

**CONSENT DECREE
PROGRESS REPORT**

**VOLUME 12
2004**

**TWELFTH QUARTERLY REPORT
OCTOBER 1, 2004 THROUGH DECEMBER 31, 2004**



October 2004

STATEMENT OF CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

W. Malcolm Steeves, P.E.

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SECTION I: SUMMARY

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1. Reporting Requirements

On January 24, 2002, the Board of Water and Sewer Commissioners of the City of Mobile entered into a Consent Decree (CD) with the United States, the State of Alabama and Mobile Bay Watch, Inc. (MBW). The following progress report consolidates the quarterly reporting requirements described in CD Paragraphs 44 and 98 regarding the following: (1) status of work performed; (2) unpermitted discharge information; (3) water quality monitoring data; and (4) the status of the Supplemental Environmental Projects (SEPs). Additionally, this report includes the semi-annual analysis of wastewater collection and transmission systems and wastewater treatment facilities required by CD Paragraph 21.

2. Report Organization

Water Quality Monitoring Program data and Grease Control Program Tables can be found on the MAWSS website, www.mawss.com, and are not included with this report. There are no narratives in Section II of this report for projects that have been completed for more than one year. Additionally, projects that were initially delayed but have subsequently completed for more than one year are also removed from the report.

This report is divided into the following sections:

Section I: Summary – describes the reporting requirements of the CD, the report structure and a report summary.

Section II: Performance of Consent Decree Work – provides information described in CD Paragraph 98:

- CMOM measures pursuant to the CD implemented or discontinued during the previous quarter
- Description of the status of compliance with the Consent Decree
- Summary of Sanitary Sewer Overflows (SSOs) during previous quarter

Section III: Water Quality Monitoring – provides information regarding the status of the Water Quality Monitoring Program as required by CD Paragraph 38.

Section IV: Supplemental Environmental Projects – describes progress of planning and implementation of each SEP as required by CD Paragraph 44.

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Section V: Civil Penalties – describes progress of paying Civil Penalties as required by CD Paragraph 53.

Appendix A-1: Table of Sanitary Sewer Overflows and Unpermitted Discharges – provides a listing of all sanitary sewer overflows and unpermitted discharges that occurred during the quarter as required by CD Paragraph 98.

Appendix A-2: Analysis of Wastewater Collection and Transmission Systems and WWTFs – provides trend information with regard to Unpermitted Discharges and SSOs as required by CD Paragraph 21.

3. Report Summary

This status report is the twelfth quarterly report required by the Consent Decree (CD) and covers the period from October 1 to December 31, 2004.

3.1 Status of Compliance

All CMOM programs required by the CD have been submitted to the EPA for approval in accordance with the CD schedule.

3.1.1 EPA Approved Programs**Water Quality Monitoring (CD Chapter IX)**

On December 19, 2003, the EPA, having reviewed the Board's July 27, 2002 response to EPA comments, approved the Water Quality Monitoring Plan (WQMP). On July 29, 2004, the Board requested approval from the EPA to make minor changes to the Water Quality Monitoring Plan based on an evaluation of the results from the first year of implementation. These changes will result in significant cost savings without compromising the goals of the Plan. Further information regarding the WQMP can be found in Section III of this report.

3.1.2 Status of Implementation

The Board continues to proceed with implementation of the CMOM programs. The Board is continuously reviewing and modifying its programs to find ways to be more effective in reducing SSOs. Additional information regarding the implementation of each program can be found in Section II of this report.

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Supplemental Environmental Projects (CD Chapter X)

Service lateral replacements required by SEP 1 were completed on December 19, 2003. SEP 2 money has been paid to the Forever Wild Land Trust and is complete. On August 4, 2003, MAWSS transferred the remaining funds in SEP 3 (\$30,985.60) not used by the Alabama Forest Resources Center to the Forever Wild Land Trust for acquisition of property in the Dog River watershed. SEP 3 is considered complete. On February 2, 2004, MAWSS transferred funds in the amount of \$50,089.35 from the SEP 4 escrow account to Mobile Bay Watch. All four SEPs are now considered complete. A completion report on SEP 1 was recently sent to the EPA on January 26, 2005.

Appendix B

No Appendix B penalties were incurred during the fourth quarter of 2004. The Board and Mobile Bay Watch (MBW) are negotiating disbursement of Appendix B funds. The funds allocated to the Board will be spent on the replacement of private service laterals. The Board has agreed to Waterkeeper Alliance receiving Appendix B funds on MBW's behalf.

Civil Penalties (CD Chapter XI)

The Civil Penalties, \$99,000 to the United States and \$15,000 to Alabama, have been paid.

Discontinued Operations and Maintenance Measures

During the first quarter of 2004, a contaminated tank holding the 50 percent hydrogen peroxide solution at the Columbus Street Lift Station became unstable resulting in an emergency situation. Rather than have the various communities concerned about possible future hydrogen peroxide dangers, the Board began the use of US Filter's Bioxide treatment as an alternative means to address odor and corrosion at four lift stations. Further information regarding the Corrosion Control Program can be found in Section 6.

Delays in Completion

On May 22, 2003 the Board requested approval to extend the deadline for lift station renovations outlined in the Lift Station Action Plan Consultant Category 2 Priority Tasks to April 30, 2005.

Construction is underway for the remaining lift station scheduled for 2004, the Bricord Lift Station. On December 8, 2004 the Board requested an extension of the deadline for completing upgrades to the Bricord Lift Station as required by the Lift Station Action Plan. At the time of the Board's earlier request to extend the deadline of the other lift station

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upgrades due to the FLLS renovations, the Bricord Lift Station upgrade project was underway and on schedule for completion by the end of 2004. The contractor that was awarded the project, Roland Pugh Construction, also has the Board's annual contract for making scheduled and emergency repairs in easements. A recent emergency repair project on a 15 inch interceptor in the Three Mile Creek Basin required the resources previously available to the contractor for the Bricord Lift Station. Consequently, completion of the Bricord Lift Station upgrades has been delayed. The Board anticipates completion of the project by February 15, 2005.

Submittal of the Force Main Action Plan was delayed past the December 31, 2004 deadline until January 15, 2005. Under the Plan, force main inventory data and head loss characteristics were evaluated to determine future maintenance tasks. The gathering of data for this task proved to be more difficult and time consuming than initially anticipated.

