UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
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SEP 29 2014

Ref: 8EPR-EP

Mr. George Mathieus
Administrator
Planning, Prevention and Assistance Division
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Re: Approval of the Central Clark Fork Basin Tributaries TMDLs and Water Quality Improvement Plan

Dear Mr. Mathieus,

The U.S. Environmental Protection Agency has completed review of the total maximum daily loads (TMDLs) submitted by your office for the water bodies listed in the enclosure to this letter. In accordance with the Clean Water Act (33 U.S.C. §1251 *et. seq.*), the EPA approves all aspects of the TMDLs referenced above as developed for the water quality limited water bodies as described in Section 303(d)(1). Based on our review, the EPA feels the separate elements of the TMDLs listed in the enclosed table adequately address the pollutants of concern as given in the table, taking into consideration seasonal variation and a margin of safety.

Thank you for submitting these TMDLs for our review and approval. If you have any questions, please contact Peter Brumm on my staff at (406) 457-5029.

Sincerely,

Martin Hestmark
Assistant Regional Administrator
Office of Ecosystems Protection
and Remediation

Enclosures
1) Central Clark Fork Basin Tributaries TMDL Summary Table
2) Central Clark Fork Basin Tributaries TMDL Decision Document

cc: Dean Yashan, MDEQ
Robert Ray, MDEQ
Michael Pipp, MDEQ
Carrie Greeley, MDEQ

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Dry Creek, headwaters to mouth (Clark Fork River)	MT76M002_170	Alteration in streamside or littoral vegetative covers	Not a Pollutant	Addressed by TN TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Low flow alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Total Nitrogen	Total Nitrogen	TMDL	Total nitrogen concentration	≤ 0.275 mg/L	NA	NA	Natural background	1.43	9.61	Implicit
									Human-caused (composite)	8.18		
Flat Creek, headwaters to mouth (Clark Fork River)	MT76M002_180	Physical substrate habitat alterations	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Flat Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76M002_180	Sedimentation/Siltation	Sediment	TMDL	Percentage of surface fine sediment in riffles via pebble count (reach average)	B & C stream types: 6mm ≤ 15%; 2mm ≤ 8%	NA	NA	Roads	0.2	543	Implicit
						E stream types: 6mm ≤ 30%; 2mm ≤ 15%			Streambank erosion	435.2		
					Percentage of surface fine sediment < 6mm in pool tails and riffles via grid toss (reach average)	B & C stream types: ≤ 9% for pool tails, ≤ 7% for riffles			Upland sediment sources	107.6		
						E stream types: ≤ 18% for pool tails, ≤ 14% for riffles						
					Bankfull width/depth ratio (reach median)	B & C stream types with bankfull width < 30ft: ≤ 21						
						B & C stream types with bankfull width > 30ft: ≤ 32						
						E stream types: ≤ 8						
					Entrenchment ratio (reach median)	B stream types: ≥ 1.4						
						C stream types: ≥ 2.7						
						E stream types: ≥ 2.3						
					Residual pool depth (reach average)	< 20' bankfull width : ≥ 0.6 (ft)						
						20' - 35' bankfull width : ≥ 1.2 (ft)						
						> 35' bankfull width : ≥ 1.6 (ft)						
					Pools/mile	< 20' bankfull width : ≥ 81						
						20' - 35' bankfull width: ≥ 38						
						> 35' bankfull width : ≥ 25						
					LWD/mile	< 20' bankfull width : ≥ 359						
						20' - 35' bankfull width : ≥ 242						
						> 35' bankfull width : ≥ 148						
					Percent of streambank with understory shrub cover (reach average)	≥ 58% understory shrub cover						
					Significant and controllable sediment sources	Identification of significant and controllable anthropogenic sediment sources throughout the watershed						
					Macroinvertebrate bioassessment metric	O/E ≥ 0.80						
					Periphyton Increaser Taxa	Probability of Impairment <51%						

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Trout Creek, headwaters to mouth (Clark Fork River)	MT76M002_050	Alteration in streamside or littoral vegetative covers	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Physical substrate habitat alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Turbidity	Turbidity	TMDL	Nephelometric turbidity units (NTUs)	A change in 5 NTUs above naturally occurring turbidity	0	Suction dredge permit (MTG370343)	All nonpoint sources (composite)	2 NTU (above naturally occurring)	5 NTU (above naturally occurring)	3 NTU
									Naturally occurring (SSC surrogate)	526.5	3623	Implicit
									Human-caused (composite; SSC surrogate)	2946.5		
									Wood products manufacturing facilities (SSC surrogate)	150		
Nemote Creek, headwaters to mouth (Clark Fork River)	MT76M002_160	Chlorophyll-*a*	Not a Pollutant	Addressed by TN and TP TMDLs in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Low flow alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Total Nitrogen	Total Nitrogen	TMDL	Total nitrogen concentration	≤ 0.275 mg/L	NA	NA	Natural background	1.16	7.76	Implicit
									Human-caused (composite)	6.6		
		Total Phosphorus	Total Phosphorus	TMDL	Total phosphorus concentration	≤ 0.025 mg/L	NA	NA	Natural background	0.17	0.7	Implicit
									Human-caused (composite)	0.53		

