CITY OF MAYSVILLE

LONG TERM CONTROL PLAN

September 28, 2010

Sewer System Owner:

City of Maysville,
Maysville Utility Commission
216 Bridge Street
Maysville, KY 41056

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1. CSO Activities to Date

Since entering into the Consent Judgment on August 30, 2007, the City of Maysville and the Maysville Utility Commission have initiated several activities to bring sanitary sewer overflows and combined sewer overflows into compliance with the pertinent regulations. Due to the five (5) year SSO and ten (10) year CSO compliance time frames imposed by the Federal Administrative Order issued to the City of Maysville-Maysville Utility Commission on December 21, 2007, the majority of the work to date has been directed toward SSOs. Various capital projects are in different stages of completion and a great deal of work has been directed at operating in a manner that more effectively controls CSOs and SSOs.

The Maysville Utility Commission (MUC) has developed a comprehensive capacity, management, operations and management program as part of the nine minimum controls. This program is in the process of being implemented, as it is a stepwise approach that builds upon itself. However, once many of the early programs that characterize the combined and sanitary systems are completed, routine cleaning and inspection will be conducted to find and fix problems before they become overflows. MUC sent the Wastewater Superintendent and the Utility Engineer to a training seminar on improving operation and maintenance of the wastewater collection system. Using this knowledge to build upon the current operations and maintenance program, the new CMOM program is much more proactive and will be much more effective at preventing CSOs and SSOs instead of just reacting to overflows. Each of the following represents changes in operations and maintenance to better control CSOs and SSOs:

MUC has hired additional sewer crew employees. When the current operation and maintenance program was analyzed, it was determined that additional manpower was needed to effectively run the system. These new employees and the existing employees

will also receive training to make them more knowledgeable and better equipped to proactively run the system. A training program has been incorporated in the CMOM program for this purpose. Two employees were hired and began work on September 2, 2008.

MUC budgeted for several pieces of equipment that will help the sewer employees prevent dry weather CSOs and SSOs as well as fix them faster. This combination of prevention and faster repair will greatly reduce the number of CSOs and SSOs as well as reduce their impact. This equipment was purchased in November 2009 and included a combination vacuum/jetter truck, a sewer camera and a long zoom camera for use in brick or rock sewers that the sewer camera tractor cannot traverse. This equipment gives MUC the tools it needs to inspect lines; find clogs, obstructions, collapses, etc and gives them the ability to clean lines both as routine maintenance and to clear roots, grease or debris. Since purchasing the equipment, MUC has been cleaning and using their sewer camera almost daily. Several areas with known problems in the past due to roots, debris or grease have been cleaned and videoed to restore their capacity and reduce the likelihood of future overflows.

MUC also used the vacuum/jetter truck to clean the wetwells at their pump stations. The vacuum/jetter truck will help them restore the wet well capacity in all of their pump stations as it is used to routinely clean them.

The Sewer camera has also enabled MUC to find several sewers that MUC was previously unaware of. Many areas of the CSS are very old and through the years several catch basins and manholes have been covered or filled in. MUC has been able to find several of these features and identify the lines associated with them and return them to operation. MUC expects to find more features like this as they use the sewer camera throughout the CSS and SSS.

MUC is currently coordinating with the City of Maysville Department of Public Works to establish a routine cleaning schedule for catch basins. This will greatly reduce the amount of grit and debris that enters the combined system and deposits in lines and wetwells. This is a key step in complying with the maximum use of the collection system for storage CSO control. The catch basin cleaning program began in October 2009 and a routine cleaning schedule will be developed based on the time required to perform the cleaning and the rate of accumulation after the initial cleaning.

The following is a list of capital projects that were identified early on as a necessary step towards compliance with the pertinent regulations and the Consent Judgment. These projects have been approved and funded and all are completed or are underway. Each project has a description and status as of the writing of this document. Several projects discussed in the development/negotiation stage of the Consent Judgment, some of which were specifically mentioned in the Consent Judgment, have already been completed. The completion of these projects was addressed in the Annual Status Report submitted in February 2009. Therefore, only the projects not completed at the signing of the Consent Judgment are included here.

1. Second Street Storm Sewer: this project was listed in the capital projects list in the Consent Judgment. This project ran into some unforeseen problems with existing utilities and the Department of Transportation permit and was completed behind schedule. However, the project was completed in June of 2008 and is working well. Some changes in the project have necessitated commencing with the design and construction of an additional project that contributes to the same permitted CSO, Rotary Park Pump station. This will be the Bridge Street Storm Sewer Project and is mentioned below.

2. Beasley Creek Pump Station Backup Power: the generator building has been built and the diesel generator and fuel tank have been installed. The generator is ready to provide backup power to the pump station; however, some non-essential items are still being worked on at the building.

   Bridge Street Storm Sewer: this project will tie into the Second Street Storm Sewer and will eliminate the need for the flapgate at the ponding area below Bridge Street. This will eliminate an outfall from the Rotary Park Pump Station. MUC has currently hired a consulting firm to design this project. This project has been incorporated with the LTCP projects, see Section 11.

3. Diversion Dams: MUC has raised the diversion dam at Wall Street and East Front Street approximately eight (8) inches and two (2) diversion dams at Poplar Street and East Second Street approximately twelve (12) inches. The better performance of the system due to improved operations and maintenance has allowed MUC to raise the dams to keep more flow in the CSS without overflowing. As additional capacity is added or stormwater removed from the system diversion dams may be raised until eventually the diversion dam is sealed off so no sewage is diverted to the outfalls.

4. Pump Repairs: Several pumps were rebuilt or repaired to improve reliability and/or capacity at some of the pump stations. This included, Rotary Park Pump Station, Lawrence Creek Pump Station, and Lower Hinton Drive Pump Station. The motor controller was replaced at Beasley Creek Pump Station.

5. Multiple Lift Station Project: This project was completed in June of 2009 and included replacing Inland Pump Station, Woodland Pump Station, Center Street Pump Station and Shawnee Hills Pump Station.

6. Washington Area Sewer Improvements Contract II: This project is the first phase of the Washington Area Sewer Improvements Project. This phase replaced the Hill City View Pump Station and the Washington Glen Pump Station.

7. Washington Area Sewer Improvements Contract 1/2 Re-Bid: This project will eliminate the Hill-N-Dale Pump Station, the Old Main Street Pump Station, the Cedarwood Pump Station and the Meadows Pump Station. This project has been split into the current Contract 1 and Contract 2. Contract 2 is currently being funding through the American Recovery and Reinvestment Act and should be completed in December 2010. Contract 1 is being constructed by the City of Maysville and should be completed by December 2010.

MUC has also been using flow monitoring devices at four CSO locations to help characterize the system and develop flow balance diagrams for the CSOs. The data from these flow monitors will also help in the design of future capital projects to eliminate CSOs. These devices will also be used for post construction monitoring to confirm that there is in fact no wastewater discharging from the combined system during wet or dry weather.

Now that the majority of the SSO projects outlined in the SSOP have been designed and most of the documents required by the Consent Judgment have been completed, MUC's focus has shifted to the long term control plan (LTCP). The continued implementation of the CMOM program and nine minimum controls has significantly reduced the overflows for 2009. There were a total of approximately 35.3 million gallons bypassed in 2009, down significantly from 169.3 million gallons in 2008. As mentioned above, raising diversion dams is a direct result of increasing capacity of the collection system. Also, the nature of the rain in 2009 kept the Ohio River lower than the outfalls. Therefore, MUC did not have to shut down the CSS pump stations due to river intrusion through the faulty flap gates. The continued implementation of the CMOM program and utilizing the new maintenance equipment will continue to reduce the number of overflows and the volume of overflows.

MUC is also in the process of implementing a work order program. Currently MUC averages 120 to 150 work orders a month. This is providing a mechanism for assigning and tracking repair work, complaints, routine maintenance, inspections, etc. The program will continually grow and evolve and will eventually provide, not only a tool for tracking ongoing work, but a means for identifying problem areas in the system based on frequency and magnitude of repair requirements. This will allow MUC to be proactive in identifying and developing capital projects prior to a system component failure.

2. Characterization, Monitoring and Modeling Activities

MUC has contracted with the Buffalo Trace Area Development District to develop a GIS map of the entire collection system. This map will help employees and design engineers better understand the system and to identify the specific sources of storm water inflow which contribute to each individual CSO. This will allow us to better plan projects and quantify their impact on the system for the LTCP. This map was completed in the fall of 2008. It was subsequently reviewed by EPA and KY Division of Enforcement and comments provided to MUC in June of 2009. The comments were addressed and the map was resubmitted in August 2009. This map is a detailed map of the identifiable above ground features but use of the sewer camera by MUC has revealed several things that are not apparent by looking at above ground features. MUC has found that using their sewer camera or dye testing is the only way to be certain of what connections are present and how sewage and stormwater are conveyed. Therefore, MUC is continually updating their map as they look at areas of their system in more detail as part of the CMOM program or while investigating problems. As the ILTCP was developed and specific projects were identified at individual CSOs, MUC concentrated their efforts in those areas to insure that all the necessary data for design and construction was available.

MUC is currently using four (4) flow monitoring devices to characterize CSOs. Two (2) of these units are Marsh-McBirney Flo-Dars and two are Marsh-McBirney Flo-Totes. The data from these flow measuring devices is stored in a data logging device that is read monthly and used to fill out the CSO DMRs each month. This data will also be used to assist in the design of the storm sewers that will eventually carry all of the water that discharges from the system and to quantify the impact of each project on the associated CSO after project completion. During the first phase of the Consent Judgment, MUC has focused on eliminating SSOs and has had the above mentioned flow monitors in place during that time frame to accumulate a large sample of data that encompasses varied rain

event intensities, durations and total accumulations. The longer we keep these flow monitors in place, the more representative the sample data becomes. Rainfall data has been compared to the overflow data to identify the relationship between rainfalls and overflow volumes at each CSO with flow monitoring equipment. This has been extrapolated to design rain events and incorporated with the pump run times to characterize each CSO in terms of what occurs during dry weather, what size storm can the system handle and not overflow and how much the CSO overflows based on the amount of rainfall. A flow balance/flow diagram has been developed to graphically demonstrate the current system (See Figure 2.1). Graphs showing how the individual CSOs with flow monitors responded to rainfall are included in Figures 2.3 through Figure 2.6.

Significant portions of the CSS were modeled using hydraulic modeling software. The entire CSS East of CSO 008, Rotary Park, was modeled in conjunction with the design of the Main Street Storm Sewer Project. This portion of the CSS includes CSOs 8,9,10,12, and 13. Using this model, detailed design is underway to completely separate the sewers in this area of the CSS, thus eliminating CSOs 8,9,10,12 and 13. See Table 7.1 for detailed information regarding this project and all other proposed LTCP Controls. The flow monitor data was used to calibrate the hydraulic model to increase the accuracy of the model, thus improving the design. Additional modeling was done in the Bridge Street Area and the Wall Street Area. This has facilitated the design of new storm lines in the Bridge Street Area and new storm and sanitary sewer lines along Lexington Pike.

Extensive sewer mapping using MUC's sewer camera and dye testing, in addition to the GIS mapping, has been conducted throughout the majority of the CSS. This has led to better characterization of the sewersheds that contribute to each CSO and thus aided in the development of LTCP controls to address each CSO. See Table 2.1 for a characterization of each CSO. Also, through the characterization of the CSOs, it was discovered that a CSO has not been on any KPDES Permit. However, due to some confusion on the naming of the CSOs, MUC has been reporting the overflows for this CSO for a different CSO. This CSO has had a flow monitoring device installed gathering data and being reported as CSO 003, which has not had any overflows since the 199 lift

station upgrades. This problem is being rectified with the Division of Water. MUC now feels like there is adequate characterization of each CSO with the exception of the Wall Street Lift Station (CSO 006). The contractor used for the installation and maintenance of the flow monitors has been unable to install a flow meter in a suitable manner at this CSO to obtain meaningful data. The primary line is a stone sewer which is susceptible to accumulation of rocks and debris because of the rough nature of the flow channel. This prevents the flow monitor from operating correctly. As part of the Phase 1 projects, this diversion structure and adjoining lines will be cleaned, allowing a flow monitor to be installed at this site. The Main Street Storm Sewer Project and the Lexington Pike Sewer Project will change the flow reaching Wall Street dramatically. So, any data obtained before these projects would be of little value to any future projects at the Wall Street Lift Station. Once the Phase 1 projects are complete, the flow monitor will be used at Wall Street to help facilitate the design of the Phase 3 controls at Wall Street.

Water quality sampling was done during three (3) rain events. MUC contracted with Hall Environmental to collect and analyze samples during rain events. The results of the sampling were not conclusive enough to change any of MUC's thinking regarding the CSO controls. Some samples had higher levels of BOD and E. Coli upstream of MUC's CSOs and other samples showed the opposite bank of the Ohio River to have greater levels of E. Coli than at the CSO. The water quality sampling report is attached in Appendix B. MUC still feels that complete elimination of the CSOs upstream of the drinking water intake is the best course of action to ensure that the CSO does not adversely impact the water treatment plant. More sampling will be conducted at Wall Street after the Phase 1 projects are complete. Since future satellite treatment may be utilized at Wall Street, the water quality data will be necessary for the design of a treatment system at this location if it proves to be necessary.

All of this characterization builds upon the work conducted in 1995 for the development of the 1995 CSOP. This included using four (4) Marsh-McBirney flo-totes as well as chalk marking the outfall pipes. After rain events, the depth of chalk lined erased was recorded and calculations performed to determine overflow rate. The 1995 CSOP determined that four (4) CSOs could be eliminated after the 1999 lift station

improvement project.. These include CSO 2, 3, 7, and 12. No overflows have been observed at these overflows since the 1999 lift station and wastewater treatment plant upgrades. MUC agrees that these CSOs are in compliance due to overflowing less than four times a year. MUC would like to eliminate these CSOs by completely sealing them off. However, to ensure that basements and low lying areas are not impacted during a large rain event, the pipes will not be immediately sealed off. As part of Phase 1 the outlet pipes at the diversion structures will have the lower 2/3rds of the pipe closed off with concrete. These CSOs will continue to be observed through the next several years with chalk marks, wood blocks and possibly flow monitors. MUC feels that there will be no overflows during rainfalls with recurrence intervals of more than four times per year. However, MUC feels that these outfalls may be necessary to provide relief during a large rain even of record, i.e. a 50-year or 100-year storm. Depending on what rain events occur in the near future, MUC may decide to completely seal the CSOs off or keep them partially opened as a means of relieving very large storm events.