3.1.3 Program Submittals

To date, the Board has submitted all program reports in accordance with the CD schedule. The following presents the dates of program submittals, EPA comments, and the Board's responses:

December 21, 2001 Program Submittals

- Short-Term Collection and Transmission Systems Capacity Assurance Program (CAP)
- Short-Term CAP for WWTPs
- Preliminary Industrial Storm Water Discharge Report
- Reporting, Notification, and Record Keeping Program

January 31, 2002 Program Submittal

- Proposed SEP 1 project locations

February 28, 2002 Program Submittals

- Short-Term CAP for WWTPs – Follow-up Report
- Capacity Assurance – Decentralized Wastewater Treatment Systems
- Legal Support Programs for Sewer System (Ordinances)
- Water Quality Monitoring Program

April 29, 2002 Program Submittal

- Short-Term Pump Station Certification

SECTION I: SUMMARY

- Lift Station Action Plan

- First Quarter 2002 CD Status Report (Volume 1)

May 1, 2002 EPA Program Comments to Submittal Dated December 21, 2001

- Short-term Collection and Transmission Systems Capacity Assurance Program (CAP)
- Short-term CAP for WWTPs
- Preliminary Industrial Storm Water Discharge Report

May 2, 2002 EPA SEP 1 Comments to Submittal Dated January 31, 2002May 10, 2002 Responses to EPA SEP 1 Comments of May 2, 2002May 29, 2002 Responses to EPA Comments of May 1, 2002

- Short-Term Collection and Transmission Systems CAP
- Short-Term CAP for WWTPs
- Preliminary Industrial Storm Water Discharge Report

May 29, 2002 Program Submittals

- Grease Control Program
- Proposed Grease Ordinance
- Service Contract for Eating Establishments

May 30, 2002 EPA Program Comments to Submittal Dated January 31, 2002

- Water Quality Monitoring Program

June 27, 2002 Response to EPA Comments of May 30, 2002

- Water Quality Monitoring Program

July 30, 2002 Second Quarter & Semi-Annual CD Status Report (Volume 2)July 31, 2002 Program Submittals

- Long-Term Capacity Assurance Program for Wastewater Collection and Transmission Systems
- Long-Term Capacity Assurance Program for WWTPs
- Legal Support Programs for Sewer System and Wastewater Treatment Facilities (All Other Necessary Ordinances)
- Operations Contingency Plan for WWTPs

SECTION I: SUMMARY

- Contingency Plan for Eslava Creek, Halls Mill, and Virginia Street Lift Stations and Force Mains
- Contingency Plan for Wastewater Collection and Transmission Systems
- Pump Station Operation Program
- Corrosion Control Program
- Pump Station Preventative Maintenance Program
- Force Main Preventative Maintenance Program
- Gravity Line Preventative Maintenance Program
- Maintenance of Rights of Way Program
- Coordination with the City of Mobile and Other Governmental Bodies

August 7, 2002 Program Corrections

- Correct CD Quarterly Report Volume 2 regarding implementation of Water Quality Monitoring Program February 28, 2002.
- ADS Report on the flow monitoring of 20 private satellite collection systems was furnished to supplement information provided in July 31 submittal of Long Term Collection System Capacity Assurance Program. Schedules for implementing the remaining flow monitoring of private satellite collection systems were provided in the Long Term Collection System Capacity Assurance Program. Results of the aforementioned ADS report were not placed in the Program and were provided as an attachment to this August 7 submittal.

August 9, 2002 Program Modifications

- Due to the long-term plan to remove the Ziebach WWTP from service and the high cost of relocating the recycle stream, MAWSS proposed an alternative to apply the total cost of \$78,650 of relocating the recycle stream to either additional SEP 1 private property lateral replacements or additional rehabilitation work in the Ziebach area.

August 20, 2002 Corrections to August 9 Letter

- The post script to the August 9, 2002 letter should have stated that Williams WWTP fourth clarifier, which is required to treat the additional flows from the Ziebach WWTP following the Ziebach WWTP decommissioning, has been bid and awarded.

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- A feasibility study for wastewater storage at the Board's Halls Mill, Eslava Creek, and Virginia Street lift stations is required to determine the need for and the effectiveness of such storage facilities at the aforementioned locations.
- Any product trials needed as identified in Montgomery Watson Harza corrosion control project (Task 2 and 3) report would occur after 9/31/02.

August 26, 2002 EPA Response to August 9, 2002 Program Modifications

- The EPA agreed to the request to apply the cost of relocating the solids handling recycle stream at the Ziebach WWTP to either additional SEP1 private property lateral replacements or additional rehabilitation. The EPA requested that they receive notification of the specific plan to apply the additional funds.

September 16, 2002 Board Response to EPA August 26, 2002 Comments

- The Board will apply the cost for relocating the recycle stream at the Ziebach WWTP to replace a minimum of 39 laterals in the Ziebach area.

September 17, 2002 EPA Program Comments

- The Board received EPA comments and conditional approval of the Grease Control Program.

September 27, 2002 Response to EPA September 17, 2002 Comments

- The Grease Control Program is being modified from the initial submittal to the EPA to address comments received from the EPA and the Alabama Restaurant Association.

October 30, 2002 Third Quarter CD Status Report (Volume 3)November 26, 2002 Passage of Grease Control Ordinance

- The City of Mobile passed the Septage and Grease Hauler Ordinance requiring manifests for documenting proper disposal methods and disposal locations.

December 18, 2002 Letter to the EPA

- Identified delays for the Florida Street and Kerr McGee Lift Station projects as a result of property acquisition issues.
- Identified completion dates for software upgrades to record data related to the parshall flume modifications and installation of dissolved oxygen sensors at the Williams WWTP.

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- A request to relocate the Public Document Repository to the new Dennis Moore Training Facility was made.

January 30, 2003 Fourth Quarterly CD Status Report (Volume 4) & Semi-Annual AnalysisFebruary 17, 2003 Annual Summary Pursuant to CD Paragraph 21

- An annual summary of unpermitted discharges and overflows pursuant to Paragraph 21 was submitted to the EPA, ADEM, and Mobile Bay Watch. The information was also placed in the Public Document Repository and provided on the MAWSS website.

February 28, 2003 Program Submittal

- The Unscheduled Maintenance Program was submitted on February 28, 2003, completing all CMOM program submittals required by the Consent Decree.

April 29, 2003 Fifth Quarterly CD Status Report (Volume 5)May 22, 2003 Letter to the EPA

- Request to extend completion schedule for coating of wet wells under the Lift Station Action Plan from May 30, 2003 to July 31, 2003 due to investigations into more effective coating products. Request to limit the number of wet wells coated from ten to five.
- Request to extend the schedule by one year for building removal and renovations at 13 lift stations due to the addition of items outside the original recommendations that will allow for better monitoring, maintenance, and emergency response.
- Request to extend completion date of 90-day corrosion control field trial from June 30, 2003 to October 30, 2003. It was determined that the trial was outside the scope of the current annual contract and, therefore, required bidding of a new contract.
- Request to decrease the cleaning frequency of Cycle 5 and 6 category sewer lines. It was noted that, should sewer lines in these cycles be found to require more frequent cleaning, they can be reassigned to more frequent cleaning cycles such as Cycle 3 or 4.

July 23, 2003 Letter to the EPA

- Request for EPA to consider Force Majeure regarding 116 of the 122 overflows that reached waters of the State or United States during three large and intense rain events that occurred on May 18, June 6, and June 30 of 2003.

