Enclosure 2

EPA REGION VIII MONTANA OFFICE TMDL REVIEW FORM

Document Name:	**Water Quality Assessment and TMDLs for the Dearborn River Planning Area, Montana**
Submitted by:	**MTDEQ**
Date Received:	**March 2, 2005**
Review Date:	**May 9, 2005**
Reviewer:	**Ron Steg**
Formal or Informal Review?	**FORMAL**

This document provides a standard format for the EPA Montana Office to provide comments to the Montana Department of Environmental Quality on TMDL documents provided to the EPA for either official formal, or informal review. All TMDL documents are measured against the following 12 review criteria:

1. Water Quality Impairment Status
2. Water Quality Standards
3. Water Quality Targets
4. Significant Sources
5. Total Maximum Daily Load
6. Allocation
7. Margin of Safety and Seasonality
8. Monitoring Strategy
9. Restoration Strategy
10. Public Participation
11. Endangered Species Act Compliance
12. Technical Analysis

Each of the 12 review criteria are described below to provide the rational for the review, followed by EPA's summary and comments/questions. **Comments/questions that need to be addressed are presented in bold**. This review is intended to ensure compliance with the Clean Water Act and also to ensure that the reviewed documents are technically sound and the conclusions are technically defensible.

1. Water Quality Impairment Status

Criterion Description – Water Quality Impairment Status

TMDL documents must include a description of the listed water quality impairments. While the 303(d) list identifies probable causes and sources of water quality impairments, the information contained in the 303(d) list is generally not sufficiently detailed to provide the reader with an adequate understanding of the impairments. TMDL documents should include a thorough description/summary of all available water quality data such that the water quality impairments are clearly defined and linked to the impaired beneficial uses and/or appropriate water quality standards.

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The aquatic life and coldwater fishery beneficial uses in the Dearborn River, Middle Fork Dearborn River and Flat Creek were all listed as impaired due to siltation on the 1996 303(d) list. The South Fork Dearborn River was listed for siltation in 2002 and 2004. Based on additional study, it was determined that the applicable water quality standards for siltation in the Dearborn River are currently met and no TMDL is necessary. The results of the additional study indicated that the South Fork Dearborn River, Middle Fork Dearborn River, and Flat Creek may still exceed the applicable water quality standards and TMDLs have been prepared.

The aquatic life and coldwater fishery beneficial uses in the Dearborn River were also listed as impaired due to thermal modification. Data compiled and analyses conducted as part of this effort were inconclusive regarding thermal modification. This water body/pollutant combination will remain on the 303(d) list. A detailed work plan for additional study regarding potential temperature impairments in the Dearborn River is outlined in Section 6.0 of the document.

2. Water Quality Standards

Criterion Description – Water Quality Standards

The TMDL document must include a description of all applicable water quality standards for all affected jurisdictions. TMDLs result in maintaining and attaining water quality standards. Water quality standards are the basis from which TMDL's are established and the TMDL targets are derived, including the numeric, narrative, use classification, and antidegradation components of the standards.

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The applicable water quality standards are adequately summarized in Section 3.2.

3. Water Quality Targets

Criterion Description – Water Quality Targets

Quantified targets or endpoints must be provided to address each listed pollutant/water body combination. Target values must represent achievement of applicable water quality standards and support of associated beneficial uses. For pollutants with numeric water quality standards, the numeric criteria are generally used as the TMDL target. For pollutants with narrative standards, the narrative standard must be translated into a measurable value. At a minimum, one target is required for each pollutant/water body combination. It is generally desirable, however, to include several targets that represent achievement of the standard and support of beneficial uses (e.g., for a sediment impairment issue it may be appropriate to include targets representing water column sediment such as TSS, embeddeness, stream morphology, up-slope conditions, and a measure of biota).

