

APPENDIX A

RESPONSES TO PUBLIC COMMENTS

As described in **Section 6.0**, the formal public comment period for the Boulder Watershed Total Maximum Daily Loads (TMDL) extended from May 14th to June 18th, 2007. Three individual comments letters were submitted to DEQ during the public comment period. Excerpts from comment letters are provided below. Where appropriate, the DEQ has compiled and selected excerpts and arranged them topically. Responses prepared by MDEQ follow each of the individual comments. Original comment letters are held on file at the DEQ and may be viewed upon request.

The Final TMDL document includes necessary TMDLs in the Boulder: those water body-pollutant combinations that demonstrated exceedences of water quality standards. Where assessments demonstrated that waters were meeting narrative water quality standards, these assessments have been removed from the final TMDL document and are kept on-file on the DEQ. Consequently, **Sections 4.3 and 4.4** (sediment and nutrient assessments) have been removed from the final document.

Comment #1:

The sediment assessment **Section 4.3** and **Nutrient Section 4.4** are clear and reasonable. The documentation provides a good summary of sediment and nutrient data and develops a clear documentation of the non-impairment and no need for sediment and nutrient TMDLs at this time. We support your recommendation of continued nutrient monitoring, particularly in the East Boulder River. The sediment conclusion is consistent with our East Boulder River monitoring which as documented low sediment concentrations with some increases below the NF boundary due to geomorphic changes, agricultural activity, and residences.

The **Section 4.5** conclusion of copper and lead impairment is not as well supported since the existing metals data is quite limited. However, the suggestion of historic mining activities in Basin Creek as a likely source of the high flows metals seems logical. The primary source may be instream sediments in Basin Creek which could be mobilized during snowmelt runoff which would account for the data which shows exceedences only occurring at flows (in the Boulder River) over 1500 cfs. The quality information, particularly regarding potential sources, could help clarify the sources of the elevated copper and iron. I agree with the monitoring goals on page 91, but would suggest some sediment analysis in Basin Creek sediments to augment the surface water data. This additional data may help refine the TMDL allocations in **Section 5.2** which are based on very limited data.

The restoration strategy in **Section 5.4** provides helpful information about potential funding sources and programs for any abandoned mine rehabilitation. It would be helpful if you would contact our Forest Hydrologist, Mark Story (587-6735) for field recon assistance support for potential future abandoned mine reclamation activities in the Basin Creek area.

Comment #1 Response:

The DEQ thanks you for your comment and your support. Because the East Boulder River appears to be meeting water quality criteria for sediment and nutrients and TMDLs are not developed for these pollutants, these assessments (**Sections 4.3 and 4.4**) were edited from the final TMDL document and are kept on file at the DEQ.

It is agreed that metals data is rather limited in some stretches of the Boulder River. Additional metals data collection (both water column samples and stream sediment samples) is planned at high and low flows in order to refine metals source assessment information and to determine the magnitude and spatial extent of sources. A framework metals monitoring plan is provided in **Section 4.5.5.1**. It is the intent of the DEQ to fully cooperate with USFS and all interested parties in the assessment and remediation/restoration of abandoned mine sites in the watershed.

Comment #2:

Section 2.3 Biological Resources

Section 2.3.1 Fisheries

Table 2-2 (page 22) lists fish species, location and relative abundance for the East Boulder River. As part of the Good Neighbor Agreement, Stillwater Mining Company conducted fish population surveys in 2001 and 2003 that should be used to update information on fish populations in the East Boulder River. Results from the 2001 and 2003 population surveys generally do not agree with relative abundance data provided in **Table 2-2**. For example, **Table 2-2** lists Yellowstone Cutthroat Trout as abundant/common and results from the 2001 and 2003 studies indicate Yellowstone Cutthroat Trout are rare. In general the 2001 and 2003 studies show Brown Trout and Rainbow Trout as the most abundant species observed.

Fish tissue analyses were conducted on the East Boulder River in 1997 and 2003. Samples were collected using standard fish tissue sampling protocols, and analyzed for mercury in fillet tissue both years. Harvested liver tissue was analyzed for lead, chromium, copper, cadmium, arsenic and silver in 1997 and 2003 with the addition of zinc in 2003. In 1997 metals data was mostly below analytical detection limits for Hg, Pb, Cr, Cd, As and Ag. Copper was above detection limits in all samples. In 2003 mean metals concentrations were higher in all cases except for Pb which exhibited a lower overall mean concentration. In all cases metal levels were below EPA fish tissue screening levels for health risks, non-cancer hazards, and FDA action and tolerance guidelines. Fish tissue Hg was well below the Montana recommended threshold of 0.10 parts per million restricting consumption. Results from 1997 and 2003 do not indicate the need for restrictions or limitations on fish consumption in the East Boulder River.

