



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

*martha*

REPLY TO THE ATTENTION OF:

SEP 27 2004

WW-16J

Dept. of Environmental Mgmt.  
Commissioner's Office

OCT 04 2004

Tim Method, Assistant Commissioner  
Office of Water Quality  
Indiana Department of Environmental Management  
100 North Senate Ave.  
P.O. Box 6015  
Indianapolis, Indiana 46206-6015

Dear Mr. Method:

The United States Environmental Protection Agency (U.S. EPA) has conducted a complete review of the final Total Maximum Daily Load (TMDL) submittal for E. coli in Salt Creek (ID# 34), which is located in Porter County, Indiana, including supporting documentation and information. Based on this review, U.S. EPA has determined that Indiana's TMDLs for one pollutant (E. coli) for five waterbody segments (INC0151\_T1012, INC0152\_T1013, INC0153\_T1015, INC0155\_T1017, and INC0155\_T1088) meets the requirements of Section 303(d) of the Clean Water Act (CWA) and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, by this letter, U.S. EPA hereby approves 5 TMDLs, for Salt Creek. The statutory and regulatory requirements, and U.S. EPA's review of Indiana's compliance with each requirement, are described in the enclosed decision document.

We appreciate your hard work in this area and the submittal of the TMDLs as required. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,

Jo Lynn Traub,  
Director, Water Division

Enclosure

cc: Andrew Pelloso, IDEM

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date: 27 SEP 2004**

## **Decision Document for Approval of Salt Creek TMDL for *Escherichia coli* (*E. coli*)**

Section 303(d) of the Clean Water Act (CWA) and U.S. EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for U.S. EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and U.S. EPA regulations, and should be included in the submittal package. Use of the verb "must" below 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 U.S. EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and U.S. EPA's TMDL regulations should be resolved in favor of the regulations themselves.

### **1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking**

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and non-point sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from non-point sources, the TMDL should include a description of the natural background. This information is necessary for U.S. EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired waterbody is located;
- (2) the assumed distribution of land use in the watershed (e.g., urban, forested,

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

- agriculture);
- (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
- (4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and
- (5) 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.

**Comments:**

The State of Indiana submitted a final TMDL for the following five segments of Salt Creek:  
INC0151\_T1012, Salt Creek  
INC0152\_T1013, Salt Creek  
INC0153\_T1015, Salt Creek  
INC0155\_T1017, Salt Creek  
INC0155\_T1088, Salt Creek.

All of these segments are listed on Indiana's 2004 303(d) list for impairments due to *E. coli*. These segments were first listed on the 1998 303(d) list. They received a severity ranking of "low" in 1998. Segment INC0153\_T1015 is also listed for impaired biotic community. However, this TMDL does not address that impairment. Only the *E. coli* impairments for Salt Creek are being addressed at this time. This TMDL establishes percent reductions of *E. coli* from point and nonpoint sources necessary for Salt Creek to meet the *E. coli* water quality standards. No surrogate measures are being used in the TMDL.

Salt Creek is located in northwestern Indiana in Porter County in the Salt Creek watershed. The watershed includes the city of Valparaiso as well as portions of Chesterton, South Haven, and Portage. Salt Creek originates on the south side of Valparaiso, flows northwest around the city of Valparaiso, through a small portion of South Haven and through a portion of Portage, then empties into the east branch of the Little Calumet River just east of Portage. Salt Creek ultimately drains into Lake Michigan through Burns Ditch. Over 30 tributaries and several springs contribute to the stream flow of Salt Creek. Salt Creek watershed is composed of 49,573 acres and it covers 19% of Porter County. Fifty-one percent of Porter County's population lives within the Salt Creek watershed with the largest population residing in Valparaiso. Approximately 70% of the acreage in the watershed supports only 15% of the population which is a density of less than 500 people per square mile. Approximately 63% of the population live in densities of 1,000 to 10,000 people per square mile in the cities of Valparaiso and Portage and near Lake Louise. Section 2 of the TMDL document and Figures 1 through 4 in Section 2

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

provide details about the location and population of the watershed. Figure 5 in Section 2 depicts the various types of land use within the watershed. Two of the largest land uses are agricultural row crops and pastureland. The non-agricultural acreage is primarily deciduous forest and populated areas. There has been a downward trend in livestock numbers since 1974. The watershed receives an annual amount of precipitation of 40 inches, with the heaviest rains occurring in the spring and summer months. The watershed receives approximately 50 inches of snowfall in a winter. During the period of 1945-1991, USGS maintained a stream gage on Salt Creek (McCool Station). From daily data available for the period of record at the McCool Station it was determined that Salt Creek has a high base flow, that the average discharge of Salt Creek is 76.6 cubic feet per second (cfs), the minimum daily discharge is 10 cfs, and the lowest 7-day average flow which occurs once every 10 years (7Q10 flow) is 19 cfs. Mean flow values showed that flows are highest in March and April and lowest in August and September.