SECTION I: SUMMARY

July 30, 2003 Sixth Quarterly CD Status Report (Volume 6) & Semi-Annual AnalysisSeptember 25, 2003 Letter to the EPA

- Request to reverse the schedule of the Eslava Creek and Halls Mill Lift Station upgrades as stated in the *Pump Station Preventative Maintenance Program* submitted to the EPA on July 31, 2002. Under the proposed schedule swap, the Halls Mill Lift Station upgrades will be moved up to 2004 to expedite upgrades to the stand-by generator to address the vulnerability of the lift station to power outages. The Eslava Lift Station upgrades are under design and will be completed in 2005.

October 30, 2003 Seventh Quarterly CD Status Report (Volume 7)December 22, 2003 Letter to the EPA

- The Board presented findings from the feasibility study regarding the storage of wastewater in the event of catastrophic failure at the Eslava Creek, Halls Mill, and Virginia Street Lift Stations and force mains. The study concluded that the cost of constructing a facility far exceeds the benefit of such an endeavor.
- The letter also notified the EPA that one of the two isolation valves recommended in the *Contingency Plan for Eslava Creek, Halls Mill, and Virginia Street Lift Stations and Force Mains* already exists. The second recommended isolation valve will not be installed due to the cost required to relocate two 36 inch and 48 inch force mains.

December 29, 2003 EPA Approval of Water Quality Monitoring Plan

- The EPA gave final approval for the Board's Water Quality Monitoring Plan. The Plan is being implemented and is posted in the Public Document Repository and on the MAWSS website.

January 30, 2004 EPA Eighth Quarterly CD Status Report (Volume 8)April 27, 2004 EPA Ninth Quarterly CD Status Report (Volume 9)July 29, 2004 EPA Tenth Quarterly CD Status Report (Volume 10)

- In the cover letter accompanying the report, the Board requested minor changes to the Water Quality Monitoring Plan. Additionally, the Board informed the EPA of the project to reroute the Faye Lane Lift Station force main and the impact this would have on the previously submitted schedule to renovate nine other lift stations. Four of the

SECTION I: SUMMARY

five lift station renovations scheduled for 2004 will be rescheduled for completion by December 31, 2005 along with four other lift stations previously scheduled for 2005.

October 27, 2004 EPA Eleventh Quarterly CD Status Report (Volume 11)

- In the cover letter accompanying the report, the Board requested that the EPA grant Force Majeure status for all SSOs resulting from Hurricane Ivan. Abandonment of the Ziebach WWTP due to safety concerns resulted in the bypass of 1.1 million gallons of untreated flow into Mobile Bay. Additionally, there were eight other overflows attributed to Hurricane Ivan, seven of which were the result of power outages at lift stations.
- The cover letter also requested an extension of the December 31, 2004 deadline for initial investigations of Private Sanitary Sewer Collection Systems (PSSCSs) to June 30, 2005. The additional time will allow the Board more flexibility in working with customers in regard to scheduling smoke testing.

December 8, 2004 Letter to the EPA

- In a previous letter to the EPA dated July 29, 2004, the Board requested approval from the EPA to reschedule the deadline to the end of 2005 for all of the remaining lift station upgrades with the exception of the Bricord Lift Station. The contractor that was awarded the project to upgrade the Bricord Lift Station, Roland Pugh Construction Company, also has the Board's annual contract for making point repairs in easements. Recent emergency repairs to a 15 inch interceptor sewer in the Three Mile Creek Basin have required the resources previously available to the contractor for the completion of the Bricord Lift Station. As a result, the Board requested approval from the EPA to extend the completion date of the Bricord Lift Station upgrades to February 15, 2005.

SECTION II: PERFORMANCE OF WORK
(CD CHAPTER VIII)

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

1. System Capacity Assurance Program (SCAP) (CD Paragraph 20)

1.1 Short-Term Capacity Assurance Program for New Connections

The *Short-Term Collection and Transmission Systems Capacity Assurance Report* and the *Short-Term Capacity Assurance Program for WWTPs* was submitted to the EPA on December 21, 2001. On February 28, 2002, a follow-up report was submitted to the EPA identifying WWTP Capacity Improvement Projects. Comments regarding the program were received from the EPA on May 2, 2002. On May 29, 2002, MAWSS submitted responses to the EPA's comments.

1.1.1 Program Implementation

1.1.1.1 Wastewater Collection and Transmission Systems

Requests for new connections continue to be passed through Volkert and Associates for collection system capacity evaluation.

1.1.1.2 Wastewater Treatment Plants (WWTPs)

C.C. Williams WWTP

Reduction of Industrial Loads (December 18, 2002)

Industrial Pretreatment contracts with reduced industrial loads requirements went into effect on January 1, 2003.

Installation of Online Dissolved Oxygen (DO) Meters (January 15, 2003)

Dissolved Oxygen continues to be monitored. DO is adequate for current peak flows to the plant.

Wright Smith, Jr. WWTP

Reduction of Industrial Loads (December 18, 2002)

Industrial Pretreatment contracts with reduced industrial load requirements went into effect on January 1, 2003.

GAF Corporation continues to work with a consultant to complete plant modifications in order to comply with their 900 pounds per day loading limitation. MAWSS is reviewing the possibility of diverting flows from the

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

GAF Corporation to the C.C. Williams WWTP in order to allow an increase in their loading limitation. Mobile Paperboard is also working on plant modifications; however, they have been in compliance with their new loading limits for the past year.

Operational Modifications to Enhance Primary Chemical Treatment (August 31, 2002)

A ferric chloride dosing facility has been installed at the Smith WWTP. A review of historical data has determined that the optimum schedule for dosing is when plant flows exceed 20 mgd.

1.2 Long-Term Capacity Assurance Program for New Connections

Reports for both the Long-Term Capacity Assurance Program for Wastewater Collection and Transmission Systems and the Long-Term Capacity Assurance Program for WWTPs were submitted to the EPA for approval on July 31, 2002. Under the Long-Term CAP, hydraulic modeling uses flow data to determine the impact of proposed future connections on system capacity as defined by the Short-Term CAP.

1.2.1 Wastewater Collection and Transmission Systems

1.2.1.1 Permanent Flow Monitoring

Long term (permanent) flow monitors and rain gauges have been installed in accordance with the dates provided in the Long Term CAP for the collection and transmission systems. A total of 67 long term flow monitors and ten rain gauges are being used in the system.

Long term flow monitoring data is used to prioritize the locations at which temporary flow monitoring studies are needed. There are a total of 51 temporary flow meters installed throughout the collection systems. These flow monitors allow better isolation of I/I sources by monitoring smaller areas. The majority of these portable flow meters are currently in the Eslava Basin.

1.2.1.2 Identification of Collection System Capacity

Volkert and Associates, Inc. continues the recalibration of the hydraulic model. Completion of the recalibration, originally scheduled for August 2004, has

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

been delayed in order to incorporate additional flow monitoring data. Recalibration of dry and wet weather flows was expected by the end of 2004. It now appears it will be completed in the first quarter of 2005.