Figure 2.3: Main Street

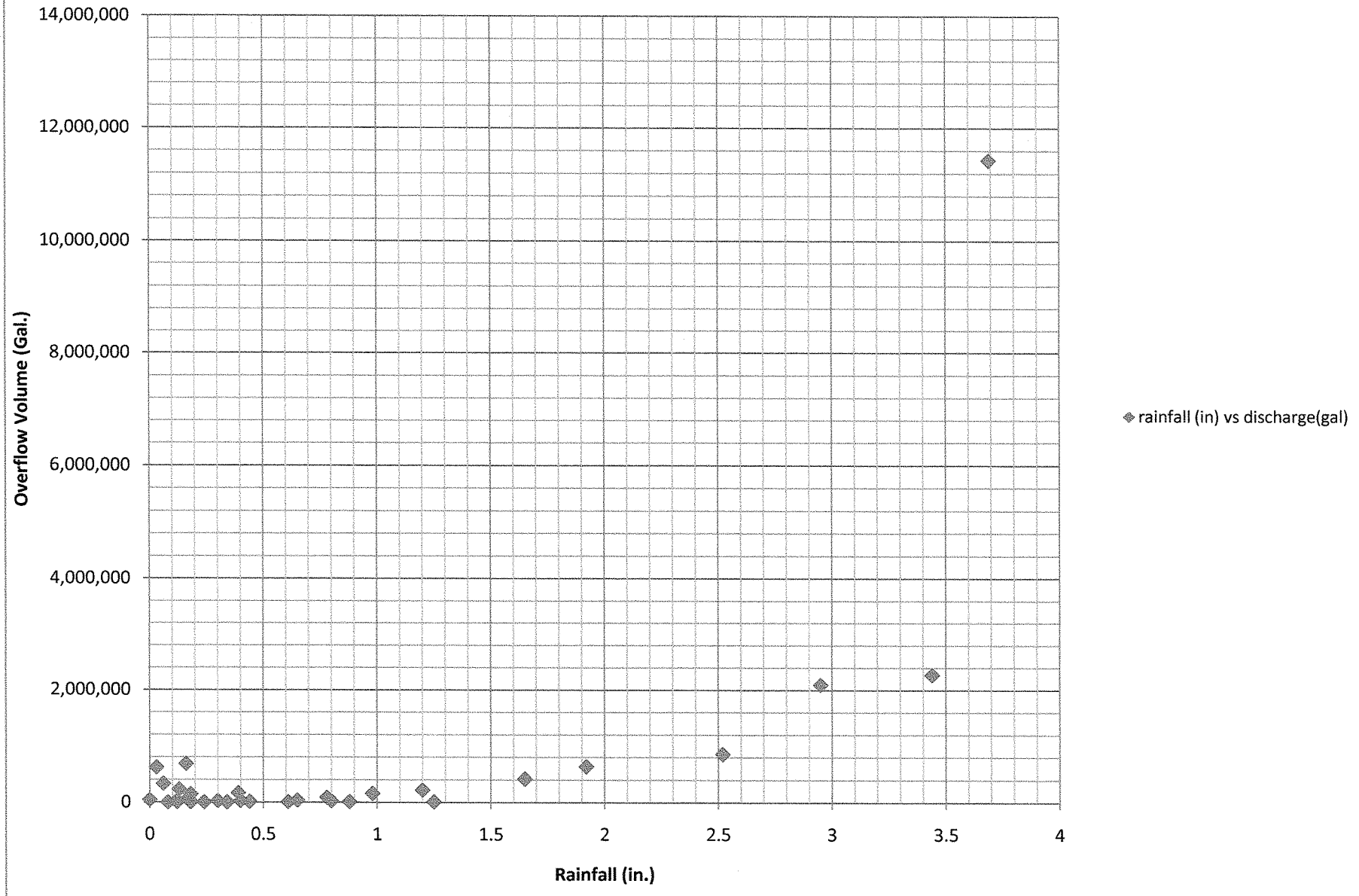


Figure 2.4: Train Depot

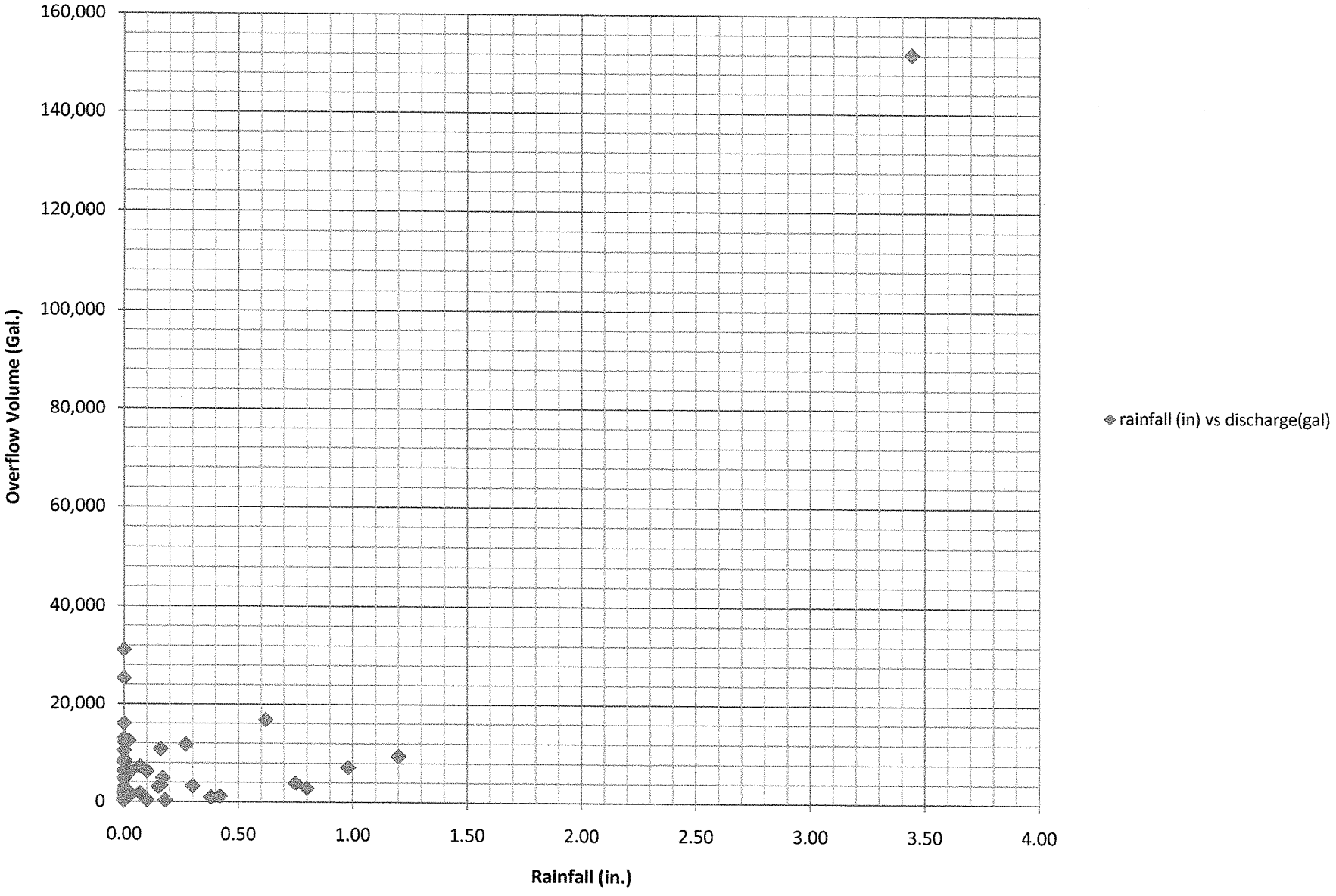


Figure 2.5: Second Street

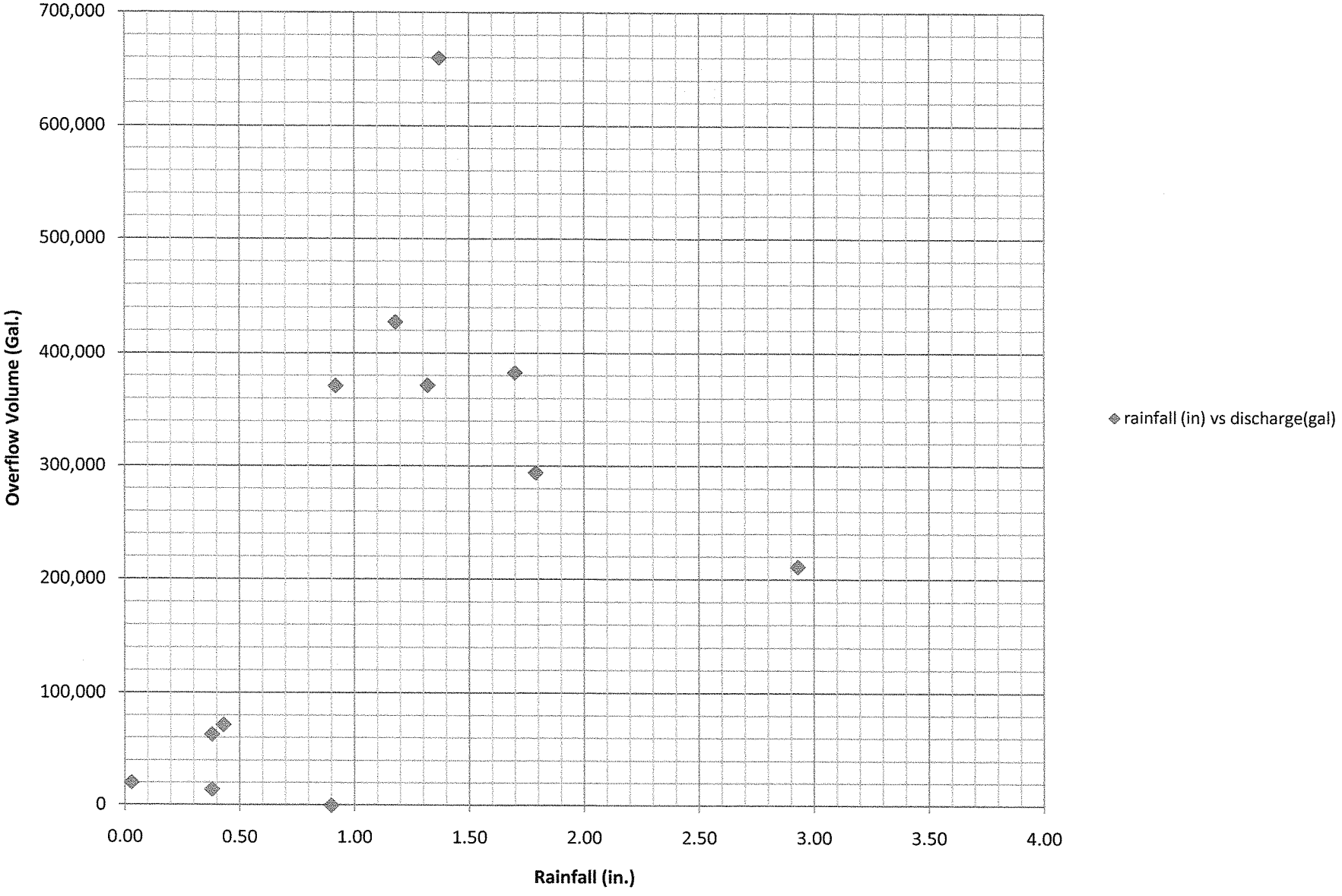
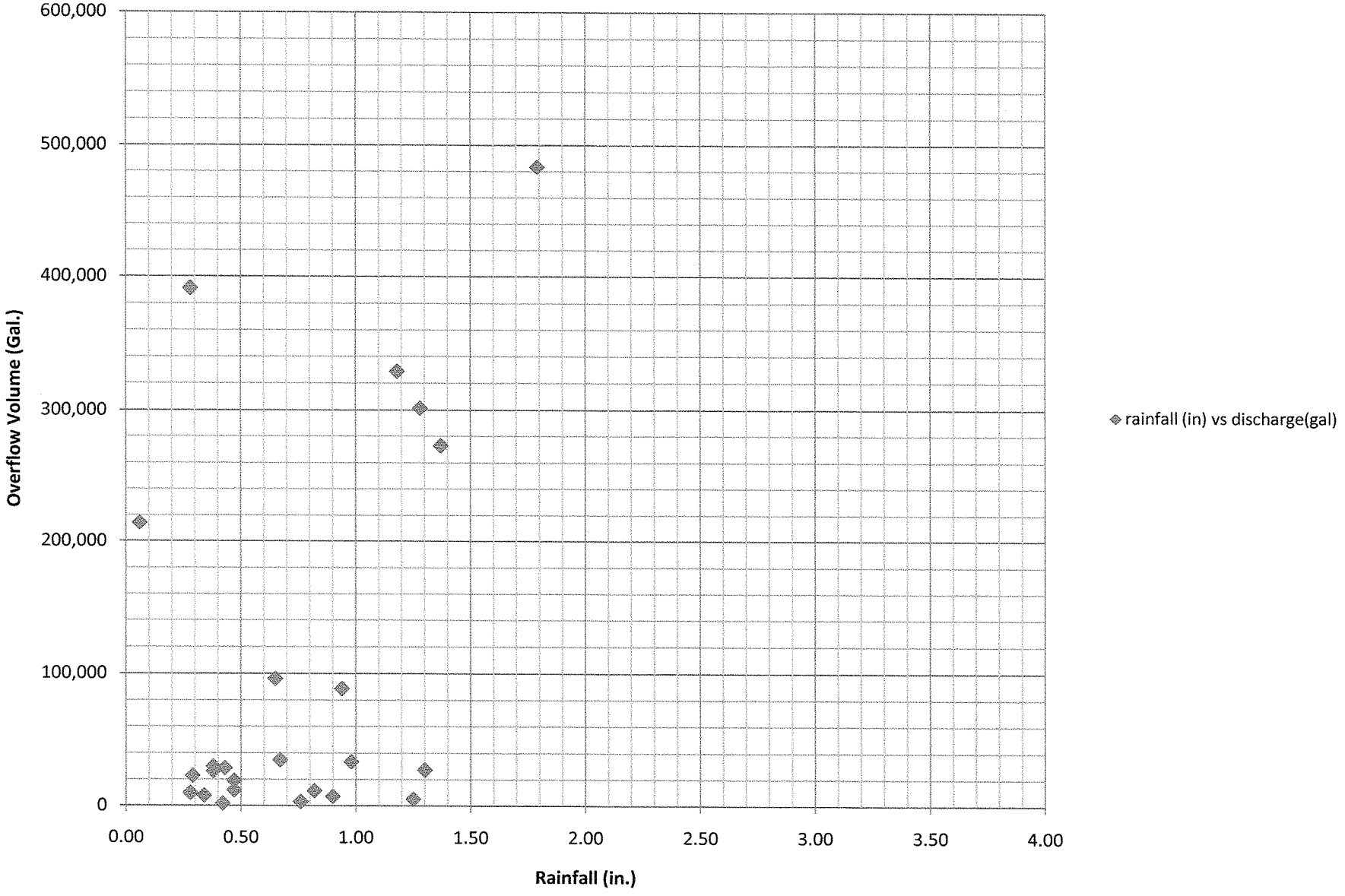


Figure 2.6: Bridge Street



3. Wastewater Treatment Plant Peak Flow Analysis

The upgrade project completed in 1999 increased the capacity of the MUC WWTP as well as the capacity of the CSS lift stations. Beasley Creek lift station was upgraded to 8.5 MGD capacity and the treatment plant was upgraded to 8.5 MGD wet weather capacity. Figures 3.1-3.3 demonstrate the WWTP's ability to treat the flows coming to the WWTP. Effluent BOD, TSS, E. Coli and % removal of BOD and TSS are shown. The WWTP is able to adequately treat all of the flow coming from Beasley without violating any effluent limits on the KPDES Permit. However, the WWTP has some problems that occur during wet weather that do not cause effluent water quality to exceed allowable limits. The main problem is with pin floc carrying over from the clarifier into the chlorine contactor. This creates a maintenance issue for the operators and is not the most efficient way to operate the plant. As part of the Phase 2 WWTP Improvement Project (see Table 7.1), an additional clarifier or additional baffles in the existing clarifiers will be constructed. The major problems with the plant are with the headworks and the grit handling. The grit removal system was placed downstream of the screens. As a result, the influent pumps and screens have problems associated with the excessive grit. The screened material falls into screw conveyors that have been destroyed by grit. The Phase 2 WWTP Improvement Project will add a grit/grease removal system at the head of the plant along with a new influent pump station. This will remove the grit and grease before it can foul the pumps and the screens. A new set of screens will be added as well to provide redundancy should they become fouled or have problems, thus improving screening and reducing the likelihood of problems with the screw conveyors. The air piping for the blower room to the vertical loop reactor aerator will be replaced with this project. These various improvements will improve efficiency, reduce maintenance and downtime, improving the overall operation of the WWTP as well as increase the wet weather capacity to approximately 13.2 MGD.