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A suite of targets and supplemental indicators were selected including:

SILTATION

Targets

- % Surface Fines < 2mm
- Clinger Richness
- Periphyton siltation index
- Documented increasing or stable trend in cold water fishery

Supplemental Indicators

- Bank stability and riparian condition
- Montana Foothills, Valleys, and Plains macroinvertebrate IBI
- EPT Richness
- Montana Adjusted NRCS Stream Habitat Survey
- TSS
- Turbidity

The full suite of targets and supplemental indicators were used to verify compliance with the narrative sediment criteria and determine which water body/pollutant combinations required TMDLs. The target values will be used in the future to determine if implementation of this TMDL is successful.

4. Significant Sources

Criterion Description – Significant Sources

TMDLs must consider all significant sources of the stressor of concern. All sources or causes of the stressor must be identified or accounted for in some manner. The detail provided in the source assessment step drives the rigor of the allocation step. In other words, it is only possible to specifically allocate quantifiable loads or load reductions to each significant source when the relative load contribution from each source has been estimated. Ideally, therefore, the pollutant load from each significant source should be quantified. This can be accomplished using site-specific monitoring data, modeling, or application of other assessment techniques. If insufficient time or resources are available to accomplish this step, a phased/adaptive management approach can be employed so long as the approach is clearly defined in the document.

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Sources of sediment considered in this analysis include: landscape scale erosion associated with overland flow, sheet/rill erosion, and stream bank erosion. Quantitative estimates of each were developed. Additionally, the affects of the 1964 flood event were evaluated.

5. TMDL

Criterion Description – Total Maximum Daily Load

TMDLs include a quantified pollutant reduction target. According to EPA reg (see 40 C.F.R. 130.2(i)) TMDLs can be expressed as mass per unit of time, toxicity, % load reduction, or other measure. TMDLs must address, either singly or in combination, each listed pollutant/water body combination.

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Sediment TMDLs for the South Fork Dearborn River, Middle Fork Dearborn River, and Flat Creek were expressed as 1%, 2%, and 27% reductions in human-caused sediment loading, respectively.

6. Allocation

Criterion Description – Allocation

TMDLs apportion responsibility for taking actions or allocate the available assimilative capacity among the various point, nonpoint, and natural pollutant sources. Allocations may be expressed in a variety of ways such as by individual discharger, by tributary watershed, by source or land use category, by land parcel, or other appropriate scale or dividing of responsibility. A performance based allocation approach, where a detailed strategy is articulated for the application of BMPs, may also be appropriate for non point sources.

In cases where there is substantial uncertainty regarding the linkage between the proposed allocations and achievement of water quality standards, it may be necessary to employ a phased or adaptive management approach (e.g., establish a monitoring plan to determine if the proposed allocations are, in fact, leading to the desired water quality improvements).

Allocating load reductions to specific sources is generally the most contentious and politically sensitive component of the TMDL process. It is also the step in the process where management direction is provided to actually achieve the desired load reductions. In many ways, it is a prioritization of restoration activities that need to occur to restore water quality. For these reasons, every effort should be made to be as detailed as possible and also, to base all conclusions on the best available scientific principles.

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Quantified sediment load reductions were allocated to human-caused bank erosion and performance-based allocations were assigned to riparian condition.

7. Margin of Safety and Seasonality

Criterion Description – Margin of Safety/Seasonality

A margin of safety (MOS) is a required component of the TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving water body (303(d)(1)(c)). The MOS can be implicitly expressed by incorporating a margin of safety into conservative assumptions used to develop the TMDL. In other cases, the MOS can be built in as a separate component of the TMDL (in this case, quantitatively, a TMDL = WLA + LA + MOS). In all cases, specific documentation describing the rational for the MOS is required.

Seasonal considerations, such as critical flow periods (high flow, low flow), also need to be considered when establishing TMDLs , targets, and allocations.

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Based on the available data evaluated in Section 3.0 and consideration of the fact that the majority of the sediment load delivered to the South Fork Dearborn River and Middle Fork Dearborn River appears to be largely of natural origin, one could argue that no TMDLs are necessary. To be conservative and err on the side of water quality protection, TMDLs have been prepared. In the case of the South and Middle Forks of the Dearborn River, this fact alone provides a substantial margin of safety.