New requests for service continue to be routed from the Board to Volkert for collection system capacity assessment.

Three Mile Creek Basin

Over 12,000 LF of the lower end of the Three Mile Creek Interceptor was cleaned and televised in early 2003. Repairs to this interceptor sewer along with other rehabilitation work in this basin have removed sources of I/I estimated at 1.7 mgd.

There are currently 10 portable flow meters installed in the Three Mile Creek basin to further isolate I/I sources.

The Board expects a response from FEMA by March 31, 2005 regarding an appeal made in August of 2003 of FEMA's decision to deny construction of new lift station near Ridge Road to address overflows in the area. The needed location of the lift station is on property purchased by FEMA as part of the Flood Insurance Program. The Board has sent information regarding the project to Congressman Jo Bonner so that he may monitor the status of FEMA's decision.

Since October 1, 2004, the Board has approved six (6) new requests for connection in the Three Mile Basin totaling 46,272 gpd of peak flow and one request in the Eight Mile Basin totaling 25,290 gpd of peak flow. Approval for two additional requests in the Three Mile Basin is pending. Since program implementation in August 2002, 120 requests for connection have been approved adding 574,000 gpd in the Three Mile Basin and 266,000 gpd in the Eight Mile Basin.

Halls Mill Creek Basin

The model previously indicated that portions of the 18-inch diameter Second Creek Interceptor sewer and the 10-inch diameter interceptor sewer along Airport Boulevard are near capacity. Installation of manhole inflow dishes and rehabilitation of manhole castings along the Second Creek Interceptor has

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

removed over 1.0 mgd of I/I. MAWSS staff continues to perform above ground inspections in the area to identify I/I sources. Thus far, two significant I/I contributors have been repaired. Data from portable flow meters is currently under review to determine the impact of I/I removal on available capacity.

Since October 1, 2004, five new requests for connection have been approved for a total of 46,272 gpd of additional peak flow. Approval of six additional requests is pending. Since the program implementation, 174 requests for connection have been approved for a total of 1.733 mgd in added peak flow.

Eslava Creek Basin

The last model calibration, completed in December 2003, identified capacity concerns along the lower portions of the Eslava Creek Interceptor sewer and the Bolton Branch Interceptor sewer. MAWSS is continuing with flow monitoring, I/I investigations, video inspection and hydraulic cleaning to improve the performance of this basin. Eight portable flow meters were removed from the basin during the last quarter. There are currently, a total of 40 flow meters installed within the basin.

Hydraulic cleaning and video inspection of the Eslava Creek Interceptor sewer, completed in March 2004, removed approximately 550 tons of soil and debris from 9,200 feet of the 36-inch to 48-inch interceptor. During the course of the cleaning and video work, two plugs from an abandoned sewer and a 36-inch polyethylene depressed sewer were found to be defective. The defective plugs were subsequently repaired and a project to replace the depressed sewer was completed in July 2004.

Thus far, flow data through June of 2004 has been incorporated into the model. The data indicates that some capacity gains have been achieved through cleaning and various repairs; however, it does not include flow data following completion of the major repairs on the interceptor sewer. Recent flow data will need to be incorporated to determine if the impact of these repairs on available capacity.

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

MAWSS is continuing with other projects within the Eslava Creek Basin that will eliminate I/I and improve capacity. The gravity sewer along Parkway Drive was replaced during the third quarter of 2004. The quantity of I/I removed as a result of this replacement project has yet to be determined. Previous I/I removal projects have banked approximately 549,000 gpd in added capacity.

The Faye Lane Lift Station renovation project is substantially complete. The Faye Lane Lift Station force main discharge has been rerouted from its previous location upstream of the Eslava Lift Station to the Halls Mill and Eslava 36-inch/48-inch force main. It is estimated that as much as 4 MGD can be removed from the Eslava Lift Station during heavy rains.

Since October 1, 2004, eight new requests for connection have been approved for a total of 14,420 gpd of additional peak flow. Approval of three additional requests is pending. Since the implementation of the program, 72 requests for connection have been approved to allow an additional 326,742 gpd of peak flow.

Virginia Street Basin

The Water Street Lift Station will need some upgrades to handle the additional flows that will come from the new RSA Tower in 2005. The upgrades will be completed prior to the RSA Tower needing sewer service. Flow data from a portable flow meter along with pump drawdown test results is currently being reviewed to determine the extent of the required lift station upgrades.

Since October 1, 2004, three requests for connection have been submitted for approval to allow 1,875 gpd of additional peak flow. The Board is currently reviewing these requests. Since program implementation, 18 requests for connection have been approved based on the available capacity and capacity gained from I/I removal. The total amount of peak flow approved for these connections is 69,594 gpd.

Ziebach WWTP Basin

The WWTP has capacity limitations at wet weather peak flows. Single home capacity requests have been accepted based upon repairs made in the basin.

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

Replacement of portions of the 18-inch trunk sewer near Staples Road, repairs to the Gill Road Lift Station, and replacement of missing service lateral caps in a trailer park have removed approximately 154,000 gpd of I/I.

A project is ongoing to upgrade the existing Perch Creek Lift Station and re-route the force main to the 48-inch Eslava Creek Lift Station force main discharging to the Williams WWTP. Issues regarding easement acquisitions that had significantly delayed the start of this project have now been resolved. Delivery of pipe has now delayed the project. Completion is expected in September 2005.

Since October 1, 2004, three requests for connection to allow a total of 1,875 gpd of added peak flow were received and approved based in part on I/I removal from repair work. 49 requests have been submitted and approved since program implementation adding a total peak flow demand of 54,110 gpd.

Theodore Area Basin

During the third quarter of 2004, routine above ground inspections found a large cave-in above a gravity sewer line on Inn Road. This area was draining significant amounts of surface water into the sewer system. Repair work has been completed resulting in the removal of approximately 943,000 gallons of flow during heavy rains.

Since October 1, 2004, seven requests for connection have been approved to allow an additional 4,125 gpd of peak flow into the collection system. Since program implementation, 73 requests for connection have been approved to allow an additional peak flow contribution of 877,390 gpd.

Eight Mile Creek Basin

This basin's capacity is limited by the capacity of the lower Three Mile Trunk and the Smith WWTP. Capacity gains in the lower Three Mile Trunk have been realized through cleaning and I/I removal.

A new force main along Schillinger Road is under construction to increase capacity in the Semmes area. Work should be completed by the end of the first quarter of 2005.

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

See Three Mile Creek Basin for new connection requests in the Eight Mile Creek Basin.

1.2.1.3 Information Management System for Calculating the Net (Cumulative) Increase or Decrease in Wastewater Volume

Volkert and Associates continues to maintain the “Capacity Bank” for the Board’s wastewater collection and transmission systems. New requests for service are routed through the Board’s Mapping and Connections Department and then to Volkert for capacity analysis.

