RESOLUTION NO. 2010-02

A Resolution adopting a Long Term Control Plan for elimination of combined sewer overflows within the Muncie Sanitary District

WHEREAS, the Board of Sanitary Commissioners of the Muncie Sanitary District, Muncie, Delaware County Indiana has heretofore adopted by Resolution in 2001 a long term control plan for the reduction of combined sewer overflow in to the White River and subsequently updated such plan in 2007; and

WHEREAS, the Board of Sanitary Commissioners has received the final recommendations of its Citizens Advisory Committee and the Staff of the District concerning the adoption of its final plan; and

WHEREAS, the Board has presented its revised Long Term Control Plan at a March 23, 2010 public hearing and asked that any additional public comments be submitted to the Board in writing within ten (10) days of the date of the Public Hearing; and

WHEREAS, the Board has caused the Executive Summary of its revised Muncie, Indiana Combined Sewer Overflow Long Term Control Plan to be attached to this Resolution as Exhibit "A" and incorporated thereby as though set forth at length herein and in addition has cause the complete text of the Muncie, Indiana Combined Sewer Overflow Long Term Control Plan Update, dated as of the date of this Resolution to be filed with the Administrative Office of the Muncie Sanitary District.

BE IT THEREFORE RESOLVED, that the Board of Sanitary Commissioners does hereby approve and adopt the Muncie, Indiana Combined Sewer Overflow Long Term Control Plan Update, dated as of the date of this Resolution, The Executive Summery of which is attached hereto as Exhibit "A" to this Resolution which provides for elimination of combined sewers within the Muncie Sanitary District.

BE IT FURTHER RESOLVED, that a copy of the entire plan shall be filed in the Administrative Offices of the Muncie Sanitary District as a record available to the Public and that a copy of the entire plan shall also be submitted to the Indiana Department of Environmental Management for their review and approval.

BE IT FURTHER RESOLVED, that this Resolution shall become effective on and after its passage and shall remain in full force and effect until amended or repealed by this Board.

THIS RESOLUTION APPROVED this 6th day of April, 2010 by the Board of Sanitary Commissioners of the Muncie Sanitary District.

BOARD OF SANITARY COMMISSIONERS:

Tom Bennington, President

Steven Murphy, Vice-President

Teresa L. Ford, Secretary

EXHIBIT A

EXECUTIVE SUMMARY

E.1 INTRODUCTION

This 2010 Long Term Control Plan (LTCP) consolidates and updates information from the original LTCP dated May 2002, the2007 LTCP Update, subsequent responses to review letters, and flow monitoring results of all combined sewer overflows (CSOs) entered into a storm water management model (SWMM).

This LTCP was prepared to comply with an approval schedule set by a State Judicial Agreement and comments by the Indiana Department of Environmental Management (IDEM) on previous LTCP versions. The LTCP includes a computer model of the combined sewer system that includes all of the CSOs, evaluation of alternatives to meet water quality standards, recent public input via a citizen's advisory committee and public meetings, and Muncie's current financial capability to afford and implement CSO control measures.

E.2 DEVELOPMENT OF ALTERNATIVES

In this LTCP, alternatives for the reduction of combined sewer overflows were considered for all of the overflow locations. CSO reduction options evaluated included the following technologies:

- In-System Storage
- Retention and Treatment at the WPCF
- Retention and Treatment at site(s) remote from the WPCF
- Transport for Treatment at the WPCF site
- Sewer Separation

For each CSO location a probable project cost was developed for each CSO reduction technology that was considered to be feasible for that location. These alternative projects for individual CSOs were then grouped into overall system alternatives that provide for varying or similar levels of control. The SWMM Model was used to calculate the expected reduction in the volume of combined sewer overflows as calculated on an average annual basis and the reduction in the number of overflow events also calculated on an average annual basis. The model was also used to determine the expected reduction in volume of CO for the "Design Storms."

E.3 RECOMMENDED ALTERNATIVE

The selected alternative, Alternative B, which consists of separating the entire combined sewer system (84 miles) and critical wet weather projects at the water pollution control facility, is discussed in detail in **Chapter 4.** The estimated cost of Alternative B, in 2008 dollars, is $160 million. This alternative was selected by the Citizen's Advisory Committee and recommended to the Muncie Sanitary District Board of Sanitary Commissioners on March 9, 2010. The recommended alternative will increase the average customer's sewer bill (based on 5,000 gallons per month usage) by an average $0.85 a month (for principle and interest) each year for 30 years based on the implementation schedule in **Table E-1.**

E.4 IMPLEMENTATION SCHEDULE

The selected plan will be accomplished over a 30-year period to lessen the financial impact on the residents of Muncie. **Table E-1**, illustrates the recommended implementation schedule which prioritizes project execution from lowest to highest cost per gallon eliminated. The two exceptions are the largest areas and highest cost projects which are targeted for years 2036 and 2041, respectively.