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Nemote Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76M002_160	Temperature, water	Temperature	TMDL	Riparian Health-Shade	77% - 88% effective shade based on reference reaches	NA	NA	Natural and human sources (composite)	1107	1107	Implicit
					Width/Depth Ratio	Rosgen B & C stream types with bankfull width < 30ft: ≤ 21 Rosgen B & C stream types with bankfull width > 30ft: ≤ 32						
					Instream Flows (Water Use)	Application of all water conservation practices						
West Fork Petty Creek, headwaters to mouth (Petty Creek)	MT76M002_100	Chlorophyll-*a*	Not a Pollutant	Addressed by TP TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Total Phosphorus	Total Phosphorus	TMDL	Total phosphorus concentration	≤ 0.025 mg/L	NA	NA	Natural background	0.13	0.56	Implicit
									Human-caused (composite)	0.43		
		Sedimentation/Siltation	Sediment	TMDL	Same as Flat Creek (MT76M002_180)	Same as Flat Creek (MT76M002_180)	NA	NA	Roads	0.5	802	Implicit
									Streambank erosion	599.8		
									Upland sediment sources	201.7		
Petty Creek, headwaters to mouth (Clark Fork River)	MT76M002_090	Alteration in streamside or littoral vegetative covers	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Low flow alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Petty Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76M002_090	Sedimentation/Siltation	Sediment	TMDL	Same as Flat Creek (MT76M002_180)	Same as Flat Creek (MT76M002_180)	10.5	Construction Storm Water Permit (MTR100000)	Roads	1	3727.6	Implicit
							5.5	Industrial Storm Water Permit (MTR000095)	Streambank erosion	2103.4		
									Upland sediment sources	1607.2		
		Temperature, water	Temperature	TMDL	Riparian Health-Shade	69% - 83% effective shade based on 50 foot buffer with medium density trees between river miles 7.0 and the mouth, and 50 foot buffer with hydrophytic shrubs between river miles 7.0 and upstream	NA	NA	Natural and human sources (composite)	6181	6181	Implicit
					Width/Depth Ratio	Rosgen B & C stream types with bankfull width < 30ft: ≤ 21 Rosgen B & C stream types with bankfull width > 30ft: ≤ 32						
					Instream Flows (Water Use)	Application of all reasonable water conservation practices						
Stony Creek, headwaters to mouth (Ninemile Creek)	MT76M004_020	Total Phosphorus	Total Phosphorus	TMDL	Total phosphorus concentration	≤ 0.025 mg/L	NA	NA	Natural background	0.008	0.034	Implicit
									Human-caused (composite)	0.026		
Grant Creek, headwaters to mouth (Clark Fork River)	MT76M002_130	Alteration in streamside or littoral vegetative covers	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Excess Algal Growth	Not a Pollutant	Addressed by TN TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Grant Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76M002_130	Low flow alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Nitrate/Nitrite (Nitrite + Nitrate as N)	Nitrate + Nitrite	Addressed by TN TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Total Nitrogen	Total Nitrogen	TMDL	Total nitrogen concentration	≤ 0.300 mg/L	0	Missoula MS4 (MTR040007)	Natural background	10.05	31.72	Implicit
									Human-caused (composite)	21.67		

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Grant Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76M002_130	Sedimentation /Siltation	Sediment	TMDL	Percentage of surface fine sediment in riffles via pebble count (reach average)	6mm ≤ 14%; 2mm ≤ 10%	7.8	Missoula MS4 (MTR040007)	Roads	0.1	1440.2	Implicit
						E stream types: 6mm ≤ 36%; 2mm ≤20%	2.2	Construction Storm Water Permit (MTR100000)	Streambank erosion	1224.5		
					Percentage of surface fine sediment < 6mm in pool tails and riffles via grid toss (reach average)	≤ 6% for pool tails, ≤ 10% for riffles	0.6	Industrial Storm Water Permit (MTR000095)	Upland sediment sources	205.1		
					Bankfull width/depth ratio (reach median)	Bankfull width ≤ 35ft: ≤ 16						
						Bankfull width > 35ft: ≤ 29						
						E stream types: 6-11						
					Entrenchment ratio (reach median)	B stream types: > 1.5						
						C stream types: > 2.5						
						E stream types: > 2.0						
					Residual pool depth (reach average)	< 20' bankfull width : > 0.8 (ft)						
						20' - 35' bankfull width : ≥ 1.1 (ft)						
						> 35' bankfull width : ≥ 1.3 (ft)						
					Pools/mile	< 20' bankfull width : ≥ 84						
						20' - 35' bankfull width: ≥ 49						
						> 35' bankfull width : ≥ 26						
					LWD/mile	< 20' bankfull width : ≥ 573						
						20' - 35' bankfull width : ≥ 380						
						> 35' bankfull width : ≥ 195						
					Percent of streambank with understory shrub cover (reach average)	≥ 57% understory shrub cover						
					Significant and controllable sediment sources	Identification of significant and controllable anthropogenic sediment sources throughout the watershed						
					Macroinvertebrate bioassessment metric	O/E ≥ 0.80						
					Periphyton Increaser Taxa	NA						

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Grant Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76M002_130	Temperature, water	Temperature	TMDL	Riparian Health-Shade	59% - 69% effective shade based on reference reaches	0	Missoula MS4 (MTR040007)	Natural and human sources (composite)	397	470	Implicit
					Width/Depth Ratio	Rosgen types A & B: a width/depth ratio ≤ 15 Rosgen types C & E, where bankfull width > 12ft: a width/depth ratio ≤ 22	53	Econo Lodge heat exchanger (MT0029840)				
					Instream Flows (Water Use)	Application of all reasonable water conservation practices						
					Missoula MS4	Follow the minimum control measures provided in the MPDES permit authorization for permit MTR040007, or any updated runoff reduction or initial flush stormwater capture control measures in subsequent permit renewals.						
					MPDES Permit MT0029840	No more than a 1.0°F increase when the receiving water is cooler than 66.5°F, no increase above 67°F when the receiving water is 66 – 66.5°F, and no more than a 0.5°F increase under conditions where the receiving water is greater than 66.5°F						
Cramer Creek, headwaters to mouth (Clark Fork River)	MT76E004_020	Cause Unknown	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Physical substrate habitat alterations	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Cramer Creek, headwaters to mouth (Clark Fork River) *(Cont.)*	MT76E004_020	Sedimentation/Siltation	Sediment	TMDL	Percentage of surface fine sediment in riffles via pebble count (reach average)	A & B stream types: 6mm ≤ 18%; 2mm ≤ 7%	NA	NA	Roads	0.2	1205.5	Implicit
						C & E stream types: 6mm ≤ 23%; 2mm ≤10%			Streambank erosion	905.6		
					Percentage of surface fine sediment < 6mm in pool tails and riffles via grid toss (reach average)	Not Determined			Upland sediment sources	299.7		
					Bankfull width/depth ratio (reach median)	A & B stream types : < 15						
						C & E stream types: ≥ 12 ≤ 22						
					Entrenchment ratio (reach median)	A & B stream types: 1.4-2.2						
						C & E stream types: > 2.2						
					Residual pool depth (reach average)	A & B stream types : ≥ 0.8 (ft)						
						C & E stream types: ≥ 1.0 (ft)						
					Pools/mile	A & B stream types: ≥ 15						
						C & E stream types: ≥ 12						
					LWD/mile	Not Determined						
					Percent of streambank with understory shrub cover (reach average)	Not Determined						
					Significant and controllable sediment sources	Identification of significant and controllable anthropogenic sediment sources throughout the watershed						
					Macroinvertebrate bioassessment metric	O/E ≥ 0.80						
					Periphyton Increaser Taxa	NA						