Both point and nonpoint sources are contributing sources of *E. coli* in the Salt Creek watershed. Point sources in the Salt Creek watershed include ten NPDES permitted discharges of sanitary wastewater, facility bypasses, and one combined sewer overflow (CSO). There are no CAFOs in the watershed subject to NPDES permitting requirements and there are no Phase I storm water permits. There are nine entities in the Salt Creek watershed that are required to implement the Phase II storm water regulations. Table 21 of the TMDL document lists these entities and the permit identification numbers. Due to the timing of the source characterization portion of the TMDL, these sources were considered as part of the nonpoint source contribution.<sup>1</sup>

There are ten facilities with NPDES permits. Tables 2 and 3 of the TMDL document identify the monitoring and loading information for each of the ten facilities. Figure 19 of the TMDL document shows the effluent pipe locations of these NPDES facilities within the Salt Creek watershed. Each of these facilities is permitted to discharge treated sanitary wastewater. The TMDL document states that these permits contain limits which are set at levels protective of both human health and aquatic life in waters that receive the discharge and that all ten permits were issued with the purpose of meeting water quality standards for *E. coli* in the receiving water. All

---

<sup>1</sup> An Office of Water policy memorandum, "Establishing TMDL Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Requirements Based on These WLAs," was released November 22, 2002. IDEM's work with their contractor on the development of the Salt Creek TMDL began in 2001, prior to the November 2002 policy memo. The State had already directed its contractor to account for the contributions of *E. coli* from storm water as a nonpoint source. As discussed in the public participation section of this decision document, IDEM had already begun stakeholder meetings and development of the TMDL in 2002 prior to the release of the policy memo. The State considered the contributions from urban lands in the source characterization. The Phase II Storm Water permit program is being implemented in Indiana for sources within the Salt Creek watershed and Section 8 of the TMDL document addresses how this program is being implemented for the nine entities. Due to timing of the development of this TMDL relative to the release of the policy memo and the fact that the State is addressing the nine entities through the Phase II permit program, U.S. EPA finds it reasonable for the *E. coli* contributions from storm water to have been addressed as nonpoint sources in the TMDLs for Salt Creek.

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

ten of the permits contain a requirement to monitor for *E. coli*, fecal coliform, or residual chloride. In addition to the treated sanitary wastewater, five of these point sources have intermittent discharges of untreated sanitary wastewater due to bypass and CSO events. Until 2001, the city of Valparaiso had three CSOs but they have since removed two and now only have one. According to Discharge Monitoring Reports (DMR) – which are only available from the CSO since 2001 -- there were 20 overflow events through April 2003.

Nonpoint sources also contribute *E. coli* to the Salt Creek watershed. Sources of *E. coli* considered included manure application to cropland, livestock grazing on pastureland, livestock with direct access to streams, wildlife, urban land activities, and leaking/failing septic systems. Land uses considered in the modeling effort that contribute these types of nonpoint sources were cropland, forest, built-up land, and pasture. Land use information and *E. coli* contributions from nonpoint sources was considered for the entire Salt Creek watershed.

Six water quality data sets are available for the Salt Creek watershed, and all were considered in the development of the Salt Creek TMDL. These data sets are summarized in Table 1 of the TMDL report. The State conducted a long-term monthly monitoring program at two fixed stations in the watershed from 1990-2001; a statewide *E. coli* monitoring program in 2000 to evaluate the 5-sample geometric mean at two sites in the watershed during the recreation season; and additional sampling in 2000 for a Salt Creek Assessment which included a sampling effort to evaluate the 5-sample geometric mean at 24 sites for TMDL modeling purposes. In addition to the State data, acceptable data for 2000-2002 was collected through the Lake Michigan Interagency Task Force. This Task Force was initiated to address Lake Michigan beach closures, and evaluated streams affected by nonpoint sources that contribute bacteria loads to the lake. There were 12 sampling stations, with most of these stations being located on tributaries to Salt Creek. This Task Force also collected data to help evaluate the relationship between point sources and bacteria levels in the lake. During 1997 through 1999, the Task Force collected in-stream samples, lake samples, rainfall measurements, and CSO measurements within the Salt Creek watershed. The last data set came from NPDES monthly DMRs from 1989-2002.

