



EPA Region 7 TMDL Review

TMDL ID: IA 04-EDM-0010_1
Document Name: EAST FORK DES MOINES RIVER

State: IA

Basin(s): EAST FORK DES MOINES RIVER
HUC(s): 07100003
Water body(ies): E. FORK DES MOINES RIVER
Tributary(ies): BLACK CAT CREEK, BLOODY RUN CREEK, BUFFALO CREEK, LOTT'S CREEK, MUD CREEK, PLUM CREEK, PRAIRIE CREEK, PURCELL CREEK, SOLDIER CREEK
Pollutant(s): E. COLI

Submittal Date: 5/30/2008

Approved: Yes

Submittal Letter

State submittal letter indicates final Total Maximum Daily Load(s) (TMDL) for specific pollutant(s)/water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act [40 CFR § 130.7(c)(1)]. Include date submitted letter was received by EPA, date of receipt of any revisions, and the date of original approval if submittal is a phase II TMDL.

The TMDL for East Fork Des Moines River was officially submitted by the Iowa Department of Natural Resources (IDNR) with a cover letter sent May 21, 2008, and received by the U.S. Environmental Protection Agency (EPA) on May 30, 2008. A revised version of the TMDL was submitted by email attachment on October 2, 2008.

Water Quality Standards Attainment

The water body's loading capacity (LC) for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards (WQS) [40 CFR § 130.7(c)(1)]. A statement that WQS will be attained is made.

The LC is determined through the use of the numeric water quality standard (WQS) and river flow using a load duration curve. The LC at median flow (17.1 cubic meters per second) for a single sample maximum is $3.47E+12$ colony forming units (cfu) per day. The LC is also calculated for each of the additional four flow classifications.

EPA agrees that meeting the LC for each of the five defined flow regimes will result in the attainment of WQS.

Numeric Target(s)

Submittal describes applicable WQS, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

The assigned beneficial uses for the East Fork Des Moines River are Class A1 (primary contact recreation), Class B (WW1) (aquatic life), and high quality resource water. The use that is impaired is Class A1. The applicable WQS is a single sample maximum not to exceed 235 *E. coli* cfu/100 mL during the recreational season. An additional WQS is a geometric mean not to exceed 126 cfu/100 mL during the recreational season. The recreational season is defined in the Iowa WQS as the period from March 15 through November 15. These

criteria apply to Class A1 waters in the state of Iowa.

The segment addressed in this TMDL (IA 04-EDM-0010_1) was first included on an impaired waters list in 1998 as impaired for indicator bacteria. The current WQS for indicator bacteria are based on *E. coli* rather than fecal coliform and this TMDL addresses *E. coli*.

EPA agrees that the submittal addresses the proper WQS for the impairment.

Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety (MOS) that do not exceed the LC. If submittal is a phase II TMDL there are refined relationships linking the load to WQS attainment. If there is an increase in the TMDL there is a refined relationship specified to validate the increase in TMDL (either load allocation (LA) or waste load allocation (WLA)). This section will compare and validate the change in targeted load between the versions.

The linkage in the TMDL is direct; the allocated pollutant, *E. coli*, is the pollutant causing the impairment. The indicator bacteria is directly allocated such that WQS will be met.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, nonpoint and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered. If this is a phase II TMDL any new sources or removed sources will be specified and explained.

The submittal lists all National Pollutant Discharge Elimination System (NPDES) permits in Iowa and Minnesota. The Iowa permits are given in the WLA section below. The Minnesota permits are for the City of Ceylon (MNG580006-SD-1), City of Dunnell (MN0056103-SD-1), and City of Sherburn (MN0024872-SD-2). Iowa NPDES permittees must meet Iowa WQS at the point of discharge.

Nonpoint sources identified are animal feeding operations not needing an NPDES permit, land application of manure, grazing animals, cattle in streams, failing septic systems and unsewered communities, urban areas, and wildlife.

It seems all significant sources have been identified.

Allocation - Loading Capacity

Submittal identifies appropriate WLA for point, and load allocations for nonpoint sources. If no point sources are present the WLA is stated as zero. If no nonpoint sources are present, the LA is stated as zero [40 CFR § 130.2 (i)]. If this is a phase II TMDL the change in LC will be documented in this section.

The LC is calculated based on the flow duration curve intervals. The single sample maximum is multiplied by the river's flow at each interval to calculate the LC.

WLA Comment

Submittal lists individual WLAs for each identified point source [40 CFR § 130.2(h)]. If a WLA is not assigned it must be shown that the discharge does not cause or contribute to WQS excursions, the source is contained in a general permit addressed by the TMDL, or extenuating circumstances exist which prevent assignment of individual WLAs. Any such exceptions must be explained to a satisfactory degree. If a WLA of zero is assigned to any facility it must be stated as such [40 CFR § 130.2(i)]. If this is a phase II TMDL any differences in phase I and phase II WLAs will be documented in this section.