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Tenmile Creek, headwaters to mouth (Bear Creek)	MT76E004_030	Alteration in streamside or littoral vegetative covers	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Total Phosphorus	Total Phosphorus	TMDL	Total phosphorus concentration	≤ 0.030	NA	NA	Natural background	0.05	0.15	Implicit
									Human-caused (composite)	0.1		
		Sedimentation/Siltation	Sediment	TMDL	Same as Cramer Creek (MT76E004_020)	Same as Cramer Creek (MT76E004_020)	NA	NA	Roads	0.1	515.2	Implicit
									Streambank erosion	381.9		
									Upland sediment sources	133.2		
Deep Creek, headwaters to mouth (Bear Creek)	MT76E004_070	Chlorophyll-*a*	Not a Pollutant	Addressed by Nitrate + Nitrite TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Low flow alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Nitrate/Nitrite (Nitrate + Nitrite as N)	Nitrate + Nitrite	TMDL	Nitrite + Nitrate concentration	≤0.100	NA	NA	Natural background	0.01	0.06	Implicit
									Human-caused (composite)	0.05		
		Sedimentation/Siltation	Sediment	TMDL	Same as Cramer Creek (MT76E004_020)	Same as Cramer Creek (MT76E004_020)	NA	NA	Roads	0.2	549.2	Implicit
									Streambank erosion	358.9		
									Upland sediment sources	190.1		

Waterbody and Stream Description	Waterbody ID	Cause of Impairment	Pollutant Addressed by TMDL	DEQ Action	TMDL End Points		Wasteload Allocations		Load Allocations		TMDL (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	MOS
					Indicator	Threshold Values	WLA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec)	WLA Permitted Facilities (Permit Number)	Source	LA (nutrients - lbs/day; sediment - tons/yr; metals - lbs/day; temperature - kcal/sec; turbidity - NTU and SSC lbs/day)		
Mulkey Creek, headwaters to mouth (Clark Fork River)	MT76E004_050	Sedimentation/Siltation	Sediment	TMDL	Same as Cramer Creek (MT76E004_020)	Same as Cramer Creek (MT76E004_020)	NA	NA	Roads	0.1	522.8	Implicit
									Streambank erosion	305.6		
									Upland sediment sources	217.1		
Rattler Gulch, headwaters to mouth (Clark Fork River)	MT76E004_060	Alteration in streamside or littoral vegetative covers	Not a Pollutant	Addressed by sediment TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Chlorophyll-*a*	Not a Pollutant	Addressed by TP TMDL in this document	NA	NA	NA	NA	NA	NA	NA	NA
		Low flow alterations	Not a Pollutant	Partially addressed	NA	NA	NA	NA	NA	NA	NA	NA
		Total Phosphorus	Total Phosphorus	TMDL	Total phosphorus concentration	≤ 0.030	NA	NA	Natural background	0.001	0.003	Implicit
									Human-caused (composite)	0.002		
		Sedimentation/Siltation	Sediment	TMDL	Same as Cramer Creek (MT76E004_020)	Same as Cramer Creek (MT76E004_020)	NA	NA	Roads	<0.1	842.4	Implicit
									Streambank erosion	570.7		
									Upland sediment sources	271.7		

ENCLOSURE 2

EPA REGION 8 TMDL REVIEW FORM AND DECISION DOCUMENT

TMDL Document Info:

Document Name:	Central Clark Fork Basin Tributaries TMDLs and Water Quality Improvement Plan
Submitted by:	Montana Department of Environmental Quality
Date Received:	August 29, 2014
Review Date:	September 18, 2014
Reviewer:	Peter Brumm
Rough Draft / Public Notice / Final Draft?	Final Draft
Notes:	

Reviewers Final Recommendation(s) to EPA Administrator (used for final draft review only):

- ☒ Approve
- ☐ Partial Approval
- ☐ Disapprove
- ☐ Insufficient Information

Approval Notes: *Based on the review presented below, I recommend approval of the TMDLs submitted in this document.*

This document provides a standard format for EPA Region 8 to provide comments to state TMDL programs on TMDL documents submitted to EPA for either formal or informal review. All TMDL documents are evaluated against the TMDL review elements identified in the following 8 sections:

1. Problem Description
   - 1.1. TMDL Document Submittal
   - 1.2. Identification of the Waterbody, Impairments, and Study Boundaries
   - 1.3. Water Quality Standards
2. Water Quality Target
3. Pollutant Source Analysis
4. TMDL Technical Analysis
   - 4.1. Data Set Description
   - 4.2. Waste Load Allocations (WLA)
   - 4.3. Load Allocations (LA)
   - 4.4. Margin of Safety (MOS)
   - 4.5. Seasonality and variations in assimilative capacity
5. Public Participation
6. Monitoring Strategy
7. Restoration Strategy
8. Daily Loading Expression

Under Section 303(d) of the Clean Water Act, waterbodies that are not attaining one or more water quality standard (WQS) are considered "impaired." When the cause of the impairment is determined to be a pollutant, a TMDL analysis is required to assess the appropriate maximum allowable pollutant loading rate. A TMDL document consists of a technical analysis conducted to: (1) assess the maximum pollutant loading rate that a waterbody is able to assimilate while maintaining water quality standards; and (2) allocate that assimilative capacity among the known sources of that pollutant. A well written TMDL document will describe a path forward that may be used by those who implement the TMDL recommendations to attain and maintain WQS.

Each of the following eight sections describes the factors that EPA Region 8 staff considers when reviewing TMDL documents. Also included in each section is a list of EPA's review elements relative to that section, a brief summary of the EPA reviewer's findings, and the reviewer's comments and/or suggestions. Use of the verb "must" in this review form denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable.

This review form is intended to ensure compliance with the Clean Water Act and that the reviewed documents are technically sound and the conclusions are technically defensible.