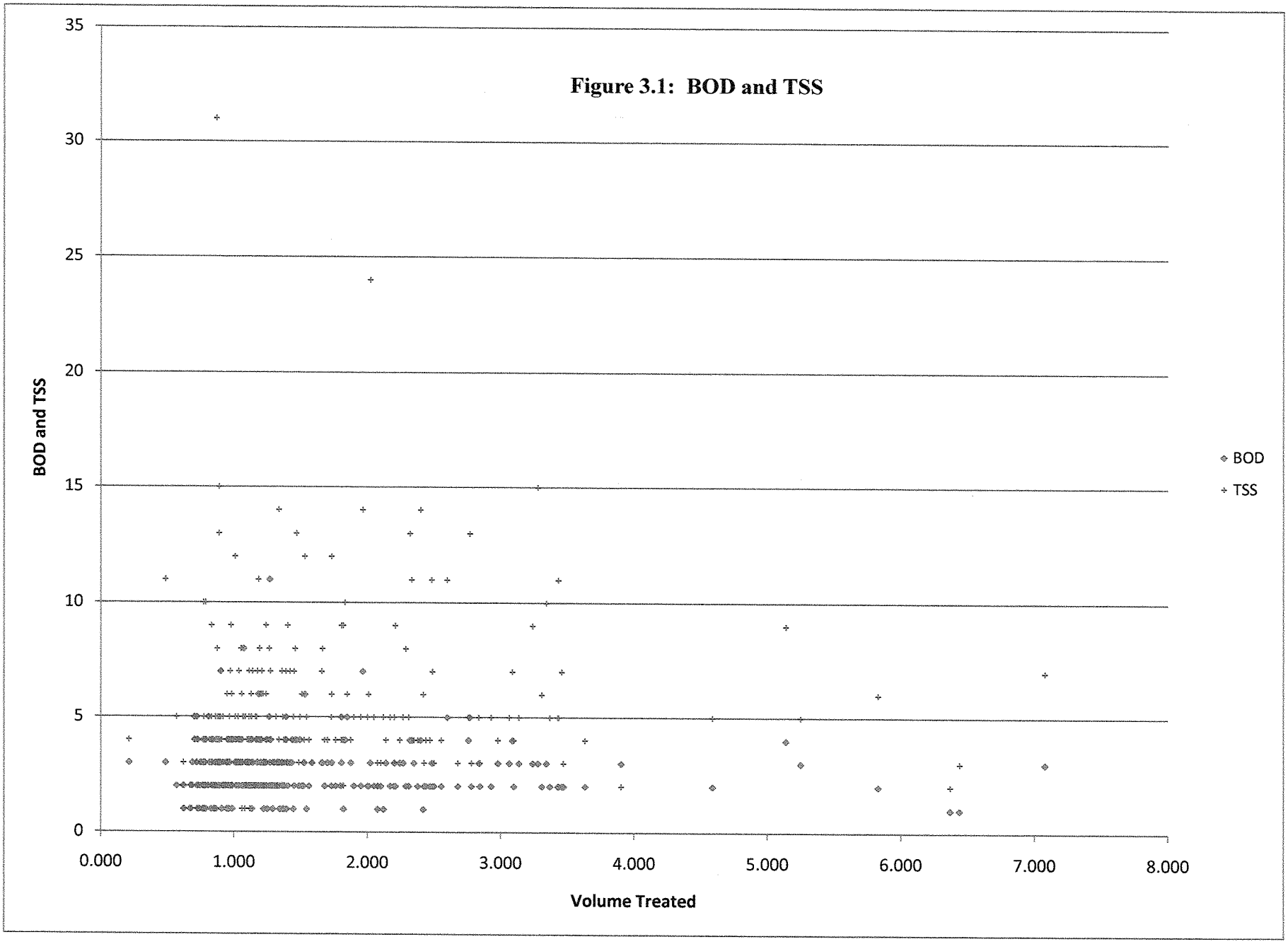


Figure 3.1: BOD and TSS
35
30
25
20
15
10
5
0
BOD and TSS
0.000
1.000
2.000
3.000
4.000
5.000
6.000
7.000
8.000
Volume Treated
BOD
TSS

Figure 3.2: E. Coli

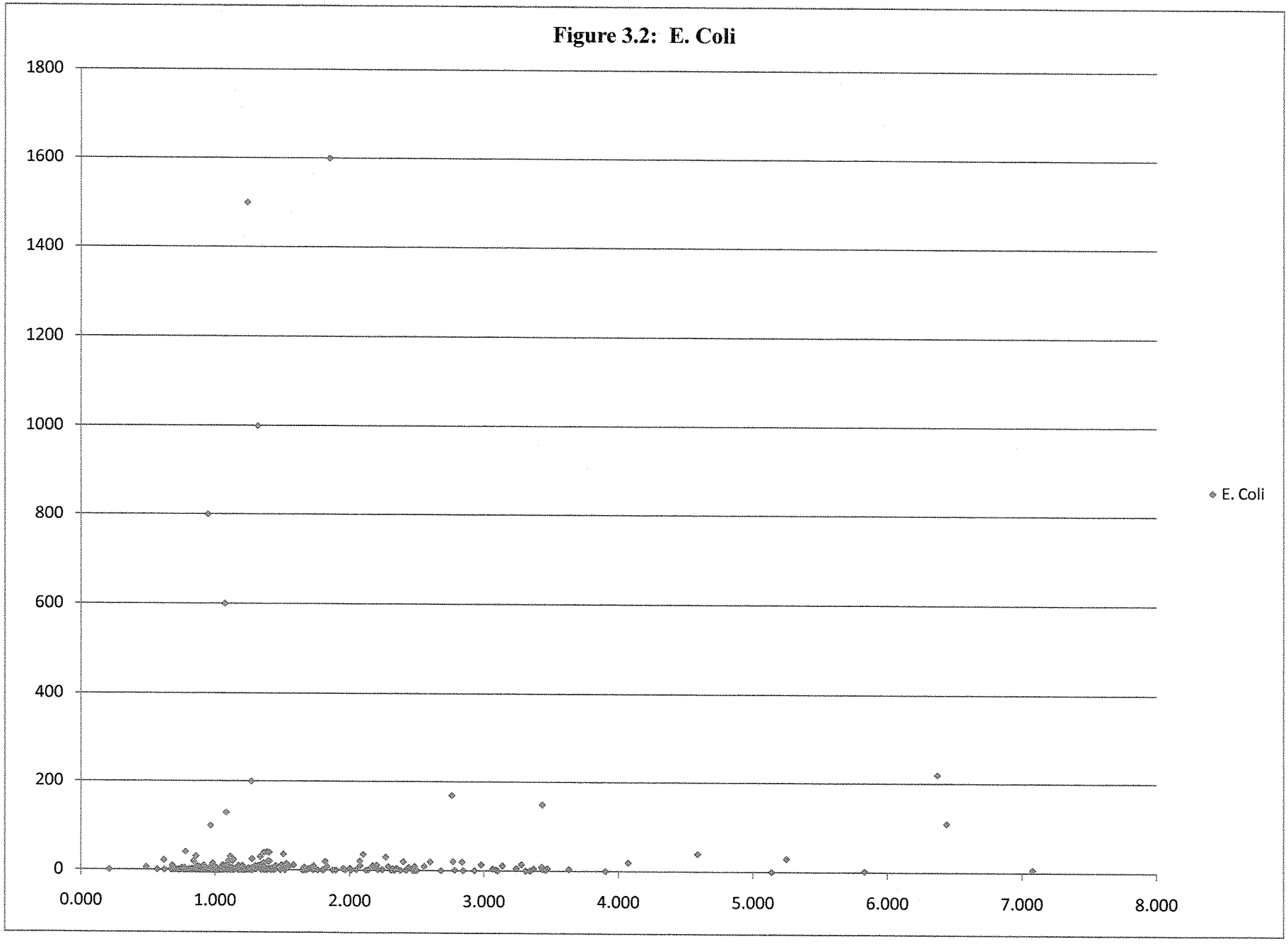
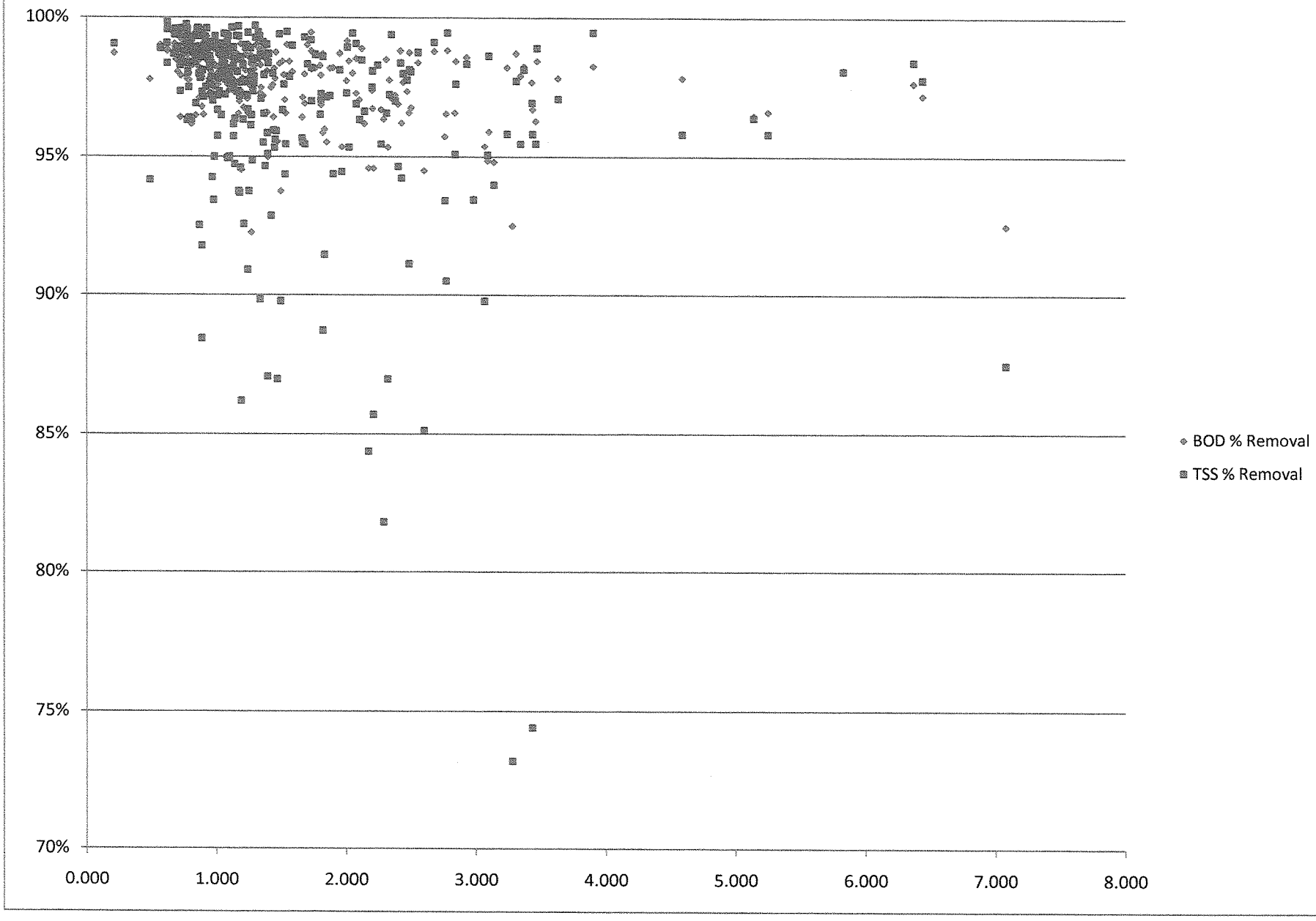


Figure 3.3: Percent Removal



4. Public Participation Process

MUC has currently been involving the public in the CSO control process in several ways. One of which is building a demonstration rain barrel to show the public ways in which they can help reduce stormwater runoff. This demonstration coincided with the implementation of the downspout separation program. The demonstration barrel was setup at the public library which is not only patronized by many citizens but it is situated along a busy thoroughfare so passing motorists and pedestrians can see the barrel. In conjunction with the demonstration barrel, an informational display and video was setup inside the library with handouts directing interested persons to additional information. The project was well received as the library distributed over 200 of the pamphlets with additional information.

Maysville has worked closely with the affected public during the construction of our first major CSO control construction project. The Second Street Project shutdown large areas of Second Street and affected several businesses. In an effort to leave the concerned parties with a better impression of the CSO work, Maysville repaved several parking lots and replaced the sidewalk in the area. The paving and sidewalk work left the area in better repair than before the project was constructed both with the underground infrastructure as well as the above ground infrastructure. Maysville plans to use the CSO infrastructure projects as an opportunity to repair or improve visible infrastructure in the area in conjunction with doing the work on the underground utilities or pump stations. This will not be possible in all areas but will be investigated as part of each infrastructure project to determine the benefit to the public and financial feasibility. It should be noted that these collateral infrastructure projects will be funded by the City rather than the MUC.

The general public was also involved in several ways during the development of the LTCP. There have been several local newspaper articles concerning the Consent Judgment, the Administrative Order and ongoing projects and initiatives over the past three years. Most recently, MUC and the City of Maysville worked with the Maysville

Ledger Independent newspaper to write a Lifestyle article in the newspaper. The article discussed Maysville's consent judgment and its administrative order. The article also explained that the LTCP is being developed with capital projects to bring the CSOs into compliance. The article informed the public of a public meeting to discuss the LTCP and Maysville's entire wet weather situation. In addition to the Lifestyles article, the MUC also ran a notice in the newspaper concerning the time and location of the public meeting. The meeting was held at the Maysville City Building at 5:15 in the afternoon, however, there was no one from the general public in attendance. MUC felt that the article was very informative and must have answered the concerns any of the public had. Since there were no comments received from the public, the assumption is that there are presently no public concerns about any of the projects that require additional investigation at this time. If the KYDOW or EPA has comments that require major revisions to any of the projects or any new projects, another public meeting will be held to allow the public to express any concerns with the project changes or any of the new projects. Additionally, the public will be given opportunities and a means to provide input during the project implementation process. Although it is unlikely that this will result in any major changes to the project itself, it will allow the public a voice in means and methods of ongoing project activities that impact their neighborhood.

Once the LTCP implementation begins, MUC plans on having the local newspaper write periodic articles to keep the community informed of the progress of specific capital projects as well as update them on the overall status of the wet weather situation. This information will also be posted on both the MUC and City websites.

5. Consideration of Sensitive Areas

There are two CSOs that discharge into the Ohio River upstream of the MUC drinking water plant intake, CSO 12 and CSO 13. MUC has not observed any bypasses at CSO 12 since the Washington Street Lift Station was upgraded in 1997. As mentioned previously, this overflow will be partially closed off and monitored with wood blocks and chalk to see if bypasses occur during rains of record. The Main Street Storm Water Project will also reduce the amount of flow coming into this station. Therefore, the rain amount required to cause an overflow at this CSO will be even greater. CSO 13 will be given the highest priority and the CSO controls that will help eliminate this CSO will be completed first. Currently, there is a Flo-Tote in the overflow at CSO 13 to characterize the overflow and aid in the design of the storm sewer separation project that will eliminate this CSO and CSO 12. This CSO is located at the pump station that is furthest from the POTW in the CSS. So by eliminating the CSOs in the order that they pump to each other and eventually to the POTW, MUC will prevent inadvertently overloading pump stations with the implementation of CSO controls.

All of the other combined sewer overflows either discharge into the Ohio River or into a tributary stream very close to its confluence with the Ohio River. None of the tributaries are used by the public for swimming, and only occasionally for fishing. None of these tributaries are mentioned in the most current 305B/D report from the Kentucky Division of Water. This area of the Ohio River is not commonly used for swimming, however boating and fishing in the area is common. Therefore, no CSO affects a more sensitive area than any other with the exception of the two CSOs upstream of the drinking water intake. The River Walk mentioned in the previous draft the ILTCP has been completed. The walk has increased pedestrian traffic to the area, but has not significantly increased the recreational contact with the Ohio River in the area. However, the Main Street Storm Water Project and the Bridge Street Storm Water Project will eliminate CSOs 8, 9, 10, 12, 13 and 15. This will eliminate all of the CSOs above the river walk and above the

majority of the fishing access points. The floodwall is concrete everywhere downstream of Limestone Street and the railroad tracks are between the floodwall and the river making access difficult in this end of town.