TABLE E-1
IMPLEMENTATION SCHEDULE AND
ALTERNATIVE B COST/BENEFIT FOR PROJECTS IN SEWER SEPARATION

CSO Control Project Description	*CSO Control Project Cost (Million)*	*Target Implementation Time*	*Probable Annual Treated/Eliminated CSO Volume (MG)*	*Benefit Cost ($/MG)*
Projects at the WPCF				
Primary Power Protection Plan	$5	2012-2016		
AWT Pump Addition	$1.2	2016-2020	222	$ 5,405
WW Pump Station	$18.7	2016-2020	425	$ 73,882
WW Treatment Facility	$12.7	2021-2025		
Projects in the Collection System				
CSO #24 Separation	$0.5	2021-2025	28	$ 16,071
CSO #18 Separation	$2.8	2021-2025	146	$ 19,178
CSO #2 Separation	$0.5	2021-2025	8	$ 62,500
CSO #28 Separation Balance of Area	$5.8	2021-2025	64	$ 90,625
CSO #7 Separation	$3.4	2021-2025	37	$ 91,892
CSO #28 Separation of Flood Sta. #4	$2	2026-2030	20	$ 100,000
CSO #12 Separation	$6	2026-2030	59	$ 100,000
CSO #13 Separation	$1	2026-2030	9	$ 111,111
CSO #15 SR 32 Rplcmnt Separation	$18.4	2026-2030	103	$ 178,641
CSO #9 Separation	$1.3	2031-2035	7	$ 185,714
CSO #23 Separation	$4.5	2031-2035	23	$ 195,652
CSO #1 Separation	$0.9	2031-2035	3	$ 300,000
CSO #27 Separation	$4.4	2031-2035	11	$ 400,000
CSO #26 Separation	$1.8	2031-2035	4	$ 450,000
CSO #4 Separation	$0.1	2031-2035	0.1	$ 1,000,000
CSO #25 Separation	$0.2	2031-2035	0.1	$ 2,000,000
CSO #22 Separation	$30.1	2036-2040	200	$ 150,500
CSO #15 Separation Balance of	$38.7	2041-2045	207	$ 186,957

Area				
Total	$160		1576	$ 101,510

E.5 RESOLUTION OF OUTSTANDING ISSUES

IDEM's LTCP Review letter dated September 16, 2008 contained a list of "Issues That Need to be Resolved." The following describes how each issue of that letter was resolved in this LTCP.

Public Participation

1. A full description of the role performed by the Citizen Advisory Committee (CAC) in selection of the CSO LTCP alternatives is included in **Chapter 6**.
2. Documentation of the additional public participation that was a part of this LTCP is included in **Chapter 6**.

Characterization and Monitoring

1. Rain gauges have been placed at 3 locations in the District. The gauges measure and record rainfall volume and intensity every five minutes. More details are provided on the rain gauges in **Chapter 2**.
2. Meters have been installed at the major CSO locations. CSO metering data and rainfall data was used in the SWMM calibration and verification as described in **Chapter 2**.
3. The 2002 LTCP and the 2007 LTCP Update focused on controlling overflows from the largest and most active CSOs and described the balance of the overflows as being "primarily used for flood control". This 2010 LTCP presents alternatives for the control of overflows from all of the CSOs and no longer uses the term "primarily used for flood control". The projects for "screening and monitoring" of combined sewer overflows as included in the 2007 LTCP Update were based on meeting the requirements of the Nine Minimum Controls. However as the CSO controls in a LTCP are intended to be in addition to the Nine Minimum Controls, projects needed for screening and monitoring of combined sewer overflows are not included in this 2010 LTCP.
4. A description of how the SWMM model was calibrated and verified with field measurements is included in **Chapter 2**.

Evaluation of Alternatives

1. The previously used characterization of overflows as being primarily used for flood control is not used in this LTCP. Alternatives are presented in this LTCP for the reduction and control of overflows from all of the CSO diversion structures.
2. Documentation indicating that the sewers tributary to CSO 032 Flood Plant #2 at E. Jackson Street are not connected to the combined sewer system is included in **Appendix J**. The sewers tributary to CSO 033 Flood Plant #3 at Brady Street are also being investigated and documentation will be submitted if it is determined that these are not connected to the combined sewer system. Flood Plant Nos. 1, 2, 3 and 4 (CSOs 031, 032, 033 and 034) are part of a levee system that protects the City of Muncie from flooding of the White River. The United States Army Corps of Engineers (USACE) offers their technical services to certify levees under the FEMA administered levee certification program that includes periodic inspection of the levee and its components such as the Flood Plant pumping stations. For the levee to

be certified, the COE requires that MSD demonstrate the satisfactory operation of each pump station as part of the periodic inspection. As the inspections typically occur during dry weather conditions, running the pumps for an inspection may result in a dry weather discharge of combined sewage. This issue needs to be discussed with all parties involved, as running the pumps during dry weather may violate water quality standards, however not running the pumps may cause the COE to decertify the levee system.