1. Problem Description

A TMDL document needs to provide a clear explanation of the problem it is intended to address. Included in that description should be a definitive portrayal of the physical boundaries to which the TMDL applies, as well as a clear description of the impairments that the TMDL intends to address and the associated pollutant(s) causing those impairments. While the existence of one or more impairment and stressor may be known, it is important that a comprehensive evaluation of the water quality be conducted prior to development of the TMDL to ensure that all water quality problems and associated stressors are identified. Typically, this step is conducted prior to the 303(d) listing of a waterbody through the monitoring and assessment program. The designated uses and water quality criteria for the waterbody should be examined against available data to provide an evaluation of the water quality relative to all applicable water quality standards. If, as part of this exercise, additional WQS problems are discovered and additional stressor pollutants are identified, consideration should be given to concurrently evaluating TMDLs for those additional pollutants. If it is determined that insufficient data is available to make such an evaluation, this should be noted in the TMDL document.

1.1 TMDL Document Submittal

When a TMDL document is submitted to EPA requesting review or approval, the submittal package should include a notification identifying the document being submitted and the purpose of the submission.

Review Elements:

☒ Each TMDL document submitted to EPA should include a notification of the document status (e. g., pre-public notice, public notice, final), and a request for EPA review.

☒ Each TMDL document submitted to EPA for final review and approval should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter should contain such identifying information as the name and location of the waterbody and the pollutant(s) of concern, which matches similar identifying information in the TMDL document for which a review is being requested.

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information ☐ N/A

Summary: This document was submitted to EPA for review on August 29, 2014. An adequate cover letter was included.

Comments:

1. 2 Identification of the Waterbody, Impairments, and Study Boundaries

The TMDL document should provide an unambiguous description of the waterbody to which the TMDL is intended to apply and the impairments the TMDL is intended to address. The document should also clearly delineate the physical boundaries of the waterbody and the geographical extent of the watershed area studied. Any additional information needed to tie the TMDL document back to a current 303(d) listing should also be included.

Review Elements:

☒ The TMDL document should clearly identify the pollutant and waterbody segment(s) for which the TMDL is being established. If the TMDL document is submitted to fulfill a TMDL development requirement for a waterbody on the state's current EPA approved 303(d) list, the TMDL document submittal should clearly identify the waterbody and associated impairment(s) as they appear on the State's/Tribe's current EPA approved 303(d) list, including a full waterbody description, assessment unit/waterbody ID, and the priority ranking of the waterbody. This information is necessary to ensure that the administrative record and the national TMDL tracking database properly link the TMDL document to the 303(d) listed waterbody and impairment(s).

☒ One or more maps should be included in the TMDL document showing the general location of the waterbody and, to the maximum extent practical, any other features necessary and/or relevant to the understanding of the TMDL analysis, including but not limited to: watershed boundaries, locations of major pollutant sources, major tributaries included in the analysis, location of sampling points, location of discharge gauges, land use patterns, and the location of nearby waterbodies used to provide surrogate information or reference conditions. Clear and concise descriptions of all key features and their relationship to the waterbody and water quality data should be provided for all key and/or relevant features not represented on the map

☒ If information is available, the waterbody segment to which the TMDL applies should be identified/geo-referenced using the National Hydrography Dataset (NHD). If the boundaries of the TMDL do not correspond to the Waterbody ID(s) (WBID), Entity_ID information or reach code (RCH_Code) information should be provided. If NHD data is not available for the waterbody, an alternative geographical referencing system that unambiguously identifies the physical boundaries to which the TMDL applies may be substituted.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: Section 2 provides a description of watershed characteristics with associated maps. The waterbody/pollutant combinations addressed are summarized in Enclosure 1 and are clearly described in the document. The number of TMDLs developed and the pollutants for which they were developed are summarized below:

Central Clark Fork Tributaries TMDLs

Number of TMDLs:	22
Number of Impairments Addressed by TMDLs:	23
Number of Sediment TMDLs:	9
Number of Turbidity TMDLs:	1
Number of Nutrient TMDLs:	9
Number of Temperature TMDLs:	3
Number of Impairments Proposed for Delisting:	0

This document contains 22 TMDLs addressing 23 impairments. Because nitrate/nitrite is a component of total nitrogen, a single total nitrogen TMDL was established to address both of the total nitrogen and the nitrate/nitrite impairments (see Section 6.6.5.4). This document address 22 court ordered impairments (per the second amended judgment, dated September 27, 2011). One new impairment, the total nitrogen pollutant mentioned above, was added to the 303(d) list in 2014. No delistings are proposed in this document.

Comments:

1. 3 Water Quality Standards

TMDL documents should provide a complete description of the water quality standards for the waterbodies addressed, including a listing of the designated uses and an indication of whether the uses are being met, not being met, or not assessed. If a designated use was not assessed as part of the TMDL analysis (or not otherwise recently assessed), the documents should provide a reason for the lack of assessment (e. g., sufficient data was not available at this time to assess whether or not this designated use was being met).

Water quality criteria (WQC) are established as a component of water quality standard at levels considered necessary to protect the designated uses assigned to that waterbody. WQC identify quantifiable targets and/or qualitative water quality goals which, if attained and maintained, are intended to ensure that the designated uses for the waterbody are protected. TMDLs result in maintaining and attaining water quality standards by determining the appropriate maximum pollutant loading rate to meet water quality criteria, either directly, or through a surrogate measurable target. The TMDL document should include a description of all applicable water quality criteria for the impaired designated uses and address whether or not the criteria are being attained, not attained, or not evaluated as part of the analysis. If the criteria were not evaluated as part of the analysis, a reason should be cited (e. g. insufficient data were available to determine if this water quality criterion is being attained).

Review Elements:

☒ The TMDL must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the anti-degradation policy. (40 C. F. R. §130. 7(c)(1)).