1.2.1.4 Identification and Elimination or Reduction of Industrial and Other Stormwater Discharges

A report on Industrial Stormwater Discharges was submitted to the EPA on December 21, 2001. On May 2, 2002, MAWSS received comments from the EPA regarding the program. MAWSS submitted responses to these comments on May 29, 2002.

Industrial and Non-Industrial Private Sanitary Sewer Systems

Flow monitoring studies were completed for 36 industrial and 20 non-industrial private sanitary sewer collection systems (PSSCSs). Site investigations for the remaining 107 PSSCSs have also been completed. Site investigations found that many of the systems discharge to MAWSS via small diameter gravity lines or small force mains. The low flow rates associated with small gravity lines and pressurized flow from force mains make it impractical to yield accurate flow monitoring data. Consequently, the smoke testing will be performed in lieu of flow monitoring.

The Board smoke tested of 65 Mobile County Schools in the summer of 2004. Information regarding defects that were identified was delivered to the School Board for corrective action.

The Board decided to smoke test private sanitary sewer systems at no expense to the customer. This decision follows the intent of the Board to build partnerships with private sanitary sewer customers by working in a cooperative effort to address inflow sources. On October 27, the Board requested from the

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EPA an extension of the December 31, 2004 deadline to June 30, 2005 for initial investigations of these properties in order to allow more time to work with customers to schedule smoke testing activities.

During the past quarter, the Board began sending letters to its Industrial and Non-Industrial PSSCSs requesting Right of Entry for smoke testing activities. The letters describe the impact of I/I on the wastewater collection systems and describe the benefits of the free smoke testing program in locating sources of I/I. The customer is required to repair any defects found as a result of the smoke tests. Should customers choose not to allow MAWSS to conduct the smoke testing activities, they must submit an I/I inspection plan along with a schedule that completes the I/I inspection and provides of a report of the findings by March 31, 2005.

Excluding schools, there are total of 133 Industrial and Non-Industrial PSSCSs being pursued for I/I investigation. 97 of these have been completed.

1.2.2 Wastewater Treatment Plants (WWTPs)

Several projects related to long-term capacity assurance are in progress. Completion dates for each project are in parentheses.

1.2.2.1 C.C. Williams WWTP

Infiltration and Inflow (I/I) Reduction Program

Work is ongoing to reduce influent flows to the plant by removing collection system I/I. During the past quarter, closed circuit television inspection (CCTV) was performed on 128,521 feet of pipe. Inspections and smoke testing continue to find sources of I/I. The Board has in place annual contracts for CIPP, manhole rehabilitation, point repairs, and public lateral replacement. The contracts in addition to in-house forces are being used to make repairs to the collection system.

See Section 1.2.1.2 for information regarding the recent removal of I/I from the C.C. Williams WWTP Collection System.

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1.2.2.2 Bill Ziebach WWTP

Infiltration and Inflow (I/I) Reduction Program

Work is ongoing to reduce influent flows to the plant by removing collection system I/I. During the past quarter, closed circuit television inspection (CCTV) was performed on 5,530 feet of pipe. Inspections and smoke testing continue to find sources of I/I. The Board has in place annual contracts for CIPP, manhole rehabilitation, point repairs, and public lateral replacement. The contracts in addition to in-house forces are being used to make repairs to the collection system.

See Section 1.2.1.2 for information regarding the recent removal of I/I from the Bill Ziebach WWTP Collection System.

Modify Perch Creek Lift Station (January 9, 2004)

Modifications to the Perch Creek Lift Station include increasing capacity and rerouting the force main to discharge into the Halls Mill/Eslava force main which transmits flow to the Williams WWTP. This work will allow the Ziebach WWTP to be removed from service.

Due to the long length of the force main in the Perch Creek Lift Station Project, easements had to be obtained from many property owners and the Mobile Airport Authority (MAA). Unfortunately, condemnation was required for several easements and it took months to negotiate an easement from MAA. In final negotiations with MAA, the force main alignment had to be altered. These easement acquisitions delayed the completion of the Project and, ultimately, the removal of the Ziebach WWTP from service for 12 months.

The Project was bid in three phases so that each phase could begin construction as easements were acquired. Although this phased approach moved the Project along quicker than waiting until all easements were finalized before bidding, the Project was still delayed. Phase A, force main construction, has been delayed four months due to long delivery times on pipe. Phase B, also force main construction, is complete. Phase C, lift station upgrades, must be coordinated with force main completion. The total project completion date was moved from May to September 2005.

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Remove Ziebach WWTP From Service (March 26, 2004)

Following completion of the Perch Creek Lift Station modifications, the Ziebach WWTP will be removed from service. Decommissioning the Ziebach WWTP will allow abandonment of the Ziebach NPDES discharge permit in 2005.

1.2.2.3 Wright Smith, Jr. WWTP

Infiltration and Inflow (I/I) Reduction Program

Work is ongoing to reduce influent flows to the plant by reducing collection system I/I. During the past quarter, closed circuit television inspection (CCTV) was performed on 148,381 feet of pipe to determine sources of I/I. CCTV inspections and smoke testing continue to find sources of I/I. The Board has in place annual contracts for CIPP, manhole rehabilitation, point repairs, and public lateral replacement. The contracts in addition to in-house forces are being used to make repairs to the collection system.

See Section 1.2.1.2 for information regarding the recent removal of I/I from the Smith Basin.

Plan to Relocate Effluent Discharge (December 18, 2002)

This project will be developed according to a work plan for an EPA sponsored special projects grant. The work plan and grant application have been submitted to the EPA. The plan includes comparison of alternatives to the previously proposed discharge to the abandoned International Paper (IP) outfall and further meetings with residents from area neighborhoods. The plan also includes preparation of an inter-local agreement between interested wastewater utilities. Utility organizations associated with Mobile, Prichard, and Chickasaw, Alabama were asked to be the initial participants; however, only Chickasaw and Mobile are currently sharing the effort.

Proposed Regional WWTP on the International Paper (IP) Site

The schedules for the closure and future use of this site for a regional wastewater treatment plant are on hold, perhaps indefinitely. International Paper Company has withdrawn from the previously reported memorandum of understanding. Regional facility siting will now be based on a selection of

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alternatives to be developed in the EPA sponsored special projects grant program.

2. Sanitary Sewer Overflow (SSO) Reporting, Notification & Record Keeping Program (CD Paragraph 21)**2.1 Program Development**

The *Sanitary Sewer Overflow Reporting, Notification and Record Keeping Program* was submitted to the EPA on December 21, 2001.

2.2 Program Implementation

The Board continues to report overflows to ADEM, the MS4 Storm Water Authority (Mobile Engineering), Bay Watch, the Mobile County Health Department and the local media per guidelines set forth in the program submittal.

2.2.1 SSO Information Summary

During the fourth quarter of 2004 there were 41 sanitary sewer overflows (SSOs). Of this amount, 15 reached waters of the State or US Waters. The remaining overflows were contained and returned to the collection system.