6. Evaluation of Alternatives

Maysville's intended course of action to comply with the Consent Judgment and the Administrative Order was to follow the presumptive approach and eliminate all of the CSOs. Elimination of all CSOs would remove them from MUC's KPDES permit and they will no longer be an issue. However, based on some the work completed while developing the LTCP, some CSOs cannot be cost effectively eliminated. Therefore, various controls that would bring these CSOs into compliance have been evaluated. The CSOP done in 1996 examined alternatives for CSO abatement. These alternatives included upgrading the capacity of all of the necessary infrastructure including the POTW to treat all of the stormwater in addition to the sanitary sewer, providing satellite treatment at the individual CSOs and separating the storm water from the CSS. Based on the 1996 CSOP for the City of Maysville, a combination approach was recommended. This included increasing the capacities of some pump stations and the POTW as well as some collectors and interceptors and providing satellite treatment. Since the 1996 CSOP the POTW and several pump stations have been upgraded. Maysville does not plan to completely separate 100% of the storm water from the CSS, but use a combination of stormwater separation, pump station, force main and gravity sewer upgrades and POTW upgrades. Only the flows from the CSOs that cannot be readily eliminated at present were considered. The flows from each CSO used for sizing the infrastructure for each alternative is as follows:

CS0 006	6 MGD
CSO 008	6 MGD
CSO 009	4 MGD
CSO 010	3 MGD
CSO 013	8 MGD
CSO 015	1 MGD
Depot	3 MGD

The alternatives considered are outlined below:

Alternative 1

Capture 100% of the storm sewer and sanitary sewer and convey it to a central location for treatment. The lift station in the CSS would have to be upgraded to have greater pumping capacity or storage capacity to be able to contain all of the storm water in the CSS without discharging. All of the flow, approximately 28 MGD, would then be pumped to the Beasley Creek Lift Station. Currently the Beasley Creek Station can pump 8.5 MGD to the WWTP which can treat 8.5 MGD. Therefore, a 20 MGD treatment facility would have to be constructed at the Beasley Creek Lift Station (Alternative 1A) or the Beasley Creek Lift Station would have to be upgraded to pump all of this flow to the WWTP which would have to be upgraded to treat 28 MGD (Alternative 1B).

Alternative 1A is impractical due to the lack of space nearby to construct a 20 MGD treatment facility. The only land available in the area is a narrow strip of land between KY 10 and the railroad tracks. Both parallel the Ohio River from the site all the way to the WWTP.

Alternative 1B is cost prohibitive as well as unconstructable due to the condition of KY 10 in the area.. The KYDOT has indicated that no future encroachment permits will be granted along this section of KY 10 due to landslides and the road itself slipping toward the Ohio River. The force main required would be a 30-inch which would be a very large excavation along an already unstable roadway.

Alternative 2

Provide Satellite treatment at each CSO. This would consist of providing appropriately sized screening and disinfection facilities at each overflow to treat the overflow before it entered the receiving stream. The costs for the facilities are from EPA CSO Control Costs Equations updated for inflation. The 1995 CSOP assumed that the water quality is such that screening and disinfection only would be sufficient to meet KPDES effluent

limits at each CSO outfall. However, as regulations continue to become more strict, these facilities may need to be upgraded to more costly high rate sedimentation and chemical treatment and disinfection. The costs shown are in Table 6.1 for the latter scheme.

Alternative 3

Complete separation of storm sewer from sanitary sewers. This would basically involve constructing new sanitary and storm sewers so that no sanitary sewer enters a storm sewer. The end result would be two completely isolated systems in the current CSS area. This would involve new sanitary lines in some areas and new storm lines in others depending on the nature of the existing infrastructure in the area. The costs are shown in Table 6.2.

Alternative 4

Complete separation of storm sewer from sanitary sewers except for the historic district. This would basically involve constructing new sanitary and storm sewers so that no sanitary sewer enters a storm sewer except in the historic district downtown bound by Limestone, Wall and Third streets and the floodwall. This area has many historic buildings and old lines that run under buildings making them difficult to locate, much less excavate and replace or repair. This area has by far the highest per foot separation cost in the previous alternative. Alternative 4 involves separating all areas outside of the historic district and upgrading the Wall Street lift station to handle flows from the historic district (Alternative 4A) or installing a satellite stormwater treatment facility at Wall Street (Alternative 4B). Both of these alternatives also involve installing a new force main from the Lawrence Creek Lift Station to the WWTP. Currently the Lawrence Creek Lift Station pumps to the Beasley Creek Lift Station and thus creates a bottleneck at the end of the CSS and SSS. By Installing this force main, the SSS does not tie into the CSS and goes directly to the WWTP. The frees up capacity in Beasley Creek Lift Station to be utilized by the Wall Street Lift Station if it is upgraded (Alternative 4A). If

Alternative 4B is selected there will be extra capacity at the Beasley Creek Lift Station that could be utilized by a future project bringing additional flow from other areas of the CSS. With this new force main, the combined rating of the two lift stations is higher than the rated wet weather capacity of the WWTP. MUC planned to do work to improve the efficiency and operation of the WWTP. However, with very little additional work, the plant can achieve a higher wet weather rating. The proposed construction includes a new headworks with mechanical screens and a grit removal system, a new influent lift station, additional fine screens, an additional clarifier and replacing air lines. This work would bring the wet weather capacity of the plant to approximately 13.2 MGD. The costs are shown in Table 6.3.

Table 6.1: Alternative 2 Cost Estimate

Location	Design Flow	Construction Cost	Annual O&M Costs
CS0 006	6 MGD	$1,916,000	$69,502
CSO 008	6 MGD	$1,916,000	$69,502
CSO 009	4 MGD	$1,498,000	$60,184
CSO 010	3 MGD	$1,258,000	$55,524
CSO 013	8 MGD	$2,285,000	$78,821
CSO 015	1 MGD	$652,000	$46,205
Depot	3 MGD	$1,258,000	$55,524
		$10,783,000	**$435,262**

Construction Total	$10,783,000
O and M Present Worth of 20 annual payments	$7,117,158
Total Cost	**$17,900,158**

Costs estimates based on a treatment scheme including chemical addition, sedimentation and disinfection.

Table 6.2: Alternative 3 Cost Estimate

Location	Construction Cost
Main Street Storm Water (CSOs 8,9,10,12,13)	$4,957,000
Bridge Street and Lexington Pike (CSO 15 and 6)	$1,194,000
Historic District (CSO 6)	$6,450,000
West End (Depot)	$861,000
Various Hydraulic Improvements (CSO 2,3,7 and 12)	$105,000
	$13,567,000
Total Cost	**$13,567,000**

Table 6.3: Alternative 4 Cost Estimates

Alternative 4A Cost Estimate

Location	Construction Cost
Main Street Storm Water (CSOs 8,9,10,12,13)	$4,957,000
Bridge Street and Lexington Pike (CSO 15 and 6)	$1,194,000
West End (Depot)	$861,000
Various Hydraulic Improvements (CSO 2,3,7 and 12)	$105,000
WWTP Upgrade	$3,920,000
Lawrence Creek Force Main	$1,190,000
Wall Street Lift Station Upgrade	$775,000
	$13,002,000

Total Cost Alternative 4A	**$13,002,000**

Alternative 4B Cost Estimate

Location	Construction Cost
Main Street Storm Water (CSOs 8,9,10,12,13)	$4,957,000
Bridge Street and Lexington Pike (CSO 15 and 6)	$1,194,000
West End (Depot)	$861,000
Various Hydraulic Improvements (CSO 2,3,7 and 12)	$105,000
WWTP Upgrade	$3,920,000
Lawrence Creek Force Main	$1,190,000
Wall Street Satellite Treatment Plant	$1,258,000
	$13,485,000
Annual O and M Costs	**$55,524**
O and M Present Worth of 20 annual payments	**$907,897**

Total Cost Alternative 4B	**$14,392,897**

7. Alternative Selected

The alternative selected is Alternative 4. The projects in Alternative four will be done within the phased approach presented to KYDOW and KIA required to receive the $11M CWSRF Loan from KIA. This phased approach helps get projects under construction faster without having to wait on design to be completed. Also, the phased approach is necessary to allow MUC to select between Alternative 4A or 4B. After the Phase 1 projects are completed, as mentioned in Section 2, a flow monitor and water quality monitor can be installed at the Wall Street Lift Station CSO (CSO 006). Presently, a large storm has caused rocks from a dry-laid stone diversion wall to be dislodged and fall into the flow channel. This rock is much too large to be removed with MUC's vacuum truck. However, this rock prevents the channel from having a uniform geometric shape and laminar flow. The flow monitor needs these conditions to get accurate flow data. This will allow the impact of the Phase 1 projects to be observed and give new flow data to use in sizing a lift station upgrade. A water quality sampler will also be installed at this location to determine the quality of the combined sewer bypassing at this location. With these two pieces of data, a costs analysis can be conducted to determine of capturing the storm water and pumping it to the WWTP for treatment or installing a satellite treatment facility is the best course of action to bring CSO 006 into compliance. The Phase 2 projects will be completed while the flow meter and water quality sampler are gathering data at the Wall Street Lift Station. These projects will make the necessary infrastructure changes to upgrade the Wall Street Lift Station. The Phase 3 Project will be the Wall Street Lift Station Improvements.

MUC will fund these projects with the $11M loan mentioned above. The current cost estimates for all of the projects exceeds the available funding. The rate increases required by KIA for the $11M loan will go into effect 2011, 2012 and 2013. Each rate increase will be 15%. This rate increase will give MUC sufficient revenue to repay this dept service as well as the current $9M CWSRF loan that was secured to fund the 1999 WWTP and Lift Station Upgrades. This loan will be repaid by 2019. When this loan is repaid, MUC will have a significant portion of annual revenue that will no longer go

toward the debt repayment on this loan. Therefore, since the timetable for bringing the CSOs into compliance (December 2017) and the final payment on the $9M loan are so close, MUC is prepared to look at acquiring additional debt that could be repaid with the available revenue no longer needed for the $9M loan. This would require some financing in the interim while all three long term debts were being repaid. MUC is prepared to look at these options should the need arise. However, should the Phase 1 and Phase 2 projects cost less than estimated, there may be no need for financing in addition to the $11M loan. Please see attached Table 7.1 for a description of the alternative 4 projects and the CSOs they will affect. Appendix A is an implementation schedule for all of the projects under this alternative.

Table 7.1: CSO Projects

CSO Phase 1

Location	Project	Description
CSO 002	Various Hydraulic Improvements	closing off outfall to 2/3rds of pipe
CSO 003	Various Hydraulic Improvements	closing off outfall to 2/3rds of pipe
CSO 006	Lexington Pike Project	separate creeks from Smokey Hollow and Edgemont from CSS
CSO 007	Various Hydraulic Improvements	closing off outfall to 2/3rds of pipe
CSO 008	Main Street Stormwater Project	separating sewer in sub sewershed
CSO 009	Main Street Stormwater Project	separating sewer in sub sewershed
CSO 010	Main Street Stormwater Project	separating sewer in sub sewershed
CSO 012	Various Hydraulic Improvements	separating sewer in sub sewershed and closing outfall to 2/3rds of pipe
CSO 013	Main Street Stormwater Project	separating sewer in sub sewershed
CSO 015	Bridge Street Stormwater Project	separating sewers in sub sewershed
Depot	Various Hydraulic Improvements	closing off outfall to 2/3rds of pipe
Lawrence Creek Lift Station	Generators	install permanent backup generator at Lawrence Creek lift Station
All CSS Lift Stations	Generators	purchase portable generator and install transfer switch at all CSS lift stations
All CSS Lift Stations	Various Hydraulic Improvements	remove all grit from each wetwell after the other phase 1 projects are complete
Wall Street Lift Station	Various Hydraulic Improvements	remove debris from outfall install flow monitor and water quality monitor at outfall.

CSO Phase 2

Location	Project	Description
WWTP	WWTP Improvements	grit removal system, screens, influent pumping station, clarifier, air piping, maintenance building
Lawrence Creek Lift Station	Lawrence Creek Force Main	new force main from Lawrence Creek Lift Station to WWTP.

CSO Phase 3

Location	Project	Description
CSO 006	Wall Street Lift Station Improvements	Improve the lift station by increasing capacity or providing satellite treatment for stormwater overflows

8. Operational Plan Revisions

The CMOM program will need to be revised to include the operation and maintenance of the new infrastructure that is constructed as a part of a CSO control. Consideration will be given to these revisions to the CMOM programs when controls are developed. MUC will identify what, if any, additional staff or equipment will be required to operate and maintain any proposed control during development. MUC does not envision using any controls that will require special equipment or training to operate, only more infrastructure similar in nature to the existing infrastructure. Therefore, the proposed controls would be operated in a similar manner, there would just be more manpower required due to the additional infrastructure. The exception to this will be the headworks at the WWTP. This will be a new system that will have different components than their current WWTP has. The operation and maintenance requirements of this new equipment will be incorporated into the existing CMOM program and the necessary changes will be implemented as soon as the equipment goes online. The new headworks will be relatively maintenance free, but as with any piece of equipment preventative maintenance will be required to keep it in good repair. Also, if the Phase 3 projects include new equipment at Wall Street Lift station, the operations and maintenance requirements for it will be incorporated into the existing CMOM program as well. This upgrade will likely include either an equalization basin with an aerator or a satellite treatment facility. This will be determined after the Phase 1 projects are completed and flow data and water quality data are gathered for the Wall Street Lift Station.

9. Post Construction Monitoring

As suggested by DOW, no CSOs will be immediately sealed off. Some form of bypass or relief will be left in place to allow an outlet from the sewer system. These outlets will be monitored with wood blocks and chalk. Presently, a dedicated bypass pipe is proposed for the Main Street Lift Station (CSO 13). If this bypass is constructed, a flow monitor will be installed in the pipe to record any flow that escapes through the bypass. However, the current diversion structures will be raised to a level that keeps the sanitary separate from the storm sewer and will only overtop if the sewer system surcharges to the point that basements will be effected. These structures will be marked with chalk and have wood blocks placed on top of them. A visual inspection will be completed after each rain to observe if any overflows occurred and estimate the extent of the overflow. Should some of the structures be bypassing with rainfalls that occur more than 4 times a year, these CSOs will be evaluated and additional work will be done. These observations will be made for two years after any work on any CSO.

MUC will also conduct water quality testing similar to that done by Hall Environmental. Samples will be taken upstream of all former CSOs, just above CSO 006 which will remain active until Phase 3 and below all former CSOs. Once Phase 3 is completed, sampling will be done upstream of all former CSOs and downstream of all CSOs. As with previous water quality testing, water quality samples will be taken during 3 different storm events after Phase 1 is completed and 3 different storm events after Phase 3 is completed. As each phase of testing is completed it will be submitted to DOW. The proposed sampling plan is shown in Figure 9.1.

Figure 9.1

Sampling Plan

For

Maysville Utility Commission

Post-Construction Water Quality Monitoring

SAMPLING PLAN

We intend to sample 3 rainfall events during the two assigned periods (after Phase 1 and after all Phases are constructed). The rainfall must be at least a tenth of an inch to constitute an event. There must be 72 hours of dry weather between events.

All samples will be grab samples and will be analyzed for BOD, COD, TSS, and E. Coli.

We intend to collect the first flush within the first sixty (60) minutes of a tenth of an inch of rainfall. We will then collect the next sample sixty (60) minutes after that and the last sample sixty (60) minutes after that. We intend to start the sampling at the upstream site, then sample at the MUC Drinking Water Plant, continue to the Limestone Landing site, then the MUC WWTP site. We will sample the site, the middle of the river, then the opposite bank, and then move on to the next site. We will continue this way until all sampling is complete. We will take the samples at the CSO depth.

APPENDIX A

CSO Projects Implementation Schedule

CSO Projects Implementation Schedule

CSO Phase 1

All Phase 1 projects will be bid together and will be constructed at the same time. However, some of the work needs to be done in a particle order as outlined below.