The following studies discussed above were provided to the Montana Department of Environmental Quality on 4 June 2007 for consideration in the final TMDL report:

1. “Final East Boulder River Fisheries Monitoring, 2001” prepared for Montana Trout Unlimited by Apex Aquatics dated March 2002.

2. “East Boulder River Fisheries Monitoring Report 2003” prepared for Montana Trout Unlimited by GEI Consultants, Inc. dated January 2004.
3. “Fish Tissue Analyses East Boulder River 1997 and 2003” prepared for Stillwater Mining Company East Boulder Mine by The Advent Group dated April 2004.

Comment #2 Response:

DEQ thanks you for the additional fisheries data and reports. The data and information provided in **Table 2-2** comes from the Montana Fish Wildlife and Parks fish population surveys. The final document (**Section 2.3**) was amended to include the additional information provided from USFS fish population surveys conducted in 2001 and 2003. Original FWP survey data provided in **Table 2-2** was not amended.

Fish tissue data collected in 1997 and 2003 was from the upper reach of the East Boulder River (MT43B004_133). As segment MT43B004_133 was listed as fully supporting its beneficial uses, a complete review of data and water quality condition was not conducted for this document. For this reason the data and information was not included in the final TMDL document. The information is relevant, however, to water quality conditions in the upper East Boulder River and will be entered into DEQ’s water quality library for future consideration in subsequent beneficial use evaluations.

Comment #3:

Section 4.1 Introduction

Table 4-1 provides the 2006 303(d) listings in the Boulder Watershed TMDL Planning Area and lists no probable causes of impairment for MT43B004_143 (East Boulder River from National Forest boundary to the headwaters). CRC would like to see chlorophyll-a evaluated as a probable cause for impairment in this segment of the East Boulder River in future 303(d) listing evaluations.

Periphyton monitoring including chlorophyll-a sampling conducted in 2006 for this segment of river resulted in chlorophyll-a concentrations averaging approximately 122 mg/m² over three monitoring locations. These results are approximately 45% higher than chlorophyll-a concentrations observed at these monitoring locations in 2005, and greater than the Montana DEQ benthic chlorophyll-a impairment criteria of 50 mg/m². The increase in chlorophyll-a concentrations is likely attributed to expansive growth of *Didymosphenia geminata* that has been observed since 2004. Results from the 2006 monitoring have been summarized in “East Boulder River Biomonitoring Monitoring Report September 13-15, 2006” prepared for Stillwater Mining Company by Advent-Environ dated May 2007.

Comment #3 Response:

DEQ is keenly aware of the recent *Didymosphenia geminata* proliferation in segment MT43B004_133 and recommends continued monitoring activities (**Section 4.6**) to track and assess the mechanisms influencing biologic productivity in this reach. Because segment MT43B004_133 was not listed as impaired on the State’s most recent (2006) impaired waters list, TMDL development activities did not establish specific water

quality criteria (targets) for this reach, nor was recent data evaluated for compliance with water quality criteria.

DEQ shares concern over recent *D. geminata* proliferation and elevated chlorophyll-a levels in this reach, and maintains a process for assessing and evaluating streams for beneficial use impairment, defined in the State's *Monitoring and assessment Quality Assurance Project Plan*. Please also refer to MCA 75-5-702 for articulation of the State's public involvement process for updating the list of impaired water bodies.

Comment #4:

Section 4.4.4.2 East Boulder Mine

DEQ recommendations to assess potential impacts from the East Boulder Mine (page 66) include continued biological monitoring in accordance with the "Biological Monitoring Plan for Stillwater Mining Company – East Boulder Project" (1998). Since development of this plan the Montana DEQ permitting and compliance division has allowed modifications to the programs described in that document. Annual monitoring of chlorophyll *a* and macroinvertebrates is now required at sites EBR-002, -003 and -004. The macroinvertebrate requirement is also dependent on a review of the data on an annual basis by the agencies to evaluate the need for continued monitoring.

CRC agrees that an annual biological monitoring program including periphyton, chlorophyll-a and macroinvertebrates is warranted in the upper East Boulder River to monitor the ongoing *D. geminata* bloom; however, CRC does not believe SMC should be responsible for monitoring non-mine related impacts. Interested parties (MDEQ, USFS, SMC, CRC) should work together to develop a monitoring plan including funding (319 funds) for ongoing monitoring of this unique situation.

SMC monitoring plans for 2007 include chlorophyll-a and macroinvertebrate monitoring at sites EBR-002, EBR-003 and EBR-004. In order to continue annual full spectrum monitoring in 2007 additional funding is required to collect, analyze and interpret results for periphyton samples.