No Appendix B penalties were incurred during the last quarter. The Board and Mobile Bay Watch (MBW) are negotiating disbursement of Appendix B funds. The funds allocated to the Board will be spent on the replacement of private service laterals. The Board has agreed to Waterkeeper Alliance receiving Appendix B funds on MBW's behalf.

Tables listing the overflow occurrences during the past quarter can be found in Appendix A-2.

Three (3) storms event met the severe natural event criteria described by CD Paragraph 23a, *Contingency Planning Process*.

Severe Natural Event (November 11, 2004)

During this event, the largest volume of rainfall recorded was 3.65 inches. Rainfall intensities of 1.30 inches in one hour and 0.63 inches over 15 minutes exceeded the

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criteria for severe natural events described in CD Paragraph 23a. Two overflows totaling 2,250 gallons were attributed to this storm event.

Severe Natural Event (December 5, 2004)

During this event, the largest volume of rainfall recorded was 2.17 inches. Rainfall intensities of 1.32 inches in one hour and 0.50 inches over 15 minutes exceeded the criteria for severe natural events described in CD Paragraph 23a. Seven overflows totaling 12,565 gallons were attributed to this storm event.

Severe Natural Event (December 22, 2004)

During this event, the largest volume of rainfall recorded was 2.30 inches. Rainfall intensities of 1.34 inches in one hour and 0.68 inches over 15 minutes exceeded the criteria for severe natural events described in CD Paragraph 23a. One overflow totaling 1,050 gallons were attributed to this storm event.

3. Legal Support Programs for Sewer System and Wastewater Treatment Facilities (CD Paragraph 22)

3.1 Ordinance Program

In 2002, the Board submitted information to the EPA demonstrating that ordinances would not be necessary to implement the following programs: the Short-Term Capacity Assurance Program; the SSO Reporting; Notification, and Record Keeping Program; and the Water Quality Monitoring Program. An ordinance was necessary to implement the Grease Control Program. The ordinance requiring septage and grease haulers to maintain manifests documenting proper disposal methods and locations was passed by the Mobile City Council on November 26, 2002.

3.2 Grease Control Program

3.2.1 Program Development

The Grease Control Program, developed by Thompson Engineering, was submitted to the EPA for approval on May 29, 2002. On September 17, 2002, the EPA provided conditional approval of the Board's Grease Control Program. A response to the EPA's comments was submitted on September 27, 2002. The response

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identified changes to the original program submitted to the EPA to address the concerns of the EPA and the Alabama Restaurant Association.

3.2.2 Program Implementation

The Board continues to initiate grease control contracts with food service facilities (FSFs). Through December 31, 2004, a total of 1046 contracts have been mailed. 448 FSFs have been removed from the program because investigations by MAWSS staff determined that these facilities did not prepare food on site, changed ownership, or closed since the contract was mailed. 598 FSFs remain in the program and have returned signed contracts.

3.3 Maintenance of Adequate Legal Staff

The Board continues to retain the Atchison Firm, PC to assist the Board in interpreting and fulfilling the obligations under the CD. The firm has adequate resources and personnel to meet the needs of the Board in this regard.

4. Contingency Plan for Sewer Systems and Wastewater Treatment Facilities (CD Paragraph 23)

4.1 Wastewater Collection and Transmission Systems

4.1.1 Program Development

The *Contingency Plan for Wastewater Collection and Transmission Systems* was submitted for EPA approval on July 31, 2002. In addition to the Contingency Plan described above, the *Contingency Plan for Eslava Creek, Halls Mill, and Virginia Street Lift Stations and Force Mains* was also submitted for EPA approval on July 31, 2002. This program provides contingency planning for the Board's three primary lift stations.

4.1.2 Program Implementation

4.1.2.1 Preparedness Committee

The Assistant Director meets each week with engineering and the appropriate operations staff to discuss any unpermitted discharges, including those resulting from severe natural events, that occurred in the previous week.

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Performance of the wastewater systems and staff are reviewed to decide a course of action that will focus on preventing the unpermitted discharges in the future. The resulting actions may include repairs, preventive maintenance, further investigation of the cause, re-assessment of I/I investigation locations, and/or changes in operations procedures including how we respond to emergency situations.

4.1.2.2 Capital Improvements

A number of capital improvements have been completed to eliminate or minimize collection and transmission failures during emergencies and severe natural events. Ongoing improvements are presented below. Scheduled completion dates are in parentheses.

SCADA and VFD critical spare parts storage (December 31, 2002)

Critical spare parts for SCADA and VFD are in inventory at the Board. MAWSS has received the Channel Monster and two hydraulic units for spares at Eslava Creek and Virginia Street Lift Stations.

Feasibility Study to evaluate on-site wastewater storage at the three primary pump stations (June 30, 2003)

A feasibility study for the storage of wastewater at the Halls Mill, Eslava Creek, and Virginia Street Lift Stations concluded that the cost of constructing adequate containment far exceeds the benefit of such an endeavor. The risk of a catastrophic failure of one of the aforementioned stations or the PCCP force main is minimal.

Coupons taken from the wall of the PCCP force main indicate that it is in good condition. The coating of the PCCP where it is exposed above ground is complete. Three additional locations are being tapped on the force main to inspect the wall of the pipe and to install air release valves. All field work and investigations regarding transient flows in the force main are complete. The report recommends that MAWSS continues with the installation of automatic air release valves (ARVs) along with the additional installation of two air vacuum valves on the Eslava/Halls Mill Lift Station Force Main. The report on

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transient flows is currently under review. Repairs to the pile bents supporting the force main creek crossings have been completed

The long-term operations and maintenance manual for the PCCP force main to minimize the risk of failure has been finalized and submitted to the EPA. The Board continues to further decrease the risk of lift station failure by installing standby pumps, adding generating capacity, by-pass piping, and other upgrades to the three lift stations. The Virginia Street Lift Station upgrades are complete. The Halls Mill Lift Station Upgrades are substantially complete. The Eslava Creek Lift Station upgrade project is under construction and will be completed before May 31, 2005.

Installation of Automatic Vehicle Locating (AVL) System (December 31, 2003)

AVL units have been installed in vehicles and are linked to a computer and display screen in the Dispatch Center. No new installations were completed during the last quarter. Next quarter, the Board will add 16 more AVL units along with a new channel for the transmission of data.

Install Fourth Pump at Virginia Street Pump Station (December 31, 2003)

Under this project, four Flygt dry pit submersible pumps, a Caterpillar standby generator, two Channel Monster sewage grinders, a Bristol Babcock RTU and new bypass piping were installed. The station was placed into operation on December 13, 2003.

Halls Mill Creek and Eslava Creek Pump Station Contingency Projects (July 1, 2005)

The Halls Mill Creek Lift Station upgrade is substantially complete. The Eslava Creek Lift Station upgrades were bid on August 16, 2004 and awarded to Hughes Plumbing and Utility Contractors, Inc. The project will be completed before May 1, 2005.