Project	Description
Various Hydraulic Improvements	remove debris from outfall install flow monitor and water quality monitor at outfall.
Main Street Stormwater Project	separating sewer in sub sewershed
Bridge Street Stormwater Project	separating sewers in sub sewershed
Generators	install permanent backup generator at Lawrence Creek lift Station
Generators	purchase portable generator and install transfer switch at all CSS lift stations
Various Hydraulic Improvements	remove all grit from each wetwell after the other phase 1 projects are complete
Various Hydraulic Improvements	closing off outfalls at CSO 2,3,7,8,9,10,12,13,15 to 2/3rds of pipe

Plans to DOW	Nov-10
Project Bid	Apr-11
Project Award	Jul-11
Project Completion	Oct-12

CSO Projects Implementation Schedule

CSO Phase 2

Project	Description
WWTP Improvements	grit removal system, screens, influent pumping station, clarifier, air piping, maintenance building
Lawrence Creek Force Main	new force main from Lawrence Creek Lift Station to WWTP.

Plans to DOW	Jun-11
Project Bid	Apr-12
Project Award	Jul-12
Project Completion	Oct-13

CSO Phase 3

Project	Description
Wall Street Lift Station Improvements	Improve the lift station by increasing capacity or providing satellite treatment for stormwater overflows

Plans to DOW	Jan-14
Project Bid	Apr-14
Project Award	Jul-14
Project Completion	Feb-15

APPENDIX B

CSO Water Quality Sampling Results

Maysville Utility Commission
CSO Characterization Study

INTRODUCTION

Hall Environmental was retained by the Maysville Utility Commission to conduct sampling at various sites on the Ohio River during three (3) storm events in order to characterize the effects, if any, of the CSOs currently discharging from the Maysville sanitary sewer system. This report discusses the sampling methodology and analytical results of the sampling conducted during the first storm event on May 11, 2010.

SAMPLING METHODOLOGY

Hall personnel conducted three (3) rounds of sampling during the rainfall event on May 11, 2010. The first round was conducted after a tenth of an inch of rain had fallen in the area, with the first sample being collected at 8:43 am. Collection of the second round of sampling began at 9:45 am and collection of the third sampling round began at 10:40 am. There was significant rainfall during the first two (2) rounds of sampling with the rain ending at the start of the third round.

Collection sites were as follows:

Site 1 – Above the Maysville Boat Dock (Upstream of all CSOs)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 2 – CSO at Poplar St. (at the Maysville Drinking Water Plant)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 3 – CSO at Limestone Landing (site of 11 CSOs)
- A – On the Kentucky bank at a depth of 25 feet
- B – Midstream of the Ohio River at depth of 25 feet
- C – On the Ohio bank at a depth of 25 feet

Site 4 – CSO at Second St. (at the KU station)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 5 – Below the Maysville WWTP effluent outfall (Downstream of all CSOs)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

All samples were grab samples and were analyzed for BOD, COD, TSS, Nitrate-nitrogen, Nitrite-nitrogen, Total Kjeldahl Nitrogen (TKN), Total Phosphorus and E. coli. No CSO discharges were visible during the sampling event.

SAMPLING RESULTS

Attached are tables showing the analytical results for each pollutant sampled at each site. It was noted that E. coli results were higher at the Limestone Landing site on the Ohio bank than the results at the Kentucky bank, indicating a possible CSO from the Aberdeen area. The other pollutant levels also tended to be higher along the Ohio bank at that site.

CITY OF MAYSVILLE

CSO Sampling - Storm Event 1

PARAMETER	Site 1 - Upstream		
	1A-KY bank	1B-Midstream	1C-OH bank
E. Coli	32	22	19
BOD	12	7	<6
TSS	972	52	37
COD	16	16	<10
Nitrate-N	0.47	0.5	0.52
Nitrite-N	<0.10	<0.10	<0.10
TKN	4.66	4.78	4.9
Total Nitrogen	5.23	5.38	5.52
Phosphorus, Total	0.09	0.40	0.03

CITY OF MAYSVILLE

CSO Sampling - Storm Event 1

PARAMETER	Site 2 - Poplar St.								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	13	26	47	185	15	21	19	16	27
BOD	<12	<12	<12	12	<12	<12	<12	<12	<12
TSS	32	17	27	354	11	26	18	12	20
COD	14	15	24	77	15	13	16	13	<10
Nitrate-N	0.49	0.49	0.52	0.5	0.51	0.52	0.48	0.5	0.51
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	5.1	4.11	4.93	4.59	3.66	3.64	3.93	5.54	5.49
Total Nitrogen	5.69	4.7	5.55	5.19	4.2700	4.26	4.51	6.14	6.1
Phosphorus, Total	0.80	0.04	0.12	0.56	0.45	0.10	<0.017	<0.017	0.06

CITY OF MAYSVILLE

CSO Sampling - Storm Event 1

PARAMETER	Site 3 - Limestone Landing								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	21	24	487	30	22	379	20	44	1956
BOD	<12	<12	21	<12	<12	<12	<12	<12	44
TSS	26	33	1467	36	18	304	26	24	7687
COD	17	<10	104	12	12	84	14	<10	64
Nitrate-N	0.50	0.50	0.55	0.49	0.50	0.53	0.49	0.50	0.57
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	5.21	5.13	22.1	4.03	4.28	14.2	6.45	5.58	22.3
Total Nitrogen	5.81	5.7	22.75	4.62	4.88	14.83	7.04	6.18	22.97
Phosphorus, Total	<0.017	<0.017	7.8	0.24	<0.28	0.22	<0.017	<0.017	0.20

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 1

PARAMETER	Site 4 - Second St.								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	1986	20	18	51	23	27	110	33	25
BOD	<12	<12	<12	<12	<12	<12	17	16	16
TSS	15	18	26	21	21	24	18	19	31
COD	10	14	10	26	21	27	27	30	27
Nitrate-N	0.50	0.51	0.54	0.51	0.52	0.53	0.50	0.52	0.55
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	3.66	3.44	3.61	3.66	3.48	3.53	3.66	3.69	3.74
Total Nitrogen	4.26	4.1	4.25	4.27	4.10	4.16	4.26	4.31	4.39
Phosphorus, Total	0.03	0.04	0.08	<0.017	<0.017	0.03	0.03	<0.017	<0.017

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 1

PARAMETER	Site 5 - Below WWTP Outfall		
	1A-KY bank	1B-Midstream	3C-OH bank
E. Coli	240	19	20
BOD	12	<12	<12
TSS	20	17	20
COD	16	20	19
Nitrate-N	0.51	0.51	0.53
Nitrite-N	<0.10	<0.10	<0.10
TKN	3.76	3.71	3.7
Total Nitrogen	4.37	4.3	4.33
Phosphorus, Total	0.03	0.03	<0.017

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LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Ms. Cyndy Leasor
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 5/25/2010
Date Received: 5/11/2010
Date Complete: 5/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908256-01	**Site 1-1A (upstream)**		**5/11/10 08:43**			
Surface Water						
E. coli	SM 9223 B	32	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	972	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	16	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.47	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.66	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.09	mg/L	0.017	5/21/2010	KM
908256-02	**Site 1-1B (upstream)**		**5/11/10 08:47**			
Surface Water						
E. coli	SM 9223 B	22	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	52	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	7	mg/L	6	5/16/2010	KM
COD	EPA 410.4	16	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.78	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.40	mg/L	0.033	5/18/2010	KM
908256-03	**Site 1-1C (upstream)**		**5/11/10 08:53**			
Surface Water						
E. coli	SM 9223 B	19	MPN/100ml	1	5/12/2010	CT

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Date Reported: 5/25/2010
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Date Complete: 5/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908256-03	**Site 1-1C (upstream)**		**5/11/10 08:53**			
Surface Water						
Total Suspended Solids	SM 2540 D	37	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<6	mg/L	6	5/16/2010	KM
COD	EPA 410.4	<10	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.52	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.90	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.03	mg/L	0.017	5/21/2010	KM
908256-04	**Site 2-1A (D.W.Plant)**		**5/11/10 09:00**			
Surface Water						
E. coli	SM 9223 B	13	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	32	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	14	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.49	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	5.10	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.80	mg/L	0.033	5/18/2010	KM
908256-05	**Site 2-1B (D.W.Plant)**		**5/11/10 09:04**			
Surface Water						
E. coli	SM 9223 B	26	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	17	mg/L	2	5/11/2010	RF

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Test	Method	Result	Units	PQL	Date	Analyst
908256-05	**Site 2-1B (D.W.Plant)**		**5/11/10 09:04**			
Surface Water						
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	15	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.49	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.11	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.04	mg/L	0.017	5/21/2010	KM
908256-06	**Site 2-1C (D.W.Plant)**		**5/11/10 09:08**			
Surface Water						
E. coli	SM 9223 B	47	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	27	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	24	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.52	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.93	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.12	mg/L	0.017	5/21/2010	KM
908256-07	**Site 3-1A (Limestone Landin**		**5/11/10 09:12**			
Surface Water						
E. coli	SM 9223 B	21	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	26	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM

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Ms. Cyndy Leasor
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
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Test	Method	Result	Units	PQL	Date	Analyst
908256-07	**Site 3-1A (Limestone Landin**		**5/11/10 09:12**			
Surface Water						
COD	EPA 410.4	17	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	5.21	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/21/2010	KM
908256-08	**Site 3-1B (Limestone Landin**		**5/11/10 09:17**			
Surface Water						
E. coli	SM 9223 B	24	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	33	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	<10	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	5.13	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/21/2010	KM
908256-09	**Site 3-1C (Limestone Landin**		**5/11/10 09:21**			
Surface Water						
E. coli	SM 9223 B	487	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	1467	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	21	mg/L	12	5/16/2010	KM
COD	EPA 410.4	104	mg/L	10	5/18/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908256-09	**Site 3-1C (Limestone Landin**		**5/11/10 09:21**			
Surface Water						
Nitrate-N	EPA 300.0	0.55	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	22.1	mg/L	2.5	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	7.80	mg/L	0.33	5/18/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908260-01	**Site 4-1A (Second St.)**		**5/11/10 09:28**			
Surface Water						
E. coli	SM 9223 B	1986	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	15	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	10	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.5	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.66	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.03	mg/L	0.017	5/21/2010	KM
908260-02	**Site 4-1B (Second St.)**		**5/11/10 09:34**			
Surface Water						
E. coli	SM 9223 B	20	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	18	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	14	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.51	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.44	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.04	mg/L	0.017	5/21/2010	KM
908260-03	**Site 4-1C (Second St.)**		**5/11/10 09:39**			
Surface Water						
E. coli	SM 9223 B	18	MPN/100ml	1	5/12/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
908260-03	**Site 4-1C (Second St.)**		**5/11/10 09:39**			
Surface Water						
Total Suspended Solids	SM 2540 D	26	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	10	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.54	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.61	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.08	mg/L	0.017	5/21/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908257-01	**Site 2-2A (D.W.Plant)**		**5/11/10 09:45**			
Surface Water						
E. coli	SM 9223 B	185	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	354	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	77	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.59	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.56	mg/L	0.033	5/18/2010	KM
908257-02	**Site 2-2B (D.W. Plant)**		**5/11/10 09:51**			
Surface Water						
E. coli	SM 9223 B	15	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	11	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	15	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.51	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	3.66	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.45	mg/L	0.033	5/18/2010	KM
908257-03	**Site 2-2C (D.W. Plant)**		**5/11/10 09:54**			
Surface Water						
E. coli	SM 9223 B	21	MPN/100ml	1	5/12/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
908257-03	**Site 2-2C (D.W. Plant)**		**5/11/10 09:54**			
Surface Water						
Total Suspended Solids	SM 2540 D	26	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	13	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.52	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	3.64	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.10	mg/L	0.017	5/21/2010	KM
908257-04	**Site 3-2A (Limestone Landin**		**5/11/10 09:58**			
Surface Water						
E. coli	SM 9223 B	30	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	36	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	12	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.49	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.03	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.24	mg/L	0.033	5/18/2010	KM
908257-05	**Site 3-2B (Limestone Landin**		**5/11/10 10:04**			
Surface Water						
E. coli	SM 9223 B	22	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	18	mg/L	2	5/11/2010	RF

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Test	Method	Result	Units	PQL	Date	Analyst
908257-05	**Site 3-2B (Limestone Landin**		**5/11/10 10:04**			
Surface Water						
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	12	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	4.28	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.28	mg/L	0.033	5/18/2010	KM
908257-06	**Site 3-2C (Limestone Landin**		**5/11/10 10:10**			
Surface Water						
E. coli	SM 9223 B	379	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	304	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	84	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.53	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	14.2	mg/L	2.5	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.22	mg/L	0.17	5/21/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908261-01	**Site 4-2A (Second St.)**		**5/11/10 10:15**			
Surface Water						
E. coli	SM 9223 B	51	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	21	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	26	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.51	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.66	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/24/2010	KM
908261-02	**Site 4-2B (Second St.)**		**5/11/10 10:20**			
Surface Water						
E. coli	SM 9223 B	23	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	21	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	21	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.52	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.48	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/24/2010	KM
908261-03	**Site 4-2C (Second St.)**		**5/11/10 10:25**			
Surface Water						
E. coli	SM 9223 B	27	MPN/100ml	1	5/12/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
908261-03	**Site 4-2C (Second St.)**		**5/11/10 10:25**			
Surface Water						
Total Suspended Solids	SM 2540 D	24	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	27	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.53	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.53	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.03	mg/L	0.017	5/24/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908259-01	**Site 2-3A (D.W.Plant)**		**5/11/10 10:40**			
Surface Water						
E. coli	SM 9223 B	19	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	18	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	16	mg/L	10	5/17/2010	KM
Nitrate-N	EPA 300.0	0.48	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	3.93	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/21/2010	KM
908259-02	**Site 2-3B (D.W. Plant)**		**5/11/10 10:45**			
Surface Water						
E. coli	SM 9223 B	16	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	12	mg/L	2	5/11/2010	RF
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	13	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	5.54	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/21/2010	KM
908259-03	**Site 2-3C (D.W. Plant)**		**5/11/10 10:54**			
Surface Water						
E. coli	SM 9223 B	27	MPN/100ml	1	5/12/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
908259-03	**Site 2-3C (D.W. Plant)**		**5/11/10 10:54**			
Surface Water						
Total Suspended Solids	SM 2540 D	20	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	<10	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.51	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	5.49	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.06	mg/L	0.017	5/21/2010	KM
908259-04	**Site 3-3A (Limestone Landin**		**5/11/10 11:00**			
Surface Water						
E. coli	SM 9223 B	20	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	26	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	14	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.49	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	6.45	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/21/2010	KM
908259-05	**Site 3-3B (Limestone Landin**		**5/11/10 11:04**			
Surface Water						
E. coli	SM 9223 B	44	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	24	mg/L	2	5/12/2010	KM

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Date Complete: 5/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908259-05	**Site 3-3B (Limestone Landin**		**5/11/10 11:04**			
Surface Water						
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	<10	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.50	mg/L	0.1	5/11/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	5/11/2010	EW
TKN	SM 4500-NH3 C	5.58	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/21/2010	KM
908259-06	**Site 3-3C (Limestone Landin**		**5/11/10 11:08**			
Surface Water						
E. coli	SM 9223 B	1956	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	7687	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	44	mg/L	12	5/16/2010	KM
COD	EPA 410.4	64	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.57	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	22.3	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.20	mg/L	0.17	5/21/2010	KM

Approved By: _____

Ray Fouser, P.E.

