UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

DEC 10 2008

Mr. Edward Galbraith, Director
Water Protection Program
Water Protection and Soil Conservation Division
Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, Missouri 65102

Re: Approval of Lateral #2 Main Ditch TMDL

Dear Mr. Galbraith:

This letter responds to the Missouri Department of Natural Resources (MDNR) submission for a Total Maximum Daily Load (TMDL) document which contained a TMDL for sediment for Lateral#2 Main Ditch. The document was originally received by the U. S. Environmental Protection Agency (EPA), Region 7, on May 14, 2008. Revisions were made to the original submittal and the final version was resubmitted on November 6, 2008.

MDNR submitted a TMDL document for Lateral #2 Main Ditch, which was identified on the 2002 Missouri §303(d) list as impaired. This submission fulfills the Clean Water Act statutory requirement to develop TMDLs for impairments listed on a state's §303(d) list. The specific impairment (water body segment and pollutant) is:

Water Body Name	WBID	Pollutant
Lateral #2 Main Ditch	MO_3105	sediment

EPA has completed its review of the TMDL document with supporting documentation and information. By this letter, EPA approves the submitted TMDL. Enclosed with this letter is the EPA Region 7 TMDL Decision Document summarizing the rationale for EPA's approval of this TMDL. EPA believes the separate elements of the TMDL described in the enclosed form adequately address the pollutant of concern, taking into consideration seasonal variation and a margin of safety. Although EPA does not approve the monitoring plan submitted by the state, EPA acknowledges the state's efforts. EPA understands that the state may use the monitoring plan to gauge the effectiveness of the TMDL and determine if future revisions are necessary or appropriate to meet applicable water quality standards.

EPA is currently in consultation under Section 7 of the Endangered Species Act with the U. S. Fish and Wildlife Service regarding this TMDL. While we are approving this TMDL at the

present time, we may decide that changes to the TMDL are warranted based upon the results of the consultation when it is completed.

We appreciate the thoughtful effort that MDNR has put into this TMDL. We will continue to cooperate with and assist, as appropriate, in future efforts by MDNR to develop remaining TMDLs.

Sincerely,

Karen A. Flournoy

for William A. Spratlin
Director
Water, Wetlands and Pesticides Division

Enclosures

cc: Mr. John Hoke
Missouri Department of Natural Resources

Mr. Phil Schroeder
Missouri Department of Natural Resources

Mr. Gerald Babao
American Canoe Association

Mr. Paul Sanford
American Canoe Association

Mr. Scott Dye
Sierra Club

Mr. John Simpson
KS Natural Resource Council

EPA Region 7 TMDL Review

TMDL ID: MO_3105 **State:** MO
Document Name: LATERAL #2 MAIN DITCH

Basin(s): LITTLE RIVER DITCHES RIVER BASIN
HUC(s): 08020204
Water body(ies): LAT.#2 MAIN DITCH
Tributary(ies):
Pollutant(s): SEDIMENT

Submittal Date: 5/14/2008 **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 Lateral #2 Main Ditch was formally submitted by the Missouri Department of Natural Resources (MDNR) in a letter received by the United States Environmental Protection Agency (EPA) on May 14, 2008. Because of substantial revisions, the TMDL was re-public noticed and then re-submitted November 6, 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.

When the WQS is expressed as a narrative value, a measurable indicator of the pollutant may be selected to express the narrative as a numeric value. There are many quantitative indicators of sediment, such as total suspended solids (TSS), turbidity, and bedload sediment, which are appropriate to describe sediment in rivers and streams. TSS was selected as the numeric target for this TMDL because it enables the use of the highest quality data available, including permit conditions and monitoring data. The TMDL was determined using a load duration curve (LDC). The limited data and lack of a biological assessment indicate the need for an explicit margin of safety (MOS). Ten percent of the LC was set aside for the MOS. This reduction in sediment protects the warm water aquatic life use of the stream and the TMDL should result in WQS attainment.

The LC is defined by a LDC set at the 25th percentile of the current sediment loading in the ecological drainage unit (EDU). The LC is set at 1.64 tons per day at the 50th percentile of flow.

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 impairment of this water body is based on exceedance of the general or narrative criteria contained in Missouri's WQS, 10 CSR 20-7.031(3)(A), (C) and (G).

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor, or prevent full maintenance of beneficial uses;
(G) Waters shall be free from physical, chemical, or hydrologic changes that would impair the natural biological community.