The adaptive management strategy presented in Section 6.3also provides a margin of safety by addressing the uncertainties regarding the identification/quantification of sediment sources outlined in Sections 5.1 through 5.3.

8. Monitoring Strategy

Criterion Description – Monitoring Strategy

Many TMDL's are likely to have significant uncertainty associated with selection of appropriate numeric targets and estimates of source loadings and assimilative capacity. In these cases, a phased TMDL approach may be necessary. For Phased TMDLs, it is EPA's expectation that a monitoring plan will be included as a component of the TMDL documents to articulate the means by which the TMDL will be evaluated in the field, and to provide supplemental data in the future to address any uncertainties that may exist when the document is prepared.

At a minimum, the monitoring strategy should:

- *Articulate the monitoring hypothesis and explain how the monitoring plan will test it.*
- *Address the relationships between the monitoring plan and the various components of the TMDL (targets, sources, allocations, etc.).*
- *Explain any assumptions used.*
- *Describe monitoring methods.*
- *Define monitoring locations and frequencies, and list the responsible parties.*

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A conceptual monitoring strategy was included to provide answers to the following questions:

1. Has implementation of this plan resulted in attainment of water quality standards and full support of the cold-water fishery and aquatic life beneficial uses? (i.e., trend and compliance monitoring)
2. Have all the significant anthropogenic sediment sources been identified? (supplemental monitoring)
3. Are other factors such as nutrients, physical habitat limitations, stream channel morphology, and fish barriers having a significant negative impact on aquatic life? (supplemental monitoring)

Further, a supplemental temperature and flow study is proposed for the Dearborn River to determine if Montana's water quality standards for temperature are exceeded. Additionally, a pilot-monitoring project has been proposed to evaluate suspended sediment concentrations in streams on a regional basis.

9. Restoration Strategy

Criterion Description – Restoration Strategy

At a minimum, sufficient information should be provided in the TMDL document to demonstrate that if the TMDL were implemented, water quality standards would be attained or maintained. Adding additional detail regarding the proposed approach for the restoration of water quality is not currently a regulatory requirement, but is considered a value added component of a TMDL document.

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A conceptual restoration strategy is provided in Section 5.6.

10. Public Participation

Criterion Description – Public Participation

The fundamental requirement for public participation is that all stakeholders have an opportunity to be part of the process. Public participation should fit the needs of the particular TMDL.

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The level of public participation was considered adequate. A 30-day public comment period was initiated on November 19, 2004. This final document reflects DEQ's responses to all public comment.

11. Technical Analysis

Criterion Description – Technical Analysis

TMDLs must be supported by an appropriate level of technical analysis. It applies to ***all*** *of the components of a TMDL document. It is vitally important that the technical basis for* ***all*** *conclusions be articulated in a manner that is easily understandable and readily apparent to the reader. Of particular importance, the cause and effect relationship between the pollutant and impairment and between the selected targets, sources, TMDLs, and allocations needs to be supported by an appropriate level of technical analysis.*

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An appropriate level of technical analysis has been conducted. The water quality impairment determination was based on consideration of multiple indicators and consideration of potential sediment loading from anthropogenic sources. The TMDL and allocations address the controllable sources and, if implemented, they would likely result in achievement of the narrative criteria for sediment and full support of fish and aquatic life.

12. Endangered Species Act Compliance

Criterion Description – Endangered Species Act Compliance

EPA's approval of a TMDL may constitute an action subject to the provisions of Section 7 of the Endangered Species Act ("ESA"). EPA will consult, as appropriate, with the US Fish and Wildlife Service (USFWS) to determine if there is an effect on listed endangered and threatened species pertaining to EPA's approval of the TMDL. The responsibility to consult with the USFWS lies with EPA and is not a requirement under the Clean Water Act for approving TMDLs. States are encouraged, however, to participate with FWS and EPA in the consultation process and, most importantly, to document in its TMDLs the potential effects (adverse or beneficial) the TMDL may have on listed as well as candidate and proposed species under the ESA.

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EPA will address ESA issues.