Installation of emergency backup systems for pumps greater than 15 horsepower (December 31, 2005)

A project to install auxiliary diesel pumps for five lift stations was completed during the second quarter of 2004. Hughes Plumbing and Utility Contractors, Inc. was awarded a project to install eight new backup pumps recently

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purchased by the Board. Three of the backup pumps are diesel fueled and were installed before the end of 2004. The remaining five backup pumps are fueled with natural gas. These pumps were installed by the end of 2004; however, the installation of natural gas piping by Mobile Gas could not be accomplished by until January. These pumps are expected to be operational by the end of January 2005.

The previous plan to install emergency backup equipment at all pump stations greater than 15 horsepower (HP) continues to be evaluated. Two stations with 15 HP motors do not warrant auxiliary power. The IP Lift Station flow is less than 1,000 gpd due to the closing of the IP Plant. Balcon Construction, Inc. is currently working on the installation of a generator quick connect at the QMS Lift Station. This station has a history of vandalism and, therefore, a permanent generator would be at risk. Following the re-evaluation of the plan, the Board added four stations with motors less than 15 HP to the program. The Board anticipates adding backup systems to 11 lift stations in 2005.

4.2 Wastewater Treatment Plants

The *Operations Contingency Plan for WWTPs* was submitted for EPA approval on July 31, 2002.

4.3 Preparedness Training Program

Each week the Assistant Director meets with engineering and operations staff to discuss any unpermitted discharges, including those resulting from severe natural events. The performance of the wastewater systems and staff are reviewed to determine if procedures need to be created or modified to address deficiencies. Employees are then trained on the new or revised procedures.

5. Pump Station Operation Program (CD Paragraph 24)

The *Pump Station Operation Program* was submitted to the EPA on July 31, 2002.

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5.1 Scheduled Pump Station Operation Program

The Pump Station Operation Program is being used to track operation schedules, priorities, record keeping forms, and performance measures. A computer program is being used to generate work orders based on lift station run times.

The program to upgrade the pump station SCADA systems is complete. Further information regarding the status of this project can be found in Section 8.1 of this report.

5.2 Emergency Pump Station Operation Program

The Emergency Pump Station Operation Program was incorporated in the overall Pump Station Operation Program identified above.

6. Corrosion Control Program (CD Paragraph 25)

6.1 Program Development

The Corrosion Control Program was submitted to the EPA on July 31, 2002. The program emphasizes field investigations by Montgomery Watson Harza (MWH) and modifications to the Board's standard specifications and pretreatment program.

6.2 Program Implementation

Tasks identified in the Corrosion Control program are currently being implemented.

Reduction of Industrial Loads

All industries currently under contract have submitted information regarding yard piping diagrams, a list of corrosive compounds, their storage, and the possible use of alternative compounds. Chloride loadings from industries are limited through the industrial pretreatment program to ensure chloride concentrations within the collection systems remain below 500 mg/l. The Board has determined that the primary contributors to hydrogen sulfide induced corrosion are long force mains rather than particular industries. This type of corrosion will be addressed by the Board and industries found to contribute sulfides to these locations will either be charged an equitable share of the treatment or will be required to install their own hydrogen sulfide treatment system. Currently, no sulfides or sulfates limit has been set for industries.

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Chemical Addition

A contaminated tank holding 50 percent hydrogen peroxide at the Columbus Street Lift Station became unstable and resulted in the evacuation of approximately 30 homes as a precautionary measure. As a result of the incident, hydrogen peroxide has been removed from six lift stations.

On August 11, 2004, the Board began using US Filter's Bioxide at the Faye Lane, Abilene, Florida Street, and Ghent Street Lift Stations as an alternative means to address odor and corrosion. On October 14, 2004, the Board began testing the use of Bioxide at the Virginia Street Lift Station. A dosing of 250 gallons per day was required to achieve desired results. The cost of dosing this volume is prohibitive and, as a result, the Board is contemplating alternatives. Bioxide dosing was also implemented at the Columbus Street Lift Station on December 1, 2004. A biofilter will be installed at the Eslava Creek Lift Station to control odors. The biofilter will be designed after the Faye Lane Lift Station force main is rerouted and no longer discharges into the Eslava Lift Station. The biofilter will not be installed until after the Eslava Lift Station renovations are complete.

Monitoring and Preventive Maintenance

Lift stations are continuing to be monitored for H₂S and odors.

7. Grease Control Program (CD Paragraph 26)

7.1 Program Development

The Grease Control Program was submitted to the EPA on May 29, 2002. The EPA provided conditional approval on September 17, 2002.

7.2 Program Implementation

During the fourth quarter of 2004, 13 FSFs were visited (initial visit) to review grease trap size requirements and provide training in grease disposal. Since the start of the program, 557 initial visits have been completed.

After the initial visit, FSFs that do not have the required grease trap capacity are required to submit action plans that provide details and a schedule for addressing undersized grease traps. Two action plans were approved this past quarter.

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During the quarter, the Pretreatment Department inspected 389 FSFs for compliance. 11 of these facilities were in violation of the Grease Control Program and received fines totaling \$4,300.

Monthly compliance sampling was conducted at 27 FSFs. Eight of those sampled had results greater than the 200 mg/l limit. Fines resulting from monthly compliance sampling totaled \$1,600. Of the 56 FSFs currently under monthly compliance sampling, 33 had sample results greater than the 200 mg/l limit. Fines resulting from sampling totaled \$6,600. To date, 35 FSFs have completed 12 months of sampling. 23 FSFs had 12 month averages under the 140 mg/l limit and are now considered to be in compliance and subject to quarterly inspections and random sampling. 11 FSFs had 12 month averages exceeding the 140 mg/l limit. These facilities are required to submit a new action plan within 30 days and must implement the plan within 60 days.

Initial visits for churches, schools, and daycare facilities have been delayed until 2005.

The Grease Control Program now includes placing door hangers in areas where video inspection of the sanitary sewer indicates grease control education is needed. The public has responded well to these notifications. MAWSS continues to explore the possibility of an education program to be presented to elementary students explaining the problems associated with fats, oils, and grease and how to properly dispose of these items. The Board recently hired a public affairs manager to develop programs that will educate the public about water and sewer issues. Further, money has been allocated to install several grease collection receptacles within the MAWSS service area. Sites for these collection receptacles are currently being evaluated.

7.3 Grease Control Compliance Table

The Grease Control Compliance Table can be found on the MAWSS website at www.mawss.com/consentdecreedocs.htm. The table lists FSFs under contract, the dates of the initial visits, required grease trap size, actual grease trap size, and enforcement actions. The dates on which FSFs are inspected are not included in the table unless there is an enforcement action taken.

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8. Pump Station Preventative Maintenance Program (CD Paragraph 27)

8.1 Short-Term Pump Station Certification

Montgomery Watson Harza completed the evaluation of 116 lift stations as required in the CD. The findings are presented in the *Inspection and Evaluation of Lift Stations* report. The evaluation report was submitted to the EPA on April 29, 2002 with the required certification and a schedule for addressing the recommendations made by MWH.