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LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Ms. Cyndy Leasor
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 5/27/2010
Date Received: 5/11/2010
Date Complete: 5/27/2010

Test	Method	Result	Units	PQL	Date	Analyst
908262-01	**Site 4-3A (Second St.)**		**5/11/10 11:13**			
Surface Water						
E. coli	SM 9223 B	110	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	18	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	17	mg/L	12	5/16/2010	KM
COD	EPA 410.4	27	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.5	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.66	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.03	mg/L	0.017	5/24/2010	KM
908262-02	**Site 4-3B (Second St.)**		**5/11/10 11:18**			
Surface Water						
E. coli	SM 9223 B	33	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	19	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	16	mg/L	12	5/16/2010	KM
COD	EPA 410.4	30	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.52	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.69	mg/L	1.25	5/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/24/2010	KM
908262-03	**Site 4-3C (Second St.)**		**5/11/10 11:25**			
Surface Water						
E. coli	SM 9223 B	25	MPN/100ml	1	5/12/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
908262-03	**Site 4-3C (Second St.)**		**5/11/10 11:25**			
Surface Water						
Total Suspended Solids	SM 2540 D	31	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	16	mg/L	12	5/16/2010	KM
COD	EPA 410.4	27	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.55	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.74	mg/L	1.25	5/26/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/24/2010	KM
908262-04	**Site 5-A (below WWTP)**		**5/11/10 11:49**			
Surface Water						
E. coli	SM 9223 B	240	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	20	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	16	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.51	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.76	mg/L	1.25	5/26/2010	KM
Phosphorus, Total	SM 4500-P E	0.03	mg/L	0.017	5/24/2010	KM
908262-05	**Site 5-B (below WWTP)**		**5/11/10 11:54**			
Surface Water						
E. coli	SM 9223 B	19	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	17	mg/L	2	5/12/2010	KM

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Date Complete: 5/27/2010

Test	Method	Result	Units	PQL	Date	Analyst
908262-05	**Site 5-B (below WWTP)**		**5/11/10 11:54**			
Surface Water						
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	20	mg/L	10	5/18/2010	KM
Nitrate-N	EPA 300.0	0.51	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.71	mg/L	1.25	5/26/2010	KM
Phosphorus, Total	SM 4500-P E	0.03	mg/L	0.017	5/24/2010	KM
908262-06	**Site 5-C (below WWTP)**		**5/11/10 12:00**			
Surface Water						
E. coli	SM 9223 B	20	MPN/100ml	1	5/12/2010	CT
Total Suspended Solids	SM 2540 D	20	mg/L	2	5/12/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	5/16/2010	KM
COD	EPA 410.4	19	mg/L	10	5/21/2010	KM
Nitrate-N	EPA 300.0	0.53	mg/L	0.1	5/12/2010	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	5/12/2010	EW
TKN	SM 4500-NH3 C	3.70	mg/L	1.25	5/26/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	5/24/2010	KM

Approved By: _____

Ray Fouser, P.E.

Maysville Utility Commission
CSO Characterization Study – Storm Event 2

INTRODUCTION

Hall Environmental was retained by the Maysville Utility Commission to conduct sampling at various sites on the Ohio River during three (3) storm events in order to characterize the effects, if any, of the CSOs currently discharging from the Maysville sanitary sewer system. This report discusses the sampling methodology and analytical results of the sampling conducted during the second storm event on June 9, 2010.

SAMPLING METHODOLOGY

Hall personnel conducted three (3) rounds of sampling during the rainfall event on June 9, 2010. The first round was conducted after a tenth of an inch of rain had fallen in the area, with the first sample being collected at 9:59 am. Collection of the second round of sampling began at 10:44 am and collection of the third sampling round began at 11:22 am. There was significant rainfall during the first two (2) rounds of sampling with light rain throughout the third round.

Collection sites were as follows:

Site 1 – Above the Maysville Boat Dock (Upstream of all CSOs)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 2 – CSO at Poplar St. (at the Maysville Drinking Water Plant)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 3 – CSO at Limestone Landing (site of 11 CSOs)
- A – On the Kentucky bank at a depth of 25 feet
- B – Midstream of the Ohio River at depth of 25 feet
- C – On the Ohio bank at a depth of 25 feet

Site 4 – CSO at Second St. (at the KU station)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 5 – Below the Maysville WWTP effluent outfall (Downstream of all CSOs)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

All samples were grab samples and were analyzed for BOD, COD, TSS, Nitrate-nitrogen, Nitrite-nitrogen, Total Kjeldahl Nitrogen (TKN), Total Nitrogen, Total Phosphorus and E. coli.

SAMPLING RESULTS

Attached are tables showing the analytical results for each pollutant sampled at each site. Please note that throughout the sampling event, there was a heavy sewage smell at the Ohio bank at Site 3, across from the Limestone Landing site. CSO discharges were visible during the sampling event at Site 2 – Poplar St. and Site 4-Second St.

CITY OF MAYSVILLE

CSO Sampling - Storm Event 2

PARAMETER	Site 1 - Upstream		
	1A-KY bank	1B-Midstream	1C-OH bank
E. Coli	770	19	46
BOD	3	3	3
TSS	100	38	37
COD	27	17	<10
Nitrate-N	0.64	0.95	1.01
Nitrite-N	<0.10	<0.10	<0.10
TKN	2.6	2.99	3.76
Total Nitrogen	3.34	4.04	4.87
Phosphorus, Total	0.16	0.07	0.05

CITY OF MAYSVILLE

CSO Sampling - Storm Event 2

PARAMETER	Site 2 - Poplar St.								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	214	29	47	93	16	<1.0	461	25	42
BOD	<3	<3	<3	<3	<3	5	4	<3	4
TSS	35	17	43	43	18	53	35	17	42
COD	18	19	24	16	11	18	18	<10	<10
Nitrate-N	0.86	0.99	1.00	0.86	0.98	0.99	0.86	0.99	1.01
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	1.79	2.18	1.31	3.89	5.3	4.04	3.15	2.89	2.78
Total Nitrogen	2.75	3.3	2.41	4.85	6.38	5.13	4.11	3.98	3.89
Phosphorus, Total	0.05	0.20	0.10	0.24	0.20	0.39	0.08	0.04	0.27

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 2

PARAMETER	Site 3 - Limestone Landing								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	>2420	44	488	1733	33	121	727	35	23
BOD	3.0	4.0	17	5	4	24	3	4	20
TSS	50	89	1309	115	41	1032	72	63	2737
COD	21	23.0	119	19	22	110	17	16	134
Nitrate-N	0.84	1.01	1.06	0.87	0.98	1.06	0.88	0.98	1.09
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	2.61	3.35	39.7	4.25	4.21	63.5	3.5	4.84	11.7
Total Nitrogen	3.55	4.5	40.86	5.22	5.29	64.66	4.48	5.92	12.89
Phosphorus, Total	0.36	0.26	21.5	0.25	0.12	9.4	0.09	0.08	3.40

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 2

PARAMETER	Site 4 - Second St.								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	1414	16	35	1046	28	133	1986	16	162
BOD	3	4	4	12	<3	3	<3	4	4
TSS	41	44	72	400	49	56	25	65	69
COD	<10	11	18	52	<10	<10	12	15	<10
Nitrate-N	0.90	0.99	1.01	0.93	0.97	0.98	0.89	0.99	0.97
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	3.39	2.3	2.84	14	3.51	3.28	3.53	2.65	2.94
Total Nitrogen	4.39	3.4	3.95	15.03	4.58	4.36	4.52	3.74	4.01
Phosphorus, Total	0.04	0.29	0.57	1.25	0.13	0.24	<0.02	<0.017	<0.017

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 2

PARAMETER	Site 5 - Below WWTP Outfall		
	1A-KY bank	1B-Midstream	3C-OH bank
E. Coli	144	54	27
BOD	<3	5	3
TSS	31	25	51
COD	<10	11	<10
Nitrate-N	0.83	0.86	0.86
Nitrite-N	<0.10	<0.10	<0.10
TKN	3.15	3.4	2.63
Total Nitrogen	4.08	4.4	3.59
Phosphorus, Total	<0.02	<0.02	0.04

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

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Test	Method	Result	Units	PQL	Date	Analyst
908842-01	**Site 1-1A (upstream)**		**6/9/10 09:59**			
Surface Water						
E. coli	SM 9223 B	770	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	100	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	27	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.64	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.60	mg/L	1.25	6/23/2010	KM
Phosphorus, Total	SM 4500-P E	0.16	mg/L	0.017	6/22/2010	KM
908842-02	**Site 1-1B (upstream)**		**6/9/10 10:02**			
Surface Water						
E. coli	SM 9223 B	19	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	38	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	17	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.95	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.99	mg/L	1.25	6/23/2010	KM
Phosphorus, Total	SM 4500-P E	0.07	mg/L	0.033	6/22/2010	KM
908842-03	**Site 1-1C (upstream)**		**6/9/10 10:05**			
Surface Water						
E. coli	SM 9223 B	46	MPN/100ml	1	6/10/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
908842-03	**Site 1-1C (upstream)**		**6/9/10 10:05**			
Surface Water						
Total Suspended Solids	SM 2540 D	37	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.01	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.76	mg/L	1.25	6/23/2010	KM
Phosphorus, Total	SM 4500-P E	0.05	mg/L	0.017	6/22/2010	KM
908842-04	**Site 2-1A (D.W.Plant)**		**6/9/10 10:09**			
Surface Water						
E. coli	SM 9223 B	214	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	35	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	18	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.86	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	1.79	mg/L	1.25	6/23/2010	KM
Phosphorus, Total	SM 4500-P E	0.05	mg/L	0.033	6/22/2010	KM
908842-05	**Site 2-1B (D.W.Plant)**		**6/9/10 10:13**			
Surface Water						
E. coli	SM 9223 B	29	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	17	mg/L	2	6/14/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908842-05	**Site 2-1B (D.W.Plant)**		**6/9/10 10:13**			
Surface Water						
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	19	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.99	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.18	mg/L	1.25	6/23/2010	KM
Phosphorus, Total	SM 4500-P E	0.20	mg/L	0.017	6/22/2010	CT
908842-06	**Site 2-1C (D.W.Plant)**		**6/9/10 10:15**			
Surface Water						
E. coli	SM 9223 B	47	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	43	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	24	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.00	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	1.31	mg/L	1.25	6/23/2010	KM
Phosphorus, Total	SM 4500-P E	0.10	mg/L	0.017	6/22/2010	CT
908842-07	**Site 3-1A (Limestone Land.)**		**6/9/10 10:20**			
Surface Water						
E. coli	SM 9223 B	>2420	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	50	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/15/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
908842-07	**Site 3-1A (Limestone Land.)**		**6/9/10 10:20**			
Surface Water						
COD	EPA 410.4	21	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.84	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.61	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.36	mg/L	0.017	6/22/2010	CT
908842-08	**Site 3-1B (Limestone Land.)**		**6/9/10 10:24**			
Surface Water						
E. coli	SM 9223 B	44	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	89	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	23	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.01	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.35	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.26	mg/L	0.017	6/22/2010	CT
908842-09	**Site 3-1C (Limestone Land.)**		**6/9/10 10:27**			
Surface Water						
E. coli	SM 9223 B	488	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	1309	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	17	mg/L	12	6/14/2010	KM
COD	EPA 410.4	119	mg/L	10	6/15/2010	KM

FES FOUSER ENVIRONMENTAL SERVICES
165 Camden Avenue, Versailles, Ky. 40383 Phone: 859-873-6211 Fax: 859-873-3715 e-mail: lab@fouser.com
LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908842-09	**Site 3-1C (Limestone Land.)**		**6/9/10 10:27**			
Surface Water						
Nitrate-N	EPA 300.0	1.06	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	39.7	mg/L	2.5	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	21.5	mg/L	0.17	6/22/2010	CT

Approved By: Ray Fouser

Ray Fouser, P.E.

908842-

Hall Environmental Consultants, LLC

Alternate Billing Information:

Analysis / Container / Preservative

Fouser Environmental

165 Camden Avenue

Versailes, KY 40383

Phone (859) 873-6211

Cocode: (lab use only)
Template/Prelogin:
Cooler:
Shipped Via:

Report: **Randy Shelley**	Project Name: City of Maysville - CSO Project
Phone: (859) 873-3331 Fax:	Client Project #: / ESC Key:
Collected By: Randy Shelley	Site/Facility ID # : / P. O. #:
Collected By: (singnature) Randy Shelley (signature)	Rush? (Lab MUST Be Notified) ____ Same Day.........200% ____ Next Day.........100% ____ Two Day.........50%
	Date Results Needed: Fax?__No__Yes

	Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BOD	TSS	E. Coli	COD	Total Phosphorus	Total Nitrogen			Remarks/Contaminant	Sample# (lab only)
01	**Site 1-1A(upstream)**	Grab	Water		6/9/10	959	3	X	X	X	X	X	X				
02	**Site 1-1B(upstream)**	Grab	Water		↓	1002	3	X	X	X	X	X	X				
03	**Site 1-1C(upstream)**	Grab	Water		↓	1005	3	X	X	X	X	X	X				
04	**Site 2-1A(D.W.Plant)**	Grab	Water		↓	1009	3	X	X	X	X	X	X				
05	**Site 2-1B(D.W.Plant)**	Grab	Water		↓	1013	3	X	X	X	X	X	X				
06	**Site 2-1C(D.W.Plant)**	Grab	Water		↓	1015	3	X	X	X	X	X	X				
07	**Site 3-1A(Limestone Landing)**	Grab	Water		↓	1020	3	X	X	X	X	X	X				
08	**Site 3-1B(Limestone Landing)**	Grab	Water		↓	1024	3	X	X	X	X	X	X				
09	**Site 3-1C(Limestone Landing)**	Grab	Water		↓	1027	3	X	X	X	X	X	X				

*Matrix: SS - Solid/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other__________

pH __________ Temp __________
Flow __________ Other __________

Remarks:

Relinquished By: (Signature) R. Shelley (signature)	Date: 6/9/10	Time: 1500	Received By: (Signature)	Samples returned via: ___ UPS ___FedEx ___Courier	Condition: (lab use only)
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Temp: Bottles Received:	
Relinquished By: (Signature)	Date:	Time	Received for lab by: (Signature)	Date: Time:	pH Checked: NCF:

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LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908843-01	**Site 2-2A (D.W.Plant)**		**6/9/10 10:44**			
Surface Water						
E. coli	SM 9223 B	93	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	43	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	16	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.86	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.89	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.24	mg/L	0.017	6/22/2010	CT
908843-02	**Site 2-2B (D.W. Plant)**		**6/9/10 10:49**			
Surface Water						
E. coli	SM 9223 B	16	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	18	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	11	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.98	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	5.30	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.20	mg/L	0.017	6/22/2010	CT
908843-03	**Site 2-2C (D.W. Plant)**		**6/9/10 10:52**			
Surface Water						
E. coli	SM 9223 B	<1	MPN/100ml	1	6/10/2010	CT

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Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908843-03	**Site 2-2C (D.W. Plant)**		**6/9/10 10:52**			
Surface Water						
Total Suspended Solids	SM 2540 D	53	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	5	mg/L	3	6/14/2010	KM
COD	EPA 410.4	18	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.99	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	4.04	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.39	mg/L	0.017	6/22/2010	CT
908843-04	**Site 3-2A (Limestone Land.)**		**6/9/10 10:55**			
Surface Water						
E. coli	SM 9223 B	1733	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	115	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	5	mg/L	3	6/14/2010	KM
COD	EPA 410.4	19	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.87	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	4.25	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.25	mg/L	0.017	6/22/2010	CT
908843-05	**Site 3-2B (Limestone Land.)**		**6/9/10 10:58**			
Surface Water						
E. coli	SM 9223 B	33	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	41	mg/L	2	6/14/2010	KM

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Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908843-05	**Site 3-2B (Limestone Land.)**		**6/9/10 10:58**			
Surface Water						
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	22	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.98	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	4.21	mg/L	1.25	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	0.12	mg/L	0.017	6/22/2010	CT
908843-06	**Site 3-2C (Limestone Land.)**		**6/9/10 11:02**			
Surface Water						
E. coli	SM 9223 B	121	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	1032	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	24	mg/L	12	6/14/2010	KM
COD	EPA 410.4	110	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.06	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	63.5	mg/L	2.5	6/24/2010	KM
Phosphorus, Total	SM 4500-P E	9.40	mg/L	0.17	6/22/2010	CT

Approved By: Ray Fouser, P.E.