U.S. EPA finds that the TMDL document submitted by the State satisfies the requirements of this element.

**2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target**

The TMDL submittal 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 antidegradation policy. (40 C.F.R. §130.7(c)(1)). U.S. EPA needs this information to review the loading capacity determination, and load and

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – 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. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant 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 Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comments:

Salt Creek is designated for use as a full body contact recreational stream. The *E. coli* water quality standard applicable to Salt Creek is set forth in 327 IAC 2-1-6 and 2-1.5-8(e)(2). It provides: “*E. coli* bacteria, using membrane filter (MF) shall not exceed one hundred twenty five (125) per one hundred (100) milliliters as a geometric mean based on no less than five (5) samples equally spaced over a thirty (30) day period nor exceed two hundred thirty five (235) per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period.” The State developed the TMDL to meet the water quality standards for *E. coli*. Based on results of a regression modeling effort of the estimated post-TMDL distribution of the *E. coli* concentrations, the State set a water quality target of 170 colony forming units (CFU)/100 ml at the 100<sup>th</sup> percentile of the distribution. This water quality target was established for a single sample. No specific water quality target was identified for the 5-sample geometric mean standard. Although no specific geometric mean target was established since the State used a statistical method to establish the necessary reductions, the geometric mean for the entire recreational season can be estimated based on the 50<sup>th</sup> percentile of the lognormal distribution. Although this does not allow for an exact comparison to the 5-sample 30-day *E. coli* standard it does enable a useful comparison to the anticipated post-TMDL geometric mean standard. Figure 39 of the TMDL document shows this comparison and shows an estimated post-TMDL geometric mean *E. coli* concentration to be between 30 and 70 CFU/100ml. Additionally, Figure 39 shows the establishment of the water quality target at the 100<sup>th</sup> percentile for a single sample. The state established a target below the single sample standard for *E. coli* and demonstrated that this target, if met, should result in a geometric mean of samples for the recreational season that is below the 5-sample 30-day standard.

U.S. EPA finds that the TMDL document submitted by the State of Indiana satisfies the requirements of this element.

### 3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. U.S. 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 pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish 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.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. U.S. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1) ). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and non-point source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate non-point source loadings, e.g., meteorological conditions and land use distribution.

#### Comments:

The TMDL and the allocations were developed in terms of percent reduction. The percent reductions were calculated by a statistical method which determines the total reduction needed to reduce the 100<sup>th</sup> percentile of the distribution from existing conditions to the target conditions. The loading capacity was defined as a distribution with the 100<sup>th</sup> percentile value equal to the single-sample standard of 235 CFU/100ml. A target condition of 170 CFU/100ml was defined for a single sample.

The State conducted an analysis of available water quality data and generated load duration curves to help determine the nature of sources contributing to the impairment and to help define a critical condition. The results of the load duration curves indicate that *E. coli* concentrations above the standard are likely due to non-point sources or other event-driven inputs such as storm sewer discharges or CSOs. Additionally, the curves indicated that most of the spring and winter violations occurred at high flows and the summer and fall violations were distributed across the flow regime. Additional water quality data analysis of all the data sets indicate that the

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

impairment is along the length of Salt Creek and in many tributaries and that the *E. coli* exceedances are event driven and include a nonpoint source contribution. Based on this water quality data review the TMDL document states that there is no one critical condition. U.S. EPA accepts this as a reasonable conclusion. The water quality standards are applicable to the recreational season, April 1 through October 31. The TMDL was calculated using water quality data from the entire recreational season. Additionally, the distribution is across the entire recreational season. Using data from the entire season and applying this data throughout the entire season reasonably accounts for the critical flow and loading conditions in Salt Creek due to the *E. coli* impairment.

The Hydrological Simulation Program Fortran (HSPF) model was used to help estimate the existing point and nonpoint source loadings for the Salt Creek watershed. Physical characteristics of the watershed along with climate and source loading data were used to produce a simulated response. Table 19 of the TMDL document shows the final estimated daily loads (counts/day) used as inputs in the calibrated model. The model components are nonpoint source loading, instream parameters, and point source loading. There is good agreement between observed and simulated concentrations. A comparison of observed and simulated values for annual flow and baseline contribution from the model was acceptable. Good agreement was shown based on monthly and daily flow comparisons. The model appears to over-predict the peaks caused by CSO inputs.