Lateral #2 Main Ditch has the following beneficial uses:
Livestock and Wildlife Watering
Protection of Warm Water Aquatic Life
Protection of Human Health (Fish Consumption)
Whole Body Contact Recreation (Category B)

Since the 303(d) listing, MDNR has developed a sediment protocol to determine if sediment is actually the pollutant in the streams listed and to arrive at a standard way to measure sediment. The first step of that protocol is a biological assessment to see if the biological community is actually impaired. For this TMDL a reference approach was used targeting TSS. The LC is defined by a LDC set at the 25th percentile of the current sediment loading in the ecological drainage unit (EDU). The LC is set at 1.64 tons per day at the 50th percentile of flow.

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.

In cases where sufficient pollutant data for the impaired stream is not available a reference approach is used. In this approach, the target for pollutant loading is the 25th percentile of the EDU condition calculated from all data available within the EDU in which the water body is located. Therefore, the 25th percentile is targeted as the TMDL LDC. An established link between TSS and sediment was used to define this TMDL as a numeric value. The WLA, LA, and MOS are set to not exceed the LC.

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 major problems are excessive rates of sediment deposition due to stream bank erosion and sheet erosion from agricultural lands, loss of stream length, loss of stream channel heterogeneity due to channelization, and changes in basin hydrology that have increased flood flows and prolonged low flow conditions. The primary cause of the sediment impairment to Lateral #2 Main Ditch has been identified as pollution caused by agricultural nonpoint sources.

Twenty-one National Pollutant Discharge Elimination System (NPDES) -permitted facilities are located within the watershed (see table below). The facilities have either site specific wastewater treatment facility (WWTF) permits or general permits. Although there are no Concentrated Animal Feeding Operations (CAFOs) in the watershed, other livestock could contribute sediment loading. Livestock census data and land use data were also presented in the document.

Facility	Permit Number	Design Flow (MGD)
Dexter, East Lagoon	MO-0023213	1.12
Bernie Municipal WWTF	MO-0048054	0.35
Vaughn's Gaslight Village	MO-0048895	0.008

Lemons Landfill West	MO-0106895	Varies
Lemons Landfill East (outfall 001 and 002)	MO-0113891	4.2 and 8.9
Tyson Foods Inc. Dexter Plant	MO-0129798	0.0995
MFA Bulk Plant - Bernie	MO-G350138	Non Discharging
Bootheel Petroleum Company	MO-G350192	Non Discharging
Southeast Coop Service Co.	MO-G350210	Non Discharging
Delta Asphalt - Dexter Plant	MO-G490640	Non Discharging
Brown Sand and Gravel	MO-G500004	Non Discharging
Delta Asphalt Inc., Dexter	MO-G500019	Non Discharging
Doane Pet Care Co.	MO-R12A010	N/A
Tyson Foods Feedmill	MO-R12A084	N/A
Holden Pallet Co. Inc.	MO-R22A165	N/A
Ames True Temper Inc.	MO-R22C033	N/A
MFA Agri Service - North Site	MO-R240165	N/A
Ag Distributors - Dexter	MO-R240254	N/A
Southeast Coop Service Co.	MO-R240259	N/A
MFA Agri Service - South Site	MO-R240430	N/A
Bernie Farmers Fertilizer	MO-R240483	N/A

The Lemons Landfill East facility (MO-0113891) discharges to unclassified tributaries of Lateral #2 Main Ditch above the impaired segment. The facility discharges in response to storm events and is not anticipated to discharge during critical low-flow conditions (95 percent flow exceedance). Immediately following storm events the facility has reasonable potential to contribute to the sediment impairment in Lateral #2 Main Ditch. At the permitted facility design flow and TSS maximum daily limit, the combined TSS loading from Outfall #001 (1.4 tons/day) and Outfall #2 (3.0 tons/day) is 4.4 tons/day and greater than the 50th percentile flow LC value of 1.64 tons/day. Reductions in TSS loading are necessary to ensure the load capacity of Lateral #2 Main Ditch is not exceeded during this and other stream flows.

The submittal demonstrates that all known significant sources have been considered.

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 defined by a LDC set at the 25th percentile of the current sediment loading in the EDU.

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.