☒ The purpose of a TMDL analysis is to determine the assimilative capacity of the waterbody that corresponds to the existing water quality standards for that waterbody, and to allocate that assimilative capacity between the identified sources. Therefore, all TMDL documents must be written to meet the existing water quality standards for that waterbody (CWA §303(d)(1)(C)). *Note: In some circumstances, the load reductions determined to be necessary by the TMDL analysis may prove to be infeasible and may possibly indicate that the existing water quality standards and/or assessment methodologies may be erroneous. However, the TMDL must still be determined based on existing water quality standards. Adjustments to water quality standards and/or assessment methodologies may be evaluated separately, from the TMDL.*

☒ The TMDL document should describe the relationship between the pollutant of concern and the water quality standard the pollutant load is intended to meet. This information is necessary for EPA to evaluate whether or not attainment of the prescribed pollutant loadings will result in attainment of the water quality standard in question.

☒ If a standard includes multiple criteria for the pollutant of concern, the document should demonstrate that the TMDL value will result in attainment of all related criteria for the pollutant. For example, both acute and chronic values (if present in the WQS) should be addressed in the document, including consideration of magnitude, frequency and duration requirements.

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: The document includes a description of all applicable water quality standards associated with each pollutant groups (sediment, nutrients, temperature, turbidity) in Section 3.0 and Appendix B. Additionally, the designated use support status for each impaired waterbody and whether criteria are being attained is included individually by pollutant group.

Comments:

2. Water Quality Targets

TMDL analyses establish numeric targets that are used to determine whether water quality standards are being achieved. Quantified water quality targets or endpoints should be provided to evaluate each listed pollutant/water body combination addressed by the TMDL, and should 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 water quality target. For pollutants with narrative standards, the narrative standard should 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 a variety of targets representing water column sediment such as TSS, embeddedness, stream morphology, up-slope conditions and a measure of biota).

Review Elements:

☒ The TMDL should identify a numeric water quality target(s) for each waterbody pollutant combination. The TMDL target is a quantitative value used to measure whether or not the applicable water quality standard is attained. *Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e. g., chromium) contained in the water quality standard. Occasionally, the pollutant of concern is different from the parameter that is the subject of the numeric water quality target (e. g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as a numerical dissolved oxygen criterion). In such cases, the TMDL should explain the linkage between the pollutant(s) of concern, and express the quantitative relationship between the TMDL target and pollutant of concern. In all cases, TMDL targets must represent the attainment of current water quality standards.*

☒ When a numeric TMDL target is established to ensure the attainment of a narrative water quality criterion, the numeric target, the methodology used to determine the numeric target, and the link between the pollutant of concern and the narrative water quality criterion should all be described in the TMDL document. Any additional information supporting the numeric target and linkage should also be included in the document.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary:

Sediment: Sediment targets are presented in Section 5.4 and are adopted from previously approved sediment TMDL documents. A suite of targets were established to represent Montana's narrative sediment standards. The targets include: Percentage of surface fine sediment in riffles via pebble count (reach average); Percentage of surface fine sediment < 6mm in pool tails and riffles via grid toss (reach average); Bankfull width/depth ratio (reach median); Entrenchment ratio (reach median); Residual pool depth (reach average); Pools/mile; LWD/mile; Percent of streambank with understory shrub cover (reach average); Significant and controllable sediment sources; Macroinvertebrate bioassessment metric; Periphyton Increaser Taxa.

Nutrients: Nutrient targets are presented in Section 6.4. Numeric nutrient criteria were applied directly as water quality targets. The document also includes targets for additional parameters linked to nutrients including chlorophyll-a, ash free dry mass, Hilsenhoff's Biotic Index (HBI), and periphyton.

Temperature: Temperature targets are presented in Section 7.4. Numeric temperature criteria were directly applied as TMDL targets. The document also includes targets for additional parameters linked to temperature including riparian health and shade, width/depth ratios, and instream flow.

Turbidity: Turbidity targets are presented in Section 8.3. The numeric turbidity criterion was directly applied as the TMDL target.

Comments:

3. Pollutant Source Analysis

A TMDL analysis is conducted when a pollutant load is known or suspected to be exceeding the loading capacity of the waterbody. Logically then, a TMDL analysis should consider all sources of the pollutant of concern in some manner. The detail provided in the source assessment step drives the rigor of the pollutant load allocation. In other words, it is only possible to specifically allocate quantifiable loads or load reductions to each identified source (or source category) when the relative load contribution from each source has been estimated. Therefore, the pollutant load from each identified source (or source category) should be specified and quantified. This may 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 may be appropriate. The approach should be clearly defined in the document.

Review Elements:

☒ The TMDL should include an identification of the point and nonpoint sources of the pollutant of concern, including the geographical location of the source(s) and the quantity of the loading, e. g. , lbs/per day. This information is necessary for EPA to evaluate the WLA, LA and MOS components of the TMDL.

☒ The level of detail provided in the source assessment should be commensurate with the nature of the watershed and the nature of the pollutant being studied. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of both the natural background loads and the nonpoint source loads.

☒ Natural background loads should not be assumed to be the difference between the sum of known and quantified anthropogenic sources and the existing *in situ* loads (e. g. measured in stream) unless it can be demonstrated that the anthropogenic sources of the pollutant of concern have been identified, characterized, and quantified.

☒ The sampling data relied upon to discover, characterize, and quantify the pollutant sources should be included in the document (e. g. a data appendix) along with a description of how the data were analyzed to characterize and quantify the pollutant sources. A discussion of the known deficiencies and/or gaps in the data set and their potential implications should also be included.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary:

Sediment: The sediment source assessment is presented in Section 5. 6. Nonpoint sources include streambank erosion, upland erosion, and roads. Point sources given individual WLAs include the Missoula MS4, general construction stormwater activities, and two industrial stormwater operations. Three attachments provide supporting data and more information. Attachment A is a stand-alone sediment and habitat assessment, Attachment B details the upland sediment source assessment, and Attachment C covers the roads sediment assessment and modeling.

Nutrients: The nutrient source assessment is presented in Section 6.6. TMDLs were split into natural background loads and composite load allocations to human-caused nonpoint sources. Nonpoint sources

include agriculture, silviculture, mining, septic systems, and natural background. Natural background was estimated from ecoregional reference sites. Only one point source, the Missoula MS4, was given a WLA for nutrients.

Temperature: The temperature source assessment is presented in Section 7.5 and is based primarily on QUAL2K computer modeling. Appendix D, E, and F provide the complete model reports. Natural and human nonpoint sources are given a single, composite LA. One stream, Grant Creek, has separate temperature WLAs for the Missoula MS4 and a hotel.