Client

908843-

Hall Environmental Consultants, LLC

Analysis / Container / Preservative

Alternative Billing Information:

Fouser Environmental

165 Camden Avenue

Versailles, KY 40383

Phone (859) 873-6211

Report: **Randy Shelley**	Project Name: **City of Maysville - CSO Project**		
Phone: **(859) 873-3331** Fax:	Client Project #:	ESC Key:	
Collected By: **Randy Shelley**	Site/Facility ID # :	P. O. #:	
Collected By: (signature)	Rush? (Lab MUST Be Notified) ____ Same Day.....200% ____ Next Day.....100% ____ Two Day.....50%	Date Results Needed: Fax?__No__Yes	

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BOD	TSS	E. Coli	COD	Total Phosphorus	Total Nitrogen		Remarks/Contaminant	Sample# (lab only)
Site 2-2A(D.W.Plant)	Grab	Water		6/9/10	1044	3	X	X	X	X	X	X			
Site 2-2B(D.W.Plant)	Grab	Water			1049	3	X	X	X	X	X	X			
Site 2-2C(D.W.Plant)	Grab	Water			1052	3	X	X	X	X	X	X			
Site 3-2A(Limestone Landing)	Grab	Water			1055	3	X	X	X	X	X	X			
Site 3-2B(Limestone Landing)	Grab	Water			1058	3	X	X	X	X	X	X			
Site 3-2C(Limestone Landing)	Grab	Water			1102	3	X	X	X	X	X	X			

*Matrix: SS - Solid/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Relinquished By: (Signature)	Date: 6/9	Time 1500	Received By: (Signature)	Samples returned via: ___ UPS ___FedEx ___Courier	Condition (lab use only)
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Temp	Bottles Received
Relinquished By: (Signature)	Date:	Time	Received for lab by: (Signature)	Date	Time

FES FOUSER ENVIRONMENTAL SERVICES
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LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908844-01	**Site 2-3A (D.W.Plant)**		**6/9/10 11:22**			
Surface Water						
E. coli	SM 9223 B	461	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	35	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	18	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.86	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.15	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.08	mg/L	0.017	6/22/2010	CT
908844-02	**Site 2-3B (D.W. Plant)**		**6/9/10 11:25**			
Surface Water						
E. coli	SM 9223 B	25	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	17	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.99	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.89	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.04	mg/L	0.017	6/22/2010	CT
908844-03	**Site 2-3C (D.W. Plant)**		**6/9/10 11:28**			
Surface Water						
E. coli	SM 9223 B	42	MPN/100ml	1	6/10/2010	CT

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103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908844-03	**Site 2-3C (D.W. Plant)**		**6/9/10 11:28**			
Surface Water						
Total Suspended Solids	SM 2540 D	42	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.01	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.78	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.27	mg/L	0.017	6/22/2010	CT
908844-04	**Site 3-3A (Limestone Land.)**		**6/9/10 11:34**			
Surface Water						
E. coli	SM 9223 B	727	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	72	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	17	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.88	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.50	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.09	mg/L	0.017	6/22/2010	CT
908844-05	**Site 3-3B (Limestone Land.)**		**6/9/10 11:37**			
Surface Water						
E. coli	SM 9223 B	35	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	63	mg/L	2	6/14/2010	KM

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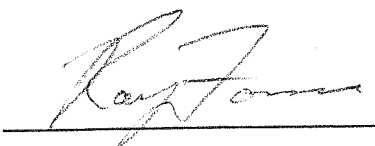
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908844-05	**Site 3-3B (Limestone Land.)**		**6/9/10 11:37**			
Surface Water						
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	16	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.98	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	4.84	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.08	mg/L	0.017	6/22/2010	CT
908844-06	**Site 3-3C (Limestone Land.)**		**6/9/10 11:40**			
Surface Water						
E. coli	SM 9223 B	23	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	2737	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	20	mg/L	12	6/14/2010	KM
COD	EPA 410.4	134	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.09	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	11.7	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	3.40	mg/L	0.17	6/22/2010	CT

Approved By: 

Ray Fouser, P.E.

Analysis / Container / Preservative

908844-

Hall Environmental Consultants, LLC

Alternate Billing Information:

Fouser Environmental

165 Camden Avenue

Versailles, KY 40383

Phone (859) 873-6211

Report: **Randy Shelley**	Project Name: **City of Maysville - CSO Project**	
Phone: **(859) 873-3331** Fax:	Client Project #:	ESC Key:
Collected By: **Randy Shelley**	Site/Facility ID # :	P. O. #:
Collected By: (singnature)	Rush? (Lab MUST Be Notified) ____ Same Day.....200% ____ Next Day.....100% ____Two Day.....50%	Date Results Needed: Fax?__No__Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BOD	TSS	E. Coli	COD	Total Phosphorus	Total Nitrogen		Remarks/Contaminant	Sample# (lab only)
01 Site 2-3A(D.W.Plant)	Grab	Water		6/9/10	1122	3	X	X	X	X	X	X			
02 Site 2-3B(D.W.Plant)	Grab	Water			1125	3	X	X	X	X	X	X			
03 Site 2-3C(D.W.Plant)	Grab	Water			1128	3	X	X	X	X	X	X			
04 Site 3-3A(Limestone Landing)	Grab	Water			1134	3	X	X	X	X	X	X			
05 Site 3-3B(Limestone Landing)	Grab	Water			1137	3	X	X	X	X	X	X			
06 Site 3-3C(Limestone Landing)	Grab	Water			1140	3	X	X	X	X	X	X			

Cooler Temperature on Receipt: [illegible] °C

*Matrix: SS - Solid/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Flow _____ Other _____

Remarks:

Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Samples returned via: ___ UPS ___FedEx ___Courier	Condition / Cooler Temperature on Receipt
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Temperature Upon Receipt	Custody Seals Intact?
Relinquished By: (Signature)	Date:	Time	Received for Lab By: (Signature)	Date	Time

FES FOUSER ENVIRONMENTAL SERVICES
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LABORATORY/CONSULTING

Certificate of Analysis

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Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908845-01	**Site 4-1A (Second St.)**		**6/9/10 10:32**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	41	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.90	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.39	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.04	mg/L	0.017	6/23/2010	EC
908845-02	**Site 4-1B (Second St.)**		**6/9/10 10:34**			
Surface Water						
E. coli	SM 9223 B	16	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	44	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	11	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.99	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.30	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.29	mg/L	0.017	6/23/2010	EC
908845-03	**Site 4-1C (Second St.)**		**6/9/10 10:38**			
Surface Water						
E. coli	SM 9223 B	35	MPN/100ml	1	6/10/2010	CT

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LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908845-03	**Site 4-1C (Second St.)**		**6/9/10 10:38**			
Surface Water						
Total Suspended Solids	SM 2540 D	72	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	18	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	1.01	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.84	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.57	mg/L	0.017	6/23/2010	EC

Approved By: Ray Fouser

Ray Fouser, P.E.

908845 -

Hall Environmental Consultants, LLC

Analysis / Container / Preservative

Alternate Billing Information:

Fouser Environmental

165 Camden Avenue

Versailles, KY 40383

Phone (859) 873-6211

Report: **Randy Shelley**	Project Name: **City of Maysville - CSO Project**		
Phone: **(859) 873-3331** Fax:	Client Project #:	ESC Key:	
Collected By: **Randy Shelley**	Site/Facility ID # :	P. O. #:	
Collected By: (singnature)	Rush? (Lab MUST Be Notified) ____ Same Day.....200% ____ Next Day.....100% ____Two Day.....50%	Date Results Needed: Fax?__No__Yes	No of Cntrs

	Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BOD	TSS	Fe, Soil	COD	Total Phosphorus	Total Nitrogen	
01	Site 4-1A(Second St)	Grab	Water		6/9/10	1032	3	X	X	X	X	X	X	
02	Site 4-1B(Second St)	Grab	Water		"	1034	3	X	X	X	X	X	X	
03	Site 4-1C(Second St)	Grab	Water		"	1038	3	X	X	X	X	X	X	

Cascade ____ (Lab use only)
Template/Prelogin ____
Cooler # ____ Temp ____
Shipped via ____

Remarks/Contaminant	Sample# (lab only)

*Matrix: SS - Solid/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

	Date:	Time	Received By: (Signature)	Samples returned via: ___ UPS ___FedEx ___Courier	Condition: (Lab use only)
Relinquished By: (Signature)	6/9	1500			
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Temp: 3.5 °C Bottles Received:	
Relinquished By: (Signature)	Date:	Time	Received for Lab by: (Signature)	Date: 6/10 Time: 9:40	pH Checked: NC:

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LABORATORY/CONSULTING

Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908846-01	**Site 4-2A (Second St.)**		**6/9/10 11:07**			
Surface Water						
E. coli	SM 9223 B	1046	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	400	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	12	mg/L	3	6/14/2010	KM
COD	EPA 410.4	52	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.93	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	14.0	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	1.250	mg/L	0.017	6/23/2010	EC
908846-02	**Site 4-2B (Second St.)**		**6/9/10 11:11**			
Surface Water						
E. coli	SM 9223 B	28	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	49	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.97	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.51	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.130	mg/L	0.017	6/23/2010	EC
908846-03	**Site 4-2C (Second St.)**		**6/9/10 11:15**			
Surface Water						
E. coli	SM 9223 B	133	MPN/100ml	1	6/10/2010	CT

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103 Fieldview Drive
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Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908846-03	**Site 4-2C (Second St.)**		**6/9/10 11:15**			
Surface Water						
Total Suspended Solids	SM 2540 D	56	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.98	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.28	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.24	mg/L	0.017	6/23/2010	EC

Approved By: Ray Fouser

Ray Fouser, P.E.

908846 -

Hall Environmental Consultants, LLC

Alternate Billing Information:

Analysis / Container / Preservative

Fouser Environmental

165 Camden Avenue

Versailles, KY 40383

Phone (859) 873-6211

Report: **Randy Shelley**	Project Name: City of Maysville - CSO Project	
Phone: (859) 873-3331 Fax:	Client Project #:	ESC Key:
Collected By: Randy Shelley	Site/Facility ID # :	P. O. #:
Collected By: (signature)	Rush? (Lab MUST Be Notified) ____ Same Day.....200% ____ Next Day.....100% ____ Two Day.....50%	Date Results Needed: Fax? No Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BOD	TSS	E. Coli	COD	Total Phosphorus	Total Nitrogen		Remarks/Contaminant	Sample# (lab only)
Site 4-2A(Second St)	Grab	Water		6/9/10	1107	3	X	X		X	X	X			
Site 4-2B(Second St)	Grab	Water			1111	3	X	X		X	X	X			
Site 4-2C(Second St)	Grab	Water			1115	3	X	X		X	X	X			

*Matrix: SS - Solid/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Relinquished By: (Signature)	Date: 6/9	Time 15a	Received By: (Signature)	Samples returned via: ___ UPS ___FedEx ___Courier	Condition (lab use only)
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Temp: Bottles Received:	
Relinquished By: (Signature)	Date:	Time	Received for Lab by: (Signature)	Date: Time:	pH Checked: NCF:

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Certificate of Analysis

Hall Environmental Consultants
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908847-01	**Site 4-3A (Second St.)**		**6/9/10 11:46**			
Surface Water						
E. coli	SM 9223 B	1986	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	25	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	12	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.89	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.53	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.02	mg/L	0.017	6/23/2010	EC
908847-02	**Site 4-3B (Second St.)**		**6/9/10 11:58**			
Surface Water						
E. coli	SM 9223 B	16	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	65	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	15	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.99	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.65	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	6/23/2010	EC
908847-03	**Site 4-3C (Second St.)**		**6/9/10 11:55**			
Surface Water						
E. coli	SM 9223 B	162	MPN/100ml	1	6/10/2010	CT

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Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908847-03	**Site 4-3C (Second St.)**		**6/9/10 11:55**			
Surface Water						
Total Suspended Solids	SM 2540 D	69	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.97	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.94	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	6/23/2010	EC
908847-04	**Site 5-A (below WWTP)**		**6/9/10 12:05**			
Surface Water						
E. coli	SM 9223 B	144	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	31	mg/L	2	6/14/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.83	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.15	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.02	mg/L	0.017	6/23/2010	EC
908847-05	**Site 5-B (below WWTP)**		**6/9/10 12:08**			
Surface Water						
E. coli	SM 9223 B	54	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	25	mg/L	2	6/14/2010	KM

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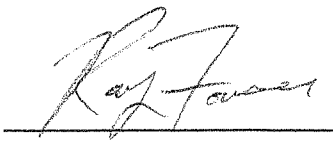
Mr. Randy Shelley
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 6/25/2010
Date Received: 6/9/2010
Date Complete: 6/25/2010

Test	Method	Result	Units	PQL	Date	Analyst
908847-05	**Site 5-B (below WWTP)**		**6/9/10 12:08**			
Surface Water						
BOD, 5 Day	SM 5210 B	5	mg/L	3	6/14/2010	KM
COD	EPA 410.4	11	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.86	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	3.40	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	<0.02	mg/L	0.017	6/23/2010	EC
908847-06	**Site 5-C (below WWTP)**		**6/9/10 12:12**			
Surface Water						
E. coli	SM 9223 B	27	MPN/100ml	1	6/10/2010	CT
Total Suspended Solids	SM 2540 D	51	mg/L	2	6/15/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	6/14/2010	KM
COD	EPA 410.4	<10	mg/L	10	6/15/2010	KM
Nitrate-N	EPA 300.0	0.86	mg/L	0.1	6/10/2011	EW
Nitrite-N	EPA 300.0	<0.1	mg/L	0.1	6/10/2011	EW
TKN	SM 4500-NH3 C	2.63	mg/L	1.25	6/25/2010	KM
Phosphorus, Total	SM 4500-P E	0.040	mg/L	0.017	6/23/2010	EC

Approved By: 

Ray Fouser, P.E.

Analysis / Container / Preservative

Hall Environmental Consultants, LLC

90847-

Alternate Billing Information:

Fouser Environmental

165 Camden Avenue

Versailles, KY 40383

Phone (859) 873-6211

Report: **Randy Shelley**	Project Name: **City of Maysville - CSO Project**	
Phone: **(859) 873-3331** Fax:	Client Project #:	ESC Key:
Collected By: **Randy Shelley**	Site/Facility ID # :	P. O. #:
Collected By: (singnature)	Rush? (Lab MUST Be Notified) ___ Same Day.....200% ___ Next Day.....100% ___Two Day.....50%	Date Results Needed: Fax?__No__Yes

	Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No of Cntrs	BOD	TSS	T Coli	COD	Total Phos Phorus	Total Nitrogen		Remarks/Contaminant	Sample# (lab only)
01	Site 4-3A(Second St)	Grab	Water		6/9/10	1146	3	X	X	X	X	X	X			
02	Site 4-3B(Second St)	Grab	Water			1158	3	X	X	X	X	X	X			
03	Site 4-3C(Second St)	Grab	Water			1155	3	X	X	X	X	X	X			
04	Site 5-A(below WWTP)	Grab	Water			1205	3	X	X	X	X	X	X			
05	Site 5-B(below WWTP)	Grab	Water			1208	3	X	X	X	X	X	X			
06	Site 5-C(below WWTP)	Grab	Water			1212	3	X	X	X	X	X	X			

*Matrix: SS - Solid/Soil GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Flow _____ Other _____

Remarks:

Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Samples returned via: ___ UPS ___FedEx ___Courier	Container Type / Preservative
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Temp	Bottles Received
Relinquished By: (Signature)	Date:	Time	Received By: (Signature)	Date	Time	pH Checked	NCF

Maysville Utility Commission
CSO Characterization Study – Storm Event 3

INTRODUCTION

Hall Environmental was retained by the Maysville Utility Commission to conduct sampling at various sites on the Ohio River during three (3) storm events in order to characterize the effects, if any, of the CSOs currently discharging from the Maysville sanitary sewer system. This is the third and final report for the CSO sampling and discusses the sampling methodology and analytical results of the sampling conducted during the third storm event on July 21, 2010.