The WLA is set to the lesser of current permit limits or technology based effluent limits (TBELs). TBELs are defined in permits based on the facility type. Mechanical WWTFs' permit limits are a weekly average TSS concentration of 45 mg/L and a monthly average TSS concentration of 30 mg/L or "45/30." Secondary equivalent WWTFs' permit limits are 60/45 mg/L. Wastewater treatment lagoon facilities allow TSS concentration up to 120/80 mg/L. Additionally, permits can be written to target lower limits if the specific facility is capable of performance exceeding TBELs. The table below lists the permitted point sources in the

watershed and WLAs based on their current permit limits and permitted design flows. In addition, any general permits need evaluation to determine if a site-specific permit is needed to address sediment loading. Based on the assessment of sources, point sources do not contribute to water quality impairment relative to sediment impacts on stream biology. Thus, no net reduction in current permit conditions is required. The WLAs are set at the current permit limits and conditions. The WLAs listed in this TMDL do not preclude the establishment of future point sources of sediment loading in the watershed. Any future point sources should be evaluated in light of the TMDL established and the range of flows into which any additional load will impact.

WLA = (flow in cfs)(concentration in mg/L)(0.0026975 [conversion factor]) = tons per day

Facility	Permit Number	WLA (tons per day) d/w/m*
Dexter, East Lagoon	MO-0023213	NA/0.339/0.226 (1.8 MGD)
Bernie Municipal WWTF	MO-0048054	NA/0.066/0.045
Vaughn's Gaslight Village	MO-0048895	NA/0.0015/0.001
Lemons Landfill West	MO-0106895	No Discharge
Lemons Landfill East (outfall 001)	MO-0113891	1.4/NA/1.05
Lemons Landfill East (outfall 002)	MO-0113891	2.98/NA/2.23
Tyson Foods Inc. Dexter Plant	MO-0129798	varies (storm water)

**permit limits based on current design loads where d = daily, w = weekly, m = monthly average.*

During critical low-flow conditions, it is reasonable to allocate the entire loading capacity of a pollutant as wasteload allocations (WLAs) due to the lack of pollutant contributions from precipitation induced surface water runoff. The loading capacity for TSS during critical low-flow conditions (95 percent flow exceedance) can therefore be allocated among point sources within the Lateral #2 Main Ditch watershed, less a margin of safety to account for uncertainty. A WLA of 0.42 tons/day [0.466 tons/day – 10 percent MOS] will ensure permitted facilities will not cause or contribute to the sediment impairment of Lateral #2 Main Ditch during critical low-flow conditions.

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 TMDL curve is set at an estimate of reference conditions over the range of flows. The LA is set at the remainder of the LC after WLA + MOS are subtracted. For example, at a flow probability of 0.5 (median flow), the TMDL is approximately 1.64 tons per day. The LA would be 0.98 tons 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.

Available data for Lateral #2 Main Ditch shows instances where loads exceed the TMDL. To account for uncertainties in the modeling an explicit 10% MOS is assigned to this TMDL. For example, at a flow probability of 0.5 (median flow), the TMDL is approximately 1.64 tons per day. The MOS would therefore be 0.16 tons 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.

The TMDL curve represents flow under all seasonal conditions. The LA and TMDL are applicable at all flow conditions, hence all seasons. The advantage of a LDC approach is to avoid the constraints associated with using a single-flow critical condition during the development of a TMDL. Therefore, all flow conditions

including seasonal variation are taken into account for TMDL calculations.

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)].

EPA regulations require that TMDLs be subject to public review (40 CFR 130.7). This water quality limited segment of Lateral #2 Main Ditch in Stoddard County, Missouri, is included on the EPA approved 1998 and 2002 303(d) lists for Missouri. EPA and MDNR's Water Protection Program developed this TMDL. The public notice period was from March 26 to April 25, 2008. Because of substantial revisions, the TMDL was re-public noticed from September 18 to October 18, 2008. Groups that received the public notice announcement included the Missouri Clean Water Commission, the Missouri Water Quality Coordinating Committee, the affected facilities, 15 stream team volunteers in the county and the four state legislators representing Stoddard County.

The notice, sediment TMDL information sheet, and this TMDL were posted on the MDNR web site. All comments received and MDNR's response to those comments will be placed in the Lateral #2 Main Ditch file along with any other documentation. Comments received were from EPA during the review process. All comments were considered and incorporated into the TMDL.

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].

No future monitoring has been scheduled for Lateral #2 Main Ditch at this time. However, MDNR will routinely examine physical habitat, water quality, invertebrate community, and fish community data collected by the Missouri Department of Conservation under its Resource Assessment and Monitoring (RAM) Program. This program randomly samples streams across Missouri on a five to six year rotating schedule.

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.

No reasonable assurance is required because there is not a required reduction in LA to account for a prescribed WLA. Twenty-one NPDES-permitted facilities are located within the Lateral #2 Main Ditch watershed; however, these point sources have received a significant WLA to account for any sediment loading in Lateral #2 Main Ditch.