Turbidity: Because turbidity is often associated with excess fine sediment, DEQ performed a full sediment and habitat assessment on the turbidity listed stream and found the stream is not impaired by excess sediment. Rather, a detailed investigation into a wood product operation found the impairment listing is linked to tannic acids historically introduced from the site. There is one WLA allocated to a general suction dredge operation. These subjects are discussed in Sections 5.4.3.2 and 8.3.2.

Comments:

4. TMDL Technical Analysis

TMDL determinations should be supported by an analysis of the available data, discussion of the known deficiencies and/or gaps in the data set, and an appropriate level of technical analysis. This 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.

A TMDL analysis determines the maximum pollutant loading rate that may be allowed to a waterbody without violating water quality standards. The TMDL analysis should demonstrate an understanding of the relationship between the rate of pollutant loading into the waterbody and the resultant water quality impacts. This stressor → response relationship between the pollutant and impairment and between the selected targets, sources, TMDLs, and load allocations needs to be clearly articulated and supported by an appropriate level of technical analysis. Every effort should be made to be as detailed as possible, and to base all conclusions on the best available scientific principles.

The pollutant loading allocation is at the heart of the TMDL analysis. TMDLs apportion responsibility for taking actions by allocating 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 division of responsibility.

The pollutant loading allocation that will result in achievement of the water quality target is expressed in the form of the standard TMDL equation:

$$TMDL = \sum WLAs + \sum LAs + MOS$$

Where:

TMDL	=	Total Maximum Daily Load (also called the Loading Capacity)
LAs	=	Load Allocations
WLAs	=	Wasteload Allocations
MOS	=	Margin Of Safety

Review Elements:

☒ A TMDL must identify the loading capacity of a waterbody for the applicable pollutant, taking into consideration temporal variations in that capacity. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C. F. R. §130. 2(f)).

☒ The total loading capacity of the waterbody should be clearly demonstrated to equate back to the pollutant load allocations through a balanced TMDL equation. In instances where numerous LA, WLA and seasonal TMDL capacities make expression in the form of an equation cumbersome, a table may be substituted as long as it is clear that the total TMDL capacity equates to the sum of the allocations.

☒ The TMDL document should describe the methodology and technical analysis used to establish and quantify the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

☒ It is necessary for EPA staff to be aware of any assumptions used in the technical analysis to understand and evaluate the methodology used to derive the TMDL value and associated loading allocations. Therefore, the TMDL document should contain a description of any important assumptions (including the basis for those assumptions) made in developing the TMDL, including but not limited to:

- the spatial extent of the watershed in which the impaired waterbody is located and the spatial extent of the TMDL technical analysis;
- the distribution of land use in the watershed (e. g. , urban, forested, agriculture);
- a presentation of relevant information affecting the characterization of the pollutant of concern and its allocation to sources such as population characteristics, wildlife resources, industrial activities etc...;
- present and future growth trends, if taken into consideration in determining the TMDL and preparing the TMDL document (e. g. , the TMDL could include the design capacity of an existing or planned wastewater treatment facility);
- an explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

☒ The TMDL document should contain documentation supporting the TMDL analysis, including an inventory of the data set used, a description of the methodology used to analyze the data, a discussion of strengths and weaknesses in the analytical process, and the results from any water quality modeling used. This information is necessary for EPA to review the loading capacity determination, and the associated load, wasteload, and margin of safety allocations.

☒ TMDLs must take critical conditions (e. g. , steam flow, loading, and water quality parameters, seasonality, etc...) into account as part of the analysis of loading capacity (40 C. F. R. §130. 7(c)(1)). TMDLs should define applicable critical conditions and describe the approach used to determine both point and nonpoint source loadings under such critical conditions. In particular, the document should discuss the approach used to compute and allocate nonpoint source loadings, e. g., meteorological conditions and land use distribution.

☐ Where both nonpoint sources and NPDES permitted point sources are included in the TMDL loading allocation, and attainment of the TMDL target depends on reductions in the nonpoint source loads, the TMDL document must include a demonstration that nonpoint source loading reductions needed to implement the load allocations are actually practicable [40 CFR 130. 2(i) and 122. 44(d)].

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: An adequate technical analysis has been completed for sediment, nutrients, temperature, and turbidity. Summary information is presented in the main body of the document and supporting analyses/data are presented in appendices and attachments. Assumptions were adequately explained.

Comments:

4. 1 Data Set Description

TMDL documents should include a thorough description and summary of all available water quality data that are relevant to the water quality assessment and TMDL analysis. An inventory of the data used for the TMDL analysis should be provided to document, for the record, the data used in decision making. This also provides the reader with the opportunity to independently review the data. The TMDL analysis should make use of all readily available data for the waterbody under analysis unless the TMDL writer determines that the data are not relevant or appropriate. For relevant data that were known but rejected, an explanation of why the data were not utilized should be provided (e. g. , samples exceeded holding times, data collected prior to a specific date were not considered timely, etc...).

Review Elements:

☒ TMDL documents should include a thorough description and summary of all available water quality data that are relevant to the water quality assessment and TMDL analysis such that the water quality impairments are clearly defined and linked to the impaired beneficial uses and appropriate water quality criteria.

☒ The TMDL document submitted should be accompanied by the data set utilized during the TMDL analysis. If possible, it is preferred that the data set be provided in an electronic format and referenced in the document. If electronic submission of the data is not possible, the data set may be included as an appendix to the document.

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: Sediment data are contained in Attachments A, B, and C and summarized by stream segment in Section 5.4.3. Nutrient data are summarized by stream segment in Section 6.4.3. Complete nutrient and temperature datasets are not provided in the document but are available from DEQ upon request. Temperature model reports are provided in Appendices D, E, and F. The turbidity investigation collected data on fine sediment parameters.

Comments:

4. 2 Waste Load Allocations (WLA):

Waste Load Allocations represent point source pollutant loads to the waterbody. Point source loads are typically better understood and more easily monitored and quantified than nonpoint source loads. Whenever practical, each point source should be given a separate waste load allocation. All NPDES permitted dischargers that discharge the pollutant under analysis directly to the waterbody should be identified and given separate waste load allocations. The finalized WLAs are required to be incorporated into future NPDES permit renewals.