The recommendations were incorporated into a Lift Station Action Plan. Tasks to address the recommendations were grouped according to priority rating. Most of the tasks have previously been completed. Ongoing tasks are presented below. Scheduled completion dates are in parentheses.

Clean Lift Stations (July 15, 2002)

MAWSS staff continues to clean lift stations. A combination cleaning truck has been permanently assigned to the Lift Station Operations and Maintenance Department. During the past quarter, 49 lift stations were cleaned.

Consultant Category 3 Priority Tasks (December 31, 2002)

Consultant Category 3 Priority Tasks that are of an electrical nature were completed under the same project for Category 4 tasks mentioned above. With the exception of Halls Mill, Eslava, and Virginia Street Lift Stations, wet well lining work was completed by August 2003. Wet well lining work at the Virginia Street Lift Station was completed in addition to other upgrade work in the fourth quarter of 2003.

Halls Mill Creek Lift Station upgrades are substantially complete. These upgrades included lining of the wet well, a new 1500 KW generator and 4,000 gallon fuel tank, and the expansion of the electrical control building and installation of new electrical switchgear.

The Eslava Creek Lift Station Category 3 Priority Tasks will be addressed as part of a project to upgrade the station. The Eslava Creek Lift Station renovations project was bid on August 16, 2004 and awarded to Hughes Plumbing and Utility Contractors, Inc. Completion is expected no later than May 31, 2005.

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Consultant Category 2 Priority Tasks (revised December 31, 2005)

Consultant Category 2 Priority Tasks involves building removal and major lift station renovations to thirteen stations. The renovations include improvements to access for maintenance and installation of electromagnetic flow meters and bypass quick connections in the force mains. On May 22, 2003, the Board requested approval to extend the deadline for renovations to April 30, 2005. Four of these were completed by the end of 2003. The request stated that five more stations would be renovated in 2004 and that the remaining four would be completed in 2005.

It was determined that flows to the Eslava Creek Lift Station could be reduced by rerouting the force main of the Faye Lane Lift Station (FLLS). The FLLS force main previously discharged to a manhole just upstream of the Eslava Creek Lift Station. Rerouting the FLLS force main discharge to the Halls Mill and Eslava 36-inch/48-inch force main will allow as much as 4 MGD to be removed from the Eslava Creek Lift Station during heavy rain events. The removal of this flow will give the Eslava Creek Lift Station more capacity for flows in the Eslava Creek Interceptors.

The pumps at the FLLS required upgrades to accommodate the rerouting of the force main. Consequently, a general renovation of the station was required. The FLLS was not one of the nine lift stations that were scheduled for renovations in 2004 and 2005. However, the Board believed that FLLS has priority due to the wet weather related overflows occurring in the Eslava Creek basin.

On July 29, 2004 the Board requested the EPA approve diverting funds from four of the five lift stations initially scheduled for 2004 in order to complete FLLS renovations. The four stations not completed in 2004 will be completed in 2005 in addition to the four lift stations previously scheduled for 2005.

The Fay Lane Lift Station is now discharging directly to the Eslava Lift Station Force Main. All other upgrades at the lift station are substantially complete. Construction of upgrades to the Bricord Lift Station is underway.

In-House Category 1 Priority Tasks (December 31, 2004)

In-House Category 1 Priority Tasks include less critical improvements to lift station devices. This work includes installation of safety hatches as well as minor electrical work. To date, a total of 28 safety hatches have been installed. All safety hatches have

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been installed with the exception of those that will be installed as part of major lift station renovation projects.

Consultant Category 1 Priority Tasks (December 31, 2004)

Category 1 Priority tasks are complete. Work to install lift station lighting was completed by the end of 2004.

Florida Street Lift Station Relocation (March 31, 2003)

Renovations to the Florida Street Lift Station are complete and the station is in operation. The force main from this lift station was cleaned in the fourth quarter of 2003. All recommendations associated with the Florida Street Lift Station were addressed through the renovations.

Kerr McGee Lift Station Replacement (August 31, 2003 revised)

The Board experienced delays in acquiring property for the Kerr McGee Lift Station Replacement Project. As a result of the delays, the Board requested an extension of the completion date to August 31, 2003. The project was completed by the revised deadline.

The new lift station transmits the majority of industrial flows in the Theodore Basin directly to the Halls Mill Lift Station. As a result, flows in the 24-inch Coca-Cola interceptor sewer decreased by 750,000 gpd, substantially reducing demands on smaller lift stations in the area.

Halls Mill, Eslava, and Virginia Street Lift Station Upgrade Schedule (July 1, 2005)

The schedule for upgrades of these lift stations was presented in the Pump Station Maintenance Program submitted to the EPA in August 2002. The Virginia Street Lift Station renovations were completed at the end of 2003. On September 25, 2003, the Board sent a letter to the EPA outlining the proposal to swap the schedule of the Eslava and Halls Mill Lift Station upgrades in order to complete the Halls Mill Lift Station upgrades in 2004. As stated previously, upgrades to the Halls Mill Lift Station are substantially complete. The Eslava Creek Lift Station upgrades are underway and will be completed prior to the July 1, 2005 deadline.

8.2 Electrical Maintenance Program

Procedures for maintenance of electrical components have been developed and were included in the *Pump Station Preventative Maintenance Program* submitted to the EPA

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for approval on July 31, 2002. A database to track the performance of electrical maintenance is complete and in use.

8.3 Mechanical Maintenance Program

Procedures for maintenance of mechanical components have been developed and were also included in the *Pump Station Preventative Maintenance Program* submitted on July 31, 2002. A database to track the performance of mechanical maintenance is complete and in use.

9. Force Main Preventative Maintenance Program (CD Paragraph 28)

Development of the *Force Main Preventative Maintenance Program* was submitted to the EPA for approval on July 31, 2002.

9.1 Air Release Valve Maintenance Program

The Air Release Valve Maintenance Program has been developed. The program identifies the necessary personnel and equipment, documents procedures, and identifies maintenance performance measures. There are 26 force mains that have air release valves (ARVs). At this time, all of these have been inspected. Eight (8) of these valves have been repaired. The Board plans to purchase 12 ARVs in 2005 along with two air vacuum valves recommended by the Halls Mill and Eslava Force Main transient flow study.

9.2 Valve Exercise Program

The Valve Exercise Program was developed to establish scheduling and procedures for the routine exercise of force main gate valves. The valve on the Halls Mill Lift Station force main has been located and excavated and is accessible for operation. Valves have been identified at 183 lift stations. Valves will be exercised annually.

Four air release valves have been installed on the Halls Mill Lift Station force main and two have been installed on the Eslava Lift Station force main. As previously stated, MAWSS is following the recommendations of the transient flow study regarding the installation of ARVs and air vacuum valves along the Halls Mill and Eslava Force Main.

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9.3 Program Implementation

Several tasks identified in the Force Main Preventative Maintenance Program are complete. Ongoing tasks are presented below with scheduled completion dates in parentheses.

Force Main Inventory (December 31