Using the concentrations predicted by the calibrated model, frequency distributions of *E. coli* concentrations were analyzed. Existing conditions were defined as the distribution of *E. coli* concentrations predicted by the calibrated model. The distribution includes predicted *E. coli* concentrations for each day within the 1998 recreational season (this was the calibration period of the model). The predicted distribution was approximated as lognormal. Figure 39 of the TMDL document graphically displays the predicted *E. coli* concentrations and the lognormal regression. A perfect correlation results in a correlation coefficient of 1. The lognormal regression for the predicted *E. coli* concentrations has a correlation coefficient of 0.91. Use of the 100<sup>th</sup> percentile of the data set represents the maximum concentration. This maximum concentration is then compared to the single-sample standard in order to calculate the necessary percent reductions. The existing *E. coli* concentration predicted at the 100<sup>th</sup> percentile using the HSPF model outputs and the regression is 1,445 CFU/100ml. The TMDL may be amended or modified as new information on the watershed is developed in order to better account for contributing sources of pollutant and to determine where load reductions in the watershed are most appropriate.

U.S. EPA finds that the TMDL document submitted by the State satisfies the requirements of this element.



#### **4. Wasteload Allocations (WLAs)**

U.S. 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.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. U.S. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

#### Comments:

There are ten facilities in the Salt Creek watershed that have NPDES permits. These permits contain limits that are set at levels protective of both human health and aquatic life in waters that receive the discharge, and all ten permits were issued with the purpose of meeting water quality standards for *E. coli* in the receiving water. Therefore, the WLA for each of the ten permitted facilities can be considered to be the water quality standard for *E. coli*, which is 125 CFU/100ml 5-samples 30-day geometric mean. The existing permits for these ten facilities will not be affected by this WLA. No changes to the existing permit limits will result from this WLA since the permits already contain limits that are set to meet the water quality standards for *E. coli* in the receiving waters. The necessary WLA reductions will be achieved by eliminating all bypasses and reducing CSO input loads to the 5-sample 30-day geometric mean standard. To determine the necessary percentage reduction needed to accomplish this reduction in bypass and CSO events, the HSPF model inputs were adjusted to account for the input concentrations at 125 CFU/100ml. The resulting concentrations were fit to the lognormal regression model. The correlation coefficient for this regression was determined to be 0.94. The resulting concentration as predicted at the 100<sup>th</sup> percentile of the distribution without CSO and bypass contribution was 1023 CFU/100ml. Therefore, the percent reduction attributed to the WLA is determined to be 29%. If new information about contributions and reductions from point sources becomes available, the State can amend or modify the WLA.

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

U.S. EPA finds that the TMDL document submitted by the State satisfies the requirements of this element.

**5. Load Allocations (LAs)**

U.S. EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future non-point sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and non-point sources.

Comments:

The load allocation was calculated as the percentage reduction in addition to the WLA necessary to reduce concentrations to the loading capacity of Salt Creek. Specifically, the load allocation was calculated as the percentage required to reduce the 100<sup>th</sup> percentile concentration from 1023 CFU/100ml (post-WLA reduction conditions) to 235 CFU/100ml (the loading capacity). The required load allocation percent reduction is 55%. This 55% reduction is applied to the entire Salt Creek watershed. Looking at the water quality data analysis conducted by the State this percentage reduction appears reasonable. The water quality data analysis indicates that the *E. coli* concentrations in the Salt Creek watershed are not all from CSO events. The analysis indicated that nonpoint sources are present and contribute to the *E. coli* impairment. The LA may be amended or modified as new information on the watershed is developed in order to better account for contributing sources of *E. coli* and to determine where load reductions in the watershed are most appropriate.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies the requirements of this element.

**6. Margin of Safety (MOS)**

The statute and regulations require that a TMDL 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)). U.S. 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 must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

Comments:

The MOS is an explicit 4%. The water quality target established in the TMDL is 170 CFU/100ml for a single sample. The water quality standard for a single sample is 235 CFU/100ml. This target condition is 28% lower than the single sample standard. Additionally, the regression model shows an estimated post-TMDL geometric mean *E. coli* concentration between 30 and 70 CFU/100ml. This estimated post-TMDL geometric mean is at least 44% lower than the 5-sample 30-day geometric mean standard. Good correlation in the HSPF model and the regression model along with the target being set at a concentration 28% lower than the water quality standard support a low percentage for the explicit MOS in this TMDL.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies the requirements of this element.

**7. Seasonal Variation**

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 variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1) ).