Review Elements:

☒ EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C. F. R. §130. 2(h), 40 C. F. R. §130. 2(i)). In some cases, WLAs may cover more than one discharger, e. g., if the source is contained within a general permit. If no allocations are to be made to point sources, then the TMDL should include a value of zero for the WLA.

☒ All NPDES permitted dischargers given WLA as part of the TMDL should be identified in the TMDL, including the specific NPDES permit numbers, their geographical locations, and their associated waste load allocations.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: All point source are adequately described and referenced by NPDES permit numbers.

Sediment: The Missoula MS4, two general construction stormwater activities, and two industrial stormwater operations were given WLAs for sediment.

Nutrients: The Missoula MS4 was given a WLA for nutrients.

Temperature: The Missoula MS4 and a hotel were given individual WLAs for temperature.

Turbidity: A general suction dredge operation was given a WLA for turbidity.

Comments:

4. 3 Load Allocations (LA):

Load allocations include the nonpoint source, natural, and background loads. These types of loads are typically more difficult to quantify than point source loads, and may include a significant degree of uncertainty. Often it is necessary to group these loads into larger categories and estimate the loading rates based on limited monitoring data and/or modeling results. The background load represents a composite of all upstream pollutant loads into the waterbody. In addition to the upstream nonpoint and upstream natural load, the background load often includes upstream point source loads that are not given specific waste load allocations in this particular TMDL analysis. In instances where nonpoint source loading rates are particularly difficult to quantify, a performance-based allocation approach, in which a detailed monitoring plan and adaptive management strategy are employed for the application of BMPs, may be appropriate.

Review Elements:

☒ EPA regulations require that TMDL expressions include LAs which identify the portion of the loading capacity attributed to nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C. F. R. §130. 2(g)). Load allocations may be included for both existing and future nonpoint source loads. Where possible, load allocations should be described separately for natural background and nonpoint sources.

☒ Load allocations assigned to natural background loads should not be assumed to be the difference between the sum of known and quantified anthropogenic sources and the existing *in situ* loads (e. g. , measured in stream) unless it can be demonstrated that the anthropogenic sources of the pollutant of concern have been identified and given proper load or waste load allocations.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary:

Sediment: TMDLs were split into three nonpoint source allocations: streambank erosion, upland erosion, and roads. The human-caused and a natural component of these sources is not explicitly quantified in the TMDL.

Nutrients: TMDLs were split into natural background loads and composite load allocations to human-caused nonpoint sources. Nonpoint sources include agriculture, silviculture, mining, septic systems, and natural background. Natural background was estimated from ecoregional reference sites.

Temperature: Natural and human nonpoint sources are given a single composite LA in each temperature TMDL.

Turbidity: Natural and human nonpoint sources are given a single composite LA in the turbidity TMDL. The example SSC TMDL separates the naturally occurring load from the human caused nonpoint source load.

Comments:

4. 4 Margin of Safety (MOS):

Natural systems are inherently complex. Any mathematical relationship used to quantify the stressor → response relationship between pollutant loading rates and the resultant water quality impacts, no matter how rigorous, will include some level of uncertainty and error. To compensate for this uncertainty and ensure water quality standards will be attained, a margin of safety is required as a component of each TMDL. The MOS may take the form of a explicit load allocation (e. g. , 10 lbs/day), or may be implicitly built into the TMDL analysis through the use of conservative assumptions and values for the various factors that determine the TMDL pollutant load → water quality effect relationship. Whether explicit or implicit, the MOS should be supported by an appropriate level of discussion that addresses the level of uncertainty in the various components of the TMDL technical analysis, the assumptions used in that analysis, and the relative effect of those assumptions on the final TMDL. The discussion should demonstrate that the MOS used is sufficient to ensure that the water quality standards would be attained if the TMDL pollutant loading rates are met. 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).

Review Elements:

☒ TMDLs must include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d) (1) (C), 40 C. F. R. §130. 7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit (i. e. , incorporated into the TMDL through conservative assumptions in the analysis) or explicit (i. e. , expressed in the TMDL as loadings set aside for the MOS).

☒ If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS should be identified and described. The document should discuss why the assumptions are considered conservative and the effect of the assumption on the final TMDL value determined.

☒ If the MOS is explicit, the loading set aside for the MOS should be identified. The document should discuss how the explicit MOS chosen is related to the uncertainty and/or potential error in the linkage analysis between the WQS, the TMDL target, and the TMDL loading rate.

☐ If, rather than an explicit or implicit MOS, the TMDL relies upon a phased approach to deal with large and/or unquantifiable uncertainties in the linkage analysis, the document should include a description of the planned phases for the TMDL as well as a monitoring plan and adaptive management strategy.

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary:

Sediment: Sediment TMDLs incorporate an implicit MOS in a variety of ways including the use of conservation assumptions while setting targets. Other sediment MOS components are discussed in Section 5.8.2.

Nutrients: Nutrient TMDLs incorporate an implicit MOS in a variety of ways such as setting TMDLs to achieve numeric criteria 100% of the time even though assessment methods allow for a small frequency of exceedances. Other nutrient MOS components are discussed in Section 6.7.2.

Temperature: Temperature TMDLs incorporate an implicit MOS in a variety of ways including adjusting flow and climate conditions to represent conditions more extreme than those observed in 2011 and 2012. Other temperature MOS components are discussed in Section 7.8.

Turbidity: The turbidity TMDL sets aside an explicit MOS to account for uncertainty.

Comments:

4. 5 Seasonality and variations in assimilative capacity:

The TMDL relationship is a factor of both the loading rate of the pollutant to the waterbody and the amount of pollutant the waterbody can assimilate and still attain water quality standards. Water quality standards often vary based on seasonal considerations. Therefore, it is appropriate that the TMDL analysis consider seasonal variations, such as critical flow periods (high flow, low flow), when establishing TMDLs, targets, and allocations.

Review Elements:

☒ The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variability as a factor. (CWA §303(d)(1)(C), 40 C. F. R. §130. 7(c)(1)).

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary:

Sediment: Seasonality considerations are discussed in Section 5.8.1. Loads are expressed as average yearly loading rates to account for variability throughout the year.

Nutrients: Seasonality considerations are discussed in Section 6.7.1. The nutrient targets and loading analysis are focused on the critical summer growing season and adequately address seasonality.