SAMPLING METHODOLOGY

Hall personnel conducted three (3) rounds of sampling during the rainfall event on July 21, 2010. The first round was conducted after a tenth of an inch of rain had fallen in the area, with the first sample being collected at 9:30 am. Collection of the second round of sampling began at 10:11 am and collection of the third sampling round began at 10:35 am. There was light rainfall during all three (3) rounds of sampling but no heavy rain at any time. The water level of the river was up approximately 5 feet above the level during the previous storm events.

Collection sites were as follows:

Site 1 – Above the Maysville Boat Dock (Upstream of all CSOs)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 2 – CSO at Poplar St. (at the Maysville Drinking Water Plant)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 3 – CSO at Limestone Landing (site of 11 CSOs)
- A – On the Kentucky bank at a depth of 25 feet
- B – Midstream of the Ohio River at depth of 25 feet
- C – On the Ohio bank at a depth of 25 feet

Site 4 – CSO at Second St. (at the KU station)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

Site 5 – Below the Maysville WWTP effluent outfall (Downstream of all CSOs)
- A – On the Kentucky bank at a depth of 5 feet
- B – Midstream of the Ohio River at depth of 5 feet
- C – On the Ohio bank at a depth of 5 feet

All samples were grab samples and were analyzed for BOD, COD, TSS, Nitrate-nitrogen, Nitrite-nitrogen, Total Kjeldahl Nitrogen (TKN), Total Nitrogen, Total Phosphorus and E. coli.

SAMPLING RESULTS

Attached are tables showing the analytical results for each pollutant sampled at each site. Please note that CSO discharges were not visible during the sampling event due to the fact that the level of the river was above the discharge points.

CITY OF MAYSVILLE

CSO Sampling - Storm Event 3

PARAMETER	Site 1 - Upstream		
	1A-KY bank	1B-Midstream	1C-OH bank
E. Coli	1986	727	1300
BOD	12	<3.0	<3.0
TSS	1348	76	135
COD	224	16	18
Nitrate-N	0.43	0.75	0.7
Nitrite-N	<0.10	<0.10	<0.10
TKN	40.6	1.75	2.43
Total Nitrogen	41.13	2.60	3.23
Phosphorus, Total	0.22	0.12	0.3

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 3

PARAMETER	Site 2 - Poplar St.								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	1553	866	2,420	1553	816	1,553	1553	816	1733
BOD	<3	<3	3	3	<3	4	4	<3	<3.00
TSS	167	80	154	136	67	141	208	70	107
COD	21	22	19	26	12	23	15	<10	12
Nitrate-N	0.67	0.72	0.68	0.69	0.71	0.71	0.7	0.72	0.7
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	1.79	2.6	1.5	1.46	2.5	2.48	2.89	2.18	1.79
Total Nitrogen	2.56	3.4	2.28	2.25	3.31	3.29	3.69	3	2.59
Phosphorus, Total	0.35	0.15	0.31	0.44	0.15	0.35	0.24	0.13	0.17

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 3

PARAMETER	Site 3 - Limestone Landing								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	2,420	1300	1553	1553	1414	1414	921	921	1733
BOD	4	4	<12	4	<3	<12	<3	<3	4
TSS	178	252	461	160	163	868	125	87	267
COD	21	22.0	473	18	23	578	<10	11	211
Nitrate-N	0.70	0.71	0.7	0.71	0.72	0.7	0.7	0.71	0.69
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	1.84	2.26	22	2.78	2.06	5.28	1.76	2.56	9.29
Total Nitrogen	2.64	3.1	22.80	3.59	2.88	6.08	2.56	3.37	10.08
Phosphorus, Total	0.32	0.26	9.8	0.28	0.30	12.6	0.20	0.17	3.05

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 3

PARAMETER	Site 4 - Second St.								
	1A-KY bank	1B-Midstream	1C-OH bank	2A-KY bank	2B-Midstream	2C-OH bank	3A-KY bank	3B-Midstream	3C-OH bank
E. Coli	1733	1414	1733	1414	1414	1553	1414	1046	1986
BOD	3	<3	3	3	<3	<3	<3	4	4
TSS	119	105	196	113	102	143	113	177	139
COD	11	12	16	11	11	13	13	<10	11
Nitrate-N	0.71	0.70	0.65	0.68	0.70	0.68	0.69	0.70	0.68
Nitrite-N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
TKN	2.56	2.11	4.06	3	2.88	3.71	1.79	3.91	2.5
Total Nitrogen	3.37	2.9	4.81	3.78	3.68	4.49	2.58	4.71	3.28
Phosphorus, Total	0.26	0.22	0.41	<0.017	0.22	0.28	0.26	0.22	0.23

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

CITY OF MAYSVILLE

CSO Sampling - Storm Event 3

PARAMETER	Site 5 - Below WWTP Outfall		
	1A-KY bank	1B-Midstream	3C-OH bank
E. Coli	1986	1414	1553
BOD	4	4	4
TSS	154	105	177
COD	10	<10	15
Nitrate-N	0.68	0.69	0.68
Nitrite-N	<0.10	<0.10	<0.10
TKN	3.56	2.96	3.51
Total Nitrogen	4.34	3.8	4.29
Phosphorus, Total	0.28	0.10	0.26

Prepared by Cynthia Leasor, Hall Environmental Consultants LLC

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Certificate of Analysis

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Ms. Cyndy Leasor
103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
Date Reported: 8/3/2010
Date Received: 7/21/2010
Date Complete: 8/3/2010

Test	Method	Result	Units	PQL	Date	Analyst
909600-01	**Site 1-1A (upstream)**		**7/21/10 09:30**			
Surface Water						
E. coli	SM 9223 B	1986	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	1348	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	12	mg/L	12	7/27/2010	KM
COD	EPA 410.4	224	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.43	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	40.6	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.22	mg/L	0.034	7/23/2010	CT
909600-02	**Site 1-1B (upstream)**		**7/21/10 09:36**			
Surface Water						
E. coli	SM 9223 B	727	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	76	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	16	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.75	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	1.75	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.12	mg/L	0.017	7/28/2010	CT
909600-03	**Site 1-1C (upstream)**		**7/21/10 09:39**			
Surface Water						
E. coli	SM 9223 B	1300	MPN/100ml	1	7/22/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909600-03	**Site 1-1C (upstream)**		**7/21/10 09:39**			
Surface Water						
Total Suspended Solids	SM 2540 D	135	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	18	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.43	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.30	mg/L	0.017	7/28/2010	CT
909600-04	**Site 2-1A (D.W.Plant)**		**7/21/10 09:41**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	167	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	21	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.67	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	1.79	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.35	mg/L	0.017	7/28/2010	CT
909600-05	**Site 2-1B (D.W.Plant)**		**7/21/10 09:43**			
Surface Water						
E. coli	SM 9223 B	866	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	80	mg/L	2	7/22/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
909600-05	**Site 2-1B (D.W.Plant)**		**7/21/10 09:43**			
Surface Water						
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	22	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.72	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.60	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.15	mg/L	0.017	7/28/2010	CT
909600-06	**Site 2-1C (D.W.Plant)**		**7/21/10 09:45**			
Surface Water						
E. coli	SM 9223 B	2420	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	154	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	19	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.68	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	1.50	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.31	mg/L	0.017	7/28/2010	CT
909600-07	**Site 3-1A (Limestone Land.)**		**7/21/10 09:48**			
Surface Water						
E. coli	SM 9223 B	2420	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	178	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
909600-07	**Site 3-1A (Limestone Land.)**		**7/21/10 09:48**			
Surface Water						
COD	EPA 410.4	21	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	1.84	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.32	mg/L	0.017	7/28/2010	CT
909600-08	**Site 3-1B (Limestone Land.)**		**7/21/10 09:50**			
Surface Water						
E. coli	SM 9223 B	1300	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	252	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	22	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.71	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.26	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.26	mg/L	0.017	7/28/2010	CT
909600-09	**Site 3-1C (Limestone Land.)**		**7/21/10 09:52**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	461	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	7/27/2010	KM
COD	EPA 410.4	473	mg/L	10	8/2/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
909600-09	**Site 3-1C (Limestone Land.)**		**7/21/10 09:52**			
Surface Water						
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	22.0	mg/L	2.5	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	9.80	mg/L	0.09	7/30/2010	CT

Approved By: _____

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Test	Method	Result	Units	PQL	Date	Analyst
909603-01	**Site 4-1A (Second St.)**		**7/21/10 10:00**			
Surface Water						
E. coli	SM 9223 B	1733	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	119	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	11	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.71	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	2.56	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.26	mg/L	0.017	7/30/2010	CT
909603-02	**Site 4-1B (Second St.)**		**7/21/10 10:02**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	105	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	12	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	2.11	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.22	mg/L	0.017	7/30/2010	CT
909603-03	**Site 4-1C (Second St.)**		**7/21/10 10:04**			
Surface Water						
E. coli	SM 9223 B	1733	MPN/100ml	1	7/22/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909603-03	**Site 4-1C (Second St.)**		**7/21/10 10:04**			
Surface Water						
Total Suspended Solids	SM 2540 D	196	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	16	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.65	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	4.06	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.41	mg/L	0.017	7/30/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909601-01	**Site 2-2A (D.W.Plant)**		**7/21/10 10:11**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	136	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	26	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.69	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	1.46	mg/L	1.25	8/3/2010	KM
Phosphorus, Total	SM 4500-P E	0.44	mg/L	0.017	7/28/2010	CT
909601-02	**Site 2-2B (D.W. Plant)**		**7/21/10 10:13**			
Surface Water						
E. coli	SM 9223 B	816	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	67	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	12	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.71	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.50	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.15	mg/L	0.017	7/28/2010	CT
909601-03	**Site 2-2C (D.W. Plant)**		**7/21/10 10:15**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909601-03	**Site 2-2C (D.W. Plant)**		**7/21/10 10:15**			
Surface Water						
Total Suspended Solids	SM 2540 D	141	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	23	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.71	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.48	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.35	mg/L	0.017	7/28/2010	CT
909601-04	**Site 3-2A (Limestone Land.)**		**7/21/10 10:18**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	160	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	18	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.71	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.78	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.28	mg/L	0.017	7/28/2010	CT
909601-05	**Site 3-2B (Limestone Land.)**		**7/21/10 10:20**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	163	mg/L	2	7/22/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
909601-05	**Site 3-2B (Limestone Land.)**		**7/21/10 10:20**			
Surface Water						
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	23	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.72	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.06	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.30	mg/L	0.017	7/28/2010	CT
909601-06	**Site 3-2C (Limestone Land.)**		**7/21/10 10:22**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	868	mg/L	2	7/22/2010	KM
BOD, 5 Day	SM 5210 B	<12	mg/L	12	7/27/2010	KM
COD	EPA 410.4	578	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	5.28	mg/L	2.5	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	12.6	mg/L	0.09	7/30/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909604-01	**Site 4-2A (Second St.)**		**7/21/10 10:25**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	113	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	11	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.68	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	3.0	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	<0.017	mg/L	0.017	7/30/2010	CT
909604-02	**Site 4-2B (Second St.)**		**7/21/10 10:27**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	102	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	11	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	2.88	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.22	mg/L	0.017	7/30/2010	CT
909604-03	**Site 4-2C (Second St.)**		**7/21/10 10:30**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT

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103 Fieldview Drive
Versailles, KY 40383

Project: City of Maysville
Entered By: Lynn Ellis
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Test	Method	Result	Units	PQL	Date	Analyst
909604-03	**Site 4-2C (Second St.)**		**7/21/10 10:30**			
Surface Water						
Total Suspended Solids	SM 2540 D	143	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	13	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.68	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	3.71	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.28	mg/L	0.017	7/30/2010	CT

Approved By: _____

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Test	Method	Result	Units	PQL	Date	Analyst
909602-01	**Site 2-3A (D.W.Plant)**		**7/21/10 10:35**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	208	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	15	mg/L	10	7/27/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.89	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.24	mg/L	0.017	7/28/2010	CT
909602-02	**Site 2-3B (D.W. Plant)**		**7/21/10 10:37**			
Surface Water						
E. coli	SM 9223 B	816	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	70	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	<10	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.72	mg/L	0.1	7/21/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/21/2010	EW
TKN	SM 4500-NH3 C	2.18	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.13	mg/L	0.017	7/28/2010	CT
909602-03	**Site 2-3C (D.W. Plant)**		**7/21/10 10:39**			
Surface Water						
E. coli	SM 9223 B	1733	MPN/100ml	1	7/22/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909602-03	**Site 2-3C (D.W. Plant)**		**7/21/10 10:39**			
Surface Water						
Total Suspended Solids	SM 2540 D	107	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	12	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	1.79	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.17	mg/L	0.017	7/28/2010	CT
909602-04	**Site 3-3A (Limestone Land.)**		**7/21/10 10:44**			
Surface Water						
E. coli	SM 9223 B	921	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	125	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	<10	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	1.76	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.20	mg/L	0.017	7/30/2010	CT
909602-05	**Site 3-3B (Limestone Land.)**		**7/21/10 10:46**			
Surface Water						
E. coli	SM 9223 B	921	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	87	mg/L	2	7/27/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
909602-05	**Site 3-3B (Limestone Land.)**		**7/21/10 10:46**			
Surface Water						
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	11	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.71	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	2.56	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	0.17	mg/L	0.017	7/30/2010	CT
909602-06	**Site 3-3C (Limestone Land.)**		**7/21/10 10:48**			
Surface Water						
E. coli	SM 9223 B	1733	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	267	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	211	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.69	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	9.29	mg/L	1.25	8/4/2010	KM
Phosphorus, Total	SM 4500-P E	3.05	mg/L	0.09	7/30/2010	CT

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Test	Method	Result	Units	PQL	Date	Analyst
909605-01	**Site 4-3A (Second St.)**		**7/21/10 11:03**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	113	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	<3	mg/L	3	7/27/2010	KM
COD	EPA 410.4	13	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.69	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	1.79	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.26	mg/L	0.017	7/30/2010	CT
909605-02	**Site 4-3B (Second St.)**		**7/21/10 11:09**			
Surface Water						
E. coli	SM 9223 B	1046	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	177	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	<10	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.70	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	3.91	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.22	mg/L	0.017	7/30/2010	CT
909605-03	**Site 4-3C (Second St.)**		**7/21/10 11:14**			
Surface Water						
E. coli	SM 9223 B	1986	MPN/100ml	1	7/22/2010	CT

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909605-03	**Site 4-3C (Second St.)**		**7/21/10 11:14**			
Surface Water						
Total Suspended Solids	SM 2540 D	139	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	11	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.68	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	2.50	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.23	mg/L	0.017	7/30/2010	CT
909605-04	**Site 5-A (below WWTP)**		**7/21/10 11:22**			
Surface Water						
E. coli	SM 9223 B	1986	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	154	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	10	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.68	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	3.56	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.28	mg/L	0.017	7/30/2010	CT
909605-05	**Site 5-B (below WWTP)**		**7/21/10 11:26**			
Surface Water						
E. coli	SM 9223 B	1414	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	105	mg/L	2	7/27/2010	KM

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Test	Method	Result	Units	PQL	Date	Analyst
909605-05	**Site 5-B (below WWTP)**		**7/21/10 11:26**			
Surface Water						
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	<10	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.69	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	2.96	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.10	mg/L	0.017	7/30/2010	CT
909605-06	**Site 5-C (below WWTP)**		**7/21/10 11:30**			
Surface Water						
E. coli	SM 9223 B	1553	MPN/100ml	1	7/22/2010	CT
Total Suspended Solids	SM 2540 D	177	mg/L	2	7/27/2010	KM
BOD, 5 Day	SM 5210 B	4	mg/L	3	7/27/2010	KM
COD	EPA 410.4	15	mg/L	10	8/2/2010	KM
Nitrate-N	EPA 300.0	0.68	mg/L	0.1	7/22/2010	EW
Nitrite-N	EPA 300.0	<0.10	mg/L	0.1	7/22/2010	EW
TKN	SM 4500-NH3 C	3.51	mg/L	1.25	8/5/2010	KM
Phosphorus, Total	SM 4500-P E	0.26	mg/L	0.017	7/30/2010	CT

Approved By: _____

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