).

Comment 12bp: Page 13, Table 2-8, need to identify units for waste rock volume column.

Comment 12bq: Page 13, last paragraph, we should check with our resources shop on mine sites that have been permitted as indication of know mining activity, this may or may not add to what is noted here.

Comment 12br: Page 132, section 4.1.2. In describing the methods here you may want to consider additional language.

Comment 12bs: Should also note the data I actually have, and I think provided in appendices. I have additional fill information for a total of 52 crossings in the NTPA.

Comment 12bt: Page 152, 4.5.3.1.2, There are two crossings that were included in the 52 total we surveyed, that didn't fall under the top 26 priority culverts, that should be noted here.

Comment 12bu: Page 59: How about incorporating water yield (3.3.2.9) into the ECA evaluation, since we haven't done a water yield evaluation? Also, what's the source of the info for the 10% increase in "C" channels indicating potential changes in sediment yield and channel altering flows?

Response: The final document was modified to reflect comments 12a – 12bu.