Comments:

The TMDL report adequately addresses the seasonal variation by using the distribution across the entire recreational season, April through October. Seasonality is also accounted for by using water quality data and climate data from the entire recreational season in the HSPF model runs.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies the requirements of this element.

**8. Reasonable Assurances**

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL.

When a TMDL is developed for waters impaired by both point and non-point sources, and the WLA is based on an assumption that non-point source load reductions will occur, U.S. EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that non-point source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for U.S. EPA to determine that the TMDL,

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

U.S. EPA's August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by non-point sources. However, U.S. EPA cannot disapprove a TMDL for non-point source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

**Comments:**

The State has provided reasonable assurance for some nonpoint source reductions by being conditionally selected for grant funds through the Great Lakes Coastal Restoration Grants Program. Assuming the State receives these funds, overall pollutant loading from nonpoint sources -- not necessarily specific to *E. coli* -- can be reduced by the restoration activities planned for Salt Creek at Imagination Glen Park and the Creekside Park Development. The State has also identified Phase II storm water permits within the watershed. Implementation of the controls within these permits will minimize the contributions of *E. coli* to the watershed from storm water. The TMDL document indicated that three of the six permit requirements have already been implemented by the City of Valparaiso. Section 8.12 of the TMDL document identifies best management practices (BMPs) which could be implemented throughout the watershed to minimize the impacts of *E. coli* concentrations contributed from nonpoint sources. Reasonable assurance for reduction of *E. coli* concentration contribution from bypass and CSO events is the NPDES permit process and the LTCP requirements currently under review by the State. During the next permit renewal of facilities with bypass events, the State can evaluate the facility capacity and require any necessary changes to the facility to ensure that no bypass events occur. According to the TMDL document a purpose of the LTCP is to assist Valparaiso in meeting the water quality standard for *E. coli*.

U.S. EPA finds that this section has been adequately addressed.

**9. Monitoring Plan to Track TMDL Effectiveness**

U.S. EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (U.S. EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and non-point sources, and the WLA is based on an assumption that non-point source load reductions will occur. Such a TMDL should provide assurances that non-point source controls will achieve expected load reductions and, such TMDL 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 and leading to attainment of water quality standards.

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

Comments:

Water quality will continue to be monitored throughout the Salt Creek watershed during implementation. Monitoring will continue through the State fixed station data collection program, the IDEM statewide *E. coli* monitoring project, the Lake Michigan Interagency Task Force/Nonpoint Source Monitoring Project, and the DMRs from the NPDES facilities. Data will be evaluated and if sufficient progress is not being made modifications will be made to the implementation plan.

U.S. EPA finds that this section has been adequately addressed.

**10. Implementation**

U.S. EPA policy encourages Regions to work in partnership with States/Tribes to achieve non-point source load allocations established for 303(d)-listed waters impaired by non-point sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that non-point source LAs established in TMDLs for waters impaired solely or primarily by non-point sources will in fact be achieved. In addition, U.S. EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. U.S. EPA is not required to and does not approve TMDL implementation plans.

Comments:

Implementation efforts for point sources will occur through permit renewals, approval and implementation of the City of Valparaiso's Long Term Control Plan (LTCP), assessment of capacity for facilities with bypass events, and implementation of Phase II storm water rule. Currently, five out of the ten NPDES permitted facilities in the Salt Creek watershed are required to monitor for *E. coli* in their effluent. During the next permit renewal *E. coli* monitoring will be incorporated into the remaining five NPDES permits. The City of Valparaiso's LTCP was submitted to the State and is currently under review. The City of Valparaiso has already begun upgrade and expansion improvements. These improvements and operation pursuant to an approved LTCP should assist Valparaiso in meeting the *E. coli* water quality standard. While this TMDL was being developed the State was contacting entities which are required to obtain a storm water permit and implement Phase II regulations. The City of Valparaiso has already begun implementing three of the six minimum storm water control measures.

Implementation efforts for nonpoint sources will take place through voluntary BMPs (best management practices). Several BMPs are recommended which will help decrease the contributions of *E. coli* entering Salt Creek from urban areas, croplands, pasturelands and rural septic systems. In addition to BMPs there are restoration projects planned for areas within the Salt Creek watershed that may enhance the overall water quality in Salt Creek. Additionally, these projects may enhance public awareness of water quality in the Salt Creek Watershed. Current plans, conditionally selected and awaiting federal approval, include restoration and

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

enhancement of the natural communities at Samuelson's Fen and Salt Creek at Imagination Glen Park, and restoration & maintenance of the native upland habitat, wetlands and fens at Creekside Park and the Salt Creek corridor.