Comment #4 Response:

DEQ understands and acknowledges that modifications to the original biological monitoring plan, *Biological Monitoring Plan for Stillwater Mining Company – East Boulder Project*, and contends that the collaboration among agencies and local stakeholders to modify the Plan is appropriate. DEQ agrees that monitoring efforts aside from regulatory requirements should be a collaborative effort among agencies and stakeholders in the watershed, yet does not assign any specific responsibility for monitoring actions. DEQ encourages collaborative funding approaches to address monitoring needs, and recommends that interested parties contact DEQ staff regarding 319 funding opportunities through the DEQ.

Comment #5:

The Montana League of Cities and Towns has reviewed the Boulder River TMDL and the League's comments on the nutrient aspects of this TMDL are attached. Although this TMDL does not establish load allocations for nutrient parameters, it does establish procedures for setting extremely restrictive instream targets that may serve as the basis for future allocations in other watersheds. These procedures have not been adopted in state law or approved by USEPA under the Clean Water Act. We are greatly concerned that this action, as in other recent TMDLs prepared by the Department, establishes requirements that are not necessary to ensure that uses of the stream are being protected. Moreover, it is apparent that the cost impacts associated with these "targets" will be severe and will cause "widespread adverse economic impacts". Prior to imposing such onerous and questionable burdens on Montana communities, there must be a high certainty that the expenditures are necessary and will produce demonstrable environmental benefits.

The approach being applied by the Department includes a target level for benthic chlorophyll 50 mg/m². This benthic chlorophyll target is a very low value, in particular when compared with the adopted water quality standard for the Clark Fork River (100 mg/m² growing season average; 150 mg/m² maximum). If uses in the Clark Fork River are not affected at these much higher levels, we question why a much lower level is required to protect primary contact recreation in East Boulder River and elsewhere. Moreover, whether or how primary contact recreation (swimming) is affected at this level of plant growth is not demonstrated in the TMDL or its reference documents.

The Department has also developed target levels for nitrogen and phosphorus based on a statistical evaluation of reference streams in the Middle Rockies ecoregion. Specifically, nutrient concentrations at the 85th percentile of the reference stream concentration are being used as an indicator of beneficial use impairment. However, no demonstration is made to show that these target levels are necessary to maintain beneficial uses. In fact, it is not apparent that nutrient levels were the primary factors controlling plant growth for these streams.

The chosen target levels are extremely low and will result in very significant treatment costs for communities throughout the state if a similar approach is applied elsewhere. In fact, we question whether treatment technologies exist that will achieve compliance under these conditions. Consider, for example, the total nitrogen target of 0.38 mg/L (the 85th percentile of the distribution for reference streams). It is unlikely that any assimilative capacity would exist for point sources if such "targets" were applied to downstream waters. As it is expected that the best technology cannot achieve this level of treatment, a facility would need to remove the discharge from the stream to comply with the target. In many cases, this will result in significantly diminished downstream flow and the loss of all beneficial uses. Thus, implementation of this approach may result in more aquatic life harm than improvement.

We are aware that other states are not using the "reference stream" approach because the approach has no objective connection to environmental need. The implications for this approach are very significant and we question whether it is prudent for the Department to proceed in this manner prior to a full public discussion of this issue and the adoption of state-side nutrient

standards. We request that further action on this TMDL be deferred until a stakeholder meeting regarding the development and application of new nutrient standard occurs.

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Comment #5 Response:

DEQ appreciates the thoroughness of the *Montana League of Cities & Towns*’ (the League) comments and the opportunity to respond. Detailed comments were submitted by the League relating to the Department’s development and application of nutrient water quality targets within the Boulder Watershed TMDL draft document. Because nutrients and sediment do not presently appear to be impairing East Boulder River segments MT43B004_141 and MT43B004_142, and TMDLs have not been developed at this time, nutrient and sediment assessments (previous **Sections 4.3 and 4.4**) have been removed from the final Boulder Watershed TMDL document, and will be held on-file at the DEQ. Due to this edit, responses to specific technical comments provided by the League regarding these assessments are not provided.

DEQ acknowledges the League’s concern regarding the application of nutrient targets for setting wasteload allocations, and shares an interest in ensuring that ‘widespread adverse economic impacts’ are not the result of TMDL allocations. As defined in MCA 75-5-703(1):

“the department shall consider applicable guidance from the federal environmental protection agency, as well as the environmental, economic, and social costs and benefits of developing and implementing a TMDL.”

As the Department is specifically directed to consider the ‘environmental, economic and social costs and benefits’, any required wasteload allocations resultant from TMDL development must take into account much more than a strict application of nutrient targets in order to calculate load limits. It is the intent of the Department to approach any potential wasteload allocations with an understanding of economic considerations, technological limitations, and the cumulative influences of upstream and downstream

sources in order to develop equitable allocation strategies. The Department understands the implications of establishing numeric nutrient criteria for Montana water bodies, welcomes dialogue regarding criteria and its application, and will continue to engage municipalities and individual permitted dischargers in the Departments public process related to numeric standards development and their application.