WLAs are listed in the table below along with the sum of WLAs. In addition to the daily maximum WLA the

submittal also included monthly WLAs by permit. Iowa NPDES permittees must meet WQS at the point of discharge.

Permit No.	Facility Name	Daily WLA	geomean WLA
IA0048003	City of Dakota City	4.45E+09	1.43E+09
IA0033430	City of Whittemore	2.72E+09	7.63E+08
IA0047813	City of Swea City	8.41E+08	3.00E+08
IA0022055	City of Algona	2.45E+10	9.42E+09
IA0027405	City of Burt	2.13E+09	5.48E+08
IA0023566	City of Livermore	1.47E+09	5.25E+08
IA0057762	City of Bancroft	2.25E+09	8.06E+08
IA0047805	City of Bode	5.07E+08	1.81E+08
IA0065242	Oak Lake Maintenance, Inc.	2.05E+08	7.15E+07
IA0033375	City of Titonka	1.53E+09	8.48E+08
IA0068284	Southdale Addition	2.80E+08	1.00E+08
IA0057436	City of Ringstead	1.03E+09	3.67E+08
IA0065269	South Oak Estates, MHP	2.00E+08	7.15E+07
IA0028517	City of Armstrong	5.56E+09	1.55E+09
IA0078115	Sentral Community School District	5.34E+07	2.86E+07
	Sum	4.78E+10	1.88E+10

In addition to the WLAs for existing facilities a reserve (WLA-R) is calculated to allow for presently unsewered communities to obtain NPDES permits in the future. This capacity is set at 2.67E+08 and results in a total daily WLA of 4.81E+10 cfu per day.

LA Comment

Includes all nonpoint sources loads, natural background, and potential for future growth. If no nonpoint sources are identified the LA must be given as zero [40 CFR § 130.2(g)]. If this is a phase II TMDL any differences in phase I and phase II LAs will be documented in this section.

The LA is calculated for each interval as follows: $LA = TMDL - WLA - MOS$. In the case of the median flow interval $LA = 3.07E+12 = 3.47E+12 - 4.81E+10 - 3.47E+11$ (all quantities expressed as cfu per day).

Margin of Safety

Submittal describes explicit and/or implicit MOS for each pollutant [40 CFR § 130.7(c)(1)]. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided. If this is a phase II TMDL any differences in MOS will be documented in this section.

The submittal uses both an implicit and explicit MOS. Expression of the WLA in terms of *E. coli* for an NPDES permit limit of fecal coliform result in a conservative target. Additionally, the TMDL includes an explicit 10% MOS of 3.47E+11 cfu per day.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s) [40 CFR § 130.7(c)(1)]. Critical conditions are factors such as flow or temperature which may lead to the excursion of WQS. If this is a phase II TMDL any differences in conditions will be documented in this section.

Seasonality in this TMDL is addressed both through the WQS for *E. coli* and the use of a load duration curve to calculate LC, WLA, LA, and MOS. The WQS apply during the recreational season and that is the critical period for which this TMDL was written. The use of the load duration approach accounts for seasonal differences in flow by calculating a TMDL based on flow and not season.

EPA agrees that the submittal addresses seasonality and critical conditions.

Public Participation

Submittal describes required public notice and public comment opportunity, and explains how the public

comments were considered in the final TMDL(s) [40 CFR § 130.7(c)(1)(ii)].

Public meetings were held in Algona, Iowa on 12/5/2006, and Des Moines, Iowa on 12/13/2006. A statewide press release announcing the public notice period for the East Fork Des Moines River TMDL was made on 2/7/2007. Notices were published in the Humboldt Independent and Algona Upper Des Moines newspapers on 2/14/2008. Public comments were accepted until 3/17/2008. One comment letter was received and is included in the submittal as is IDNR's response to that letter.

EPA agrees that IDNR sufficiently addressed the received comments.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies a monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used) [40 CFR § 130.7].

Monthly monitoring takes place at the IDNR ambient monitoring site near St. Joseph, Iowa on the East Fork Des Moines River. Additional monitoring is not scheduled at this time however, elements of a future monitoring plan are described.

Reasonable Assurance

Reasonable assurance only applies when less stringent WLAs are assigned based on the assumption of nonpoint source reductions in the LA will be met [40 CFR § 130.2(i)]. This section can also contain statements made by the state concerning the state's authority to control pollutant loads.

Reasonable assurances are not required because a more stringent LA is not used to result in a less stringent WLA.