3. A complete description along with a timeline for completion of the relocation of CSO 018 is included in **Appendix K** and is summarized in **Chapter 3**. Also the implementation schedule for all of the selected projects as presented in **Chapter 7**, has been specifically reviewed to insure proper sequencing of projects to minimize delay and maximize water quality improvements.
4 The LTCP has been updated to include a scientifically based level of control for each alternative that uses a calibrated SWMM model to back the assertions. The development and calibration of the SWMM Model is presented in **Section 2.5** SWMM Model Setup and Calibration and the use of the SWMM model to calculate the level of control for each alternative is included in **Chapter 4** Development of System Alternatives. IDEM provided written concerns with the use of the model for this purpose in January 2010.

Cost/Performance Considerations

1. The 2000 Median Household Income (MHI) was updated to reflect the estimated 2008 MHI. Calculations that utilize the MHI have also been updated and are included in **Chapter 5**.
2. The evaluation of alternatives has been expanded to include alternative projects for all of the CSOs and the costs for these projects have been updated to 2008 dollars. Individual projects have been combined to form overall system alternatives that achieve varying levels of CSO control as needed to prepare an analysis. With this 2010 LTCP, **Table B** – Cost/Performance Comparison of Alternatives of the January 2008 Response to (IDEM) Comments is no longer valid and should not be used.
3. The Jakes Creek Lift Station Improvements are currently under construction at a cost of approximately $4 million. However, as these improvements are to eliminate a SSO, the cost of these improvements is not included in the 2010 LTCP.

Use Attainability Analysis

1. Receiving Stream
   a. A Use Attainability Analysis will not be required. The proposed plan will enable MSD to not cause or contribute to the degradation of the receiving stream water quality standards. However, a TMDL Report has been done for the West Fork White River, Muncie to Hamilton-Marion County Line TMDL for *E.coli* Bacteria, dated February 2, 2004. The TMDL Report indicates that the levels of *E.coli* exceed water quality standards. A summary of the report is included in **Chapter 2** and the full report is in **Appendix E**. The receiving streams have been reviewed for sensitive areas as part of the LTCP and the determination is included in **Chapter 2**. The existing use of the receiving streams has also been determined as outlined in IDEM NPD Water-014 and can be found in **Chapter 2** of the LTCP.
   b. No rainfall will cause combined sewer overflows, as a new sanitary sewer system will be separated from the combined sewer system. To address inflow and infiltration from storm events, a wet weather pump station and

retention/treatment facility will be constructed at the WPCF as part of Alternative B – Sewer Separation.

c. The extent (mileage) and duration that Buck Creek and the White River are affected by the discharge of untreated CSOs will not be needed, as a UAA is not required with this LTCP.

2. Financial Evaluation
   a. Costs for the CSO alternative projects have been updated to 2008.
   b. The Median Household Income (MHI) as presented in **Chapter 5** has been updated to 2008 Dollars.

3. General Comments
   a. A copy of the Stream Reach Characterization and Evaluation Report (SRCER) is included in **Appendix D.** A summary of the selected LTCP alternative is included in **Chapter 7.**

Post Construction Monitoring

1. The schedule for submitting results from the post-construction compliance monitoring program to IDEM is included in **Section 7.4**

General Comments

1. Documentation verifying closure of CSO 010 in 2007 is included in **Appendix J.**
2. **Table A** – Summary of CSO Discharge Monitoring Reports has been updated to include information regarding the ongoing monitoring of CSO Outfalls. Information for 2002 to 2008 is included in this LTCP as **Table 4-2**– Summary of CSO Discharge Monitoring Reports (2002-2008) and information for 2009 is included **Table 4-3** – Summary of CSO Discharge Monitoring Reports for 2009.
3. The location of the storm water projects currently being performed by MSD were reviewed and compared to areas that are drained by the combined sewer system. Some of the projects are adjacent to combined sewered areas and the improved drainage system should result in reducing the amount of rainfall induced infiltration and inflow that enters the sewer system. However, as the projects will not reduce the area served by combined sewers, the storm water projects were not included in the LTCP.
4. The CSO Operational Plan was updated in March 2010. An electronic copy is included in **Appendix B** while a hard copy has been submitted under separate cover to IDEM.