U.S. EPA finds that this section has been adequately addressed although, U.S. EPA is not required to and does not approve TMDL implementation plans.

## **11. Public Participation**

U.S. EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii) ). In guidance, U.S. EPA has explained that final TMDLs submitted to U.S. EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When U.S. EPA establishes a TMDL, U.S. EPA regulations require U.S. EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2) ).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If U.S. EPA determines that a State/Tribe has not provided adequate public participation, U.S. EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by U.S. EPA.

### Comments:

Public participation included four public stakeholder meetings to present the progress of the TMDL for Salt Creek prior to the release of the draft TMDL which was released for public review and comment in January 2004. These four meetings were held on July 25 and October 22, 2002, and June 25 and December 15, 2003. Various mailings announcing the public stakeholder meetings and the availability of interim reports on the state website were dated July 18 and October 10, 2002, and January 6, May 19, May 29, October 29 and December 3, 2003. Copies of these mailings, mailing lists, sign-in sheets from the meetings, meeting agendas, and questions asked at these meetings were submitted by the state as enclosures to the transmittal letter.

A public comment period was held from January 23 to February 23, 2004, with a public meeting on January 29, 2004. The state announced the availability of the draft TMDL and the public meeting through a mass mailing letter dated January 8, 2004. During the public comment period the state received one electronic public comment. A copy of the state's response letter was included as an enclosure to the transmittal letter along with a copy of the public meeting and draft availability letter, mailing list, meeting attendance record, and questions asked summary. A

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

copy of the electronic comment received by the state was sent electronically to U.S. EPA on June 8, 2004.

In addition to the public stakeholder meetings, the public comment period, and the various mailings, a project website was maintained at [www.saltcreektmdl.org](http://www.saltcreektmdl.org). This website contained pertinent documents, announcements, and information about the project. Project documents were also available for download on IDEM's TMDL website <http://www.in.gov/idem/water/assessbr/tmdl/tmdldocs.html>.

U.S. EPA finds that the TMDL document submitted by IDEM satisfies the requirements of this eleventh element.

## **12. Submittal Letter**

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to U.S. EPA 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 U.S. EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and U.S. EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

### Comments:

The transmittal letter from Martha Clark Mettler, Chief, Watershed Branch, Office of Water Quality, IDEM, to Kevin Pierard, Chief, Watershed and Wetlands Branch, U.S. EPA, R5, is not dated. The transmittal letter is marked received by Kevin Pierard, U.S. EPA on April 8, 2004. The enclosed Salt Creek *E. coli* TMDL is dated March 31, 2004. The transmittal letter states that this is a final TMDL submitted under Section 303(d) of the CWA. The letter also contains the names and segment identification numbers of the waterbodies along with the causes/pollutants of concern as they appear on the Indiana 303(d) list. This decision document addresses the approval of TMDLs for the five (5) segments of Salt Creek as identified in the transmittal letter.

U.S. EPA finds that the TMDL transmittal letter submitted by the State satisfies the requirements of this twelfth element.

**TMDL Decision Document**  
**Salt Creek, Porter County, Indiana**  
**2004 303(d) ID# 34**  
**Approval Date:**

**13. Conclusion**

After a full and complete review, U.S. EPA finds that the TMDL for Salt Creek, Porter County, Indiana, satisfies the elements of an approvable TMDL. This approval is for five (5) waterbody segments impaired by *E. coli* for a total of five (5) TMDLs addressing 5 impairments as identified on Indiana's 2004 303(d) list.

<u>Waterbody</u>	<u>Segment ID Number</u>	<u>Pollutant</u>	<u>Impairment</u>
Salt Creek	INC0151_T1012	<i>E. coli</i>	<i>E. coli</i>
Salt Creek	INC0152_T1013	<i>E. coli</i>	<i>E. coli</i>
Salt Creek	INC0153_T1015	<i>E. coli</i>	<i>E. coli</i>
Salt Creek	INC0155_T1017	<i>E. coli</i>	<i>E. coli</i>
Salt Creek	INC0155_T1088	<i>E. coli</i>	<i>E. coli</i>

U.S. EPA's approval of this TMDL extends to the waterbodies which are identified in this decision document and the TMDL document with the exception of any portions of the waterbodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. U.S. EPA is taking no action to approve or disapprove the State's TMDL with respect to those portions of the waters at this time. U.S. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.