Temperature: Seasonality considerations are discussed in Section 7.8. Monitoring, source assessment characterization, and impairment determinations are based on the critical summer season, during the warmest time of the year, when aquatic life is most stressed.

Turbidity: Seasonality considerations are discussed in Section 8.5.1 and are similar as those discussed for sediment.

Comments:

5. Public Participation

EPA regulations require that the establishment of TMDLs be conducted in a process open to the public, and that the public be afforded an opportunity to participate. To meaningfully participate in the TMDL process it is necessary that stakeholders, including members of the general public, be able to understand the problem and the proposed solution. TMDL documents should include language that explains the issues to the general public in understandable terms, as well as provides additional detailed technical information for the scientific community. Notifications or solicitations for comments regarding the TMDL should be made available to the general public, widely circulated, and clearly identify the product as a TMDL and the fact that it will be submitted to EPA for review. When the final TMDL is submitted to EPA for approval, a copy of the comments received by the state and the state responses to those comments should be included with the document.

Review Elements:

☒ The TMDL must include a description of the public participation process used during the development of the TMDL (40 C. F. R. §130. 7(c)(1)(ii)).

☒ TMDLs submitted to EPA for review and approval should include a summary of significant comments and the State's/Tribe's responses to those comments.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: The public participation process is summarized in Section 12.0. The document was sent out for public comment on July 14, 2014 and the public comment period lasted until August 12, 2014. A public meeting was held on July 21, 2014 in Missoula, MT. DEQ received three official public comments. The comments are summarized in Section 12.2 along with DEQ's responses.

Comments:

6. Monitoring Strategy

TMDLs may have significant uncertainty associated with the 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 document to articulate the means by which the TMDL will be evaluated in the field, and to provide for future supplemental data that will address any uncertainties that may exist when the document is prepared.

Review Elements:

☐ When a TMDL involves both NPDES permitted point source(s) and nonpoint source(s) allocations, and attainment of the TMDL target depends on reductions in the nonpoint source loads, the TMDL document should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring.

☐ Under certain circumstances, a phased TMDL approach may be utilized when limited existing data are relied upon to develop a TMDL, and the State believes that the use of additional data or data based on better analytical techniques would likely increase the accuracy of the TMDL load calculation and merit development of a second phase TMDL. EPA recommends that a phased TMDL document or its implementation plan include a monitoring plan and a scheduled timeframe for revision of the TMDL. These elements would not be an intrinsic part of the TMDL and would not be approved by EPA, but may be necessary to support a rationale for approving the TMDL. http://www.epa.gov/owow/tmdl/tmdl_clarification_letter.pdf

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: A brief monitoring strategy is provided in Section 11.0 that discusses effectiveness monitoring and recommended monitoring to strengthen the source assessment and address uncertainties for each of the four pollutant groups.

Comments:

7. Restoration Strategy

The overall purpose of the TMDL analysis is to determine what actions are necessary to ensure that the pollutant load in a waterbody does not result in water quality impairment. 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. During the TMDL analytical process, information is often gained that may serve to point restoration efforts in the right direction and help ensure that resources are spent in the most efficient manner possible. For example, watershed models used to analyze the linkage between the pollutant loading rates and resultant water quality impacts might also be used to conduct "what if" scenarios to help direct BMP installations to locations that provide the greatest pollutant reductions. Once a TMDL has been written and approved, it is often the responsibility of other water quality programs to see that it is implemented. The level of quality and detail provided in the restoration strategy will greatly influence the future success in achieving the needed pollutant load reductions.

Review Elements:

☐ EPA is not required to and does not approve TMDL implementation plans. However, in cases where a WLA is dependent upon the achievement of a LA, "reasonable assurance" is required to demonstrate the necessary LA called for in the document is practicable). A discussion of the BMPs (or other load reduction measures) that are to be relied upon to achieve the LA(s), and programs and funding sources that will be relied upon to implement the load reductions called for in the document, may be included in the implementation/restoration section of the TMDL document to support a demonstration of "reasonable assurance".

Recommendation:

☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: A conceptual restoration strategy is presented in Section 10.0 that includes a discussion of potential funding sources, participant roles, and restoration approaches. This is presented to facilitate implementation with watershed stakeholders, and is not part of any regulatory requirement.

Comments:

8. Daily Loading Expression

The goal of a TMDL analysis is to determine what actions are necessary to attain and maintain WQS. The appropriate averaging period that corresponds to this goal will vary depending on the pollutant and the nature of the waterbody under analysis. When selecting an appropriate averaging period for a TMDL analysis, primary concern should be given to the nature of the pollutant in question and the achievement of the underlying WQS. However, recent federal appeals court decisions have pointed out that the title TMDL implies a "daily" loading rate. While the most appropriate averaging period to be used for developing a TMDL analysis may vary according to the pollutant, a daily loading rate can provide a more practical indication of whether or not the overall needed load reductions are being achieved. When limited monitoring resources are available, a daily loading target that takes into account the natural variability of the system can serve as a useful indicator for whether or not the overall load reductions are likely to be met. Therefore, a daily expression of the required pollutant loading rate is a required element in all TMDLs, in addition to any other load averaging periods that may have been used to conduct the TMDL analysis. The level of effort spent to develop the daily load indicator should be based on the overall utility it can provide as an indicator for the total load reductions needed.

Review Elements:

☒ The document should include an expression of the TMDL in terms of a daily load. However, the TMDL may also be expressed in temporal terms other than daily (e. g., an annual or monthly load). If the document expresses the TMDL in additional "non-daily" terms the document should explain why it is appropriate or advantageous to express the TMDL in the additional unit of measurement chosen.

Recommendation:
☒ Approve ☐ Partial Approval ☐ Disapprove ☐ Insufficient Information

Summary: Temperature TMDLs are presented in units of kcal/sec, which DEQ believes are the most appropriate expression because temperatures fluctuate throughout the day. Section 7.7.1 states that daily loads (kcal/day) can be derived by multiplying the kcal/sec load by 86,400, or the number of seconds in a day. Nutrient and turbidity TMDLs are expressed in terms of lbs/day and sediment TMDLs are presented in tons/year within the main document. Daily sediment loads are also provided in Appendix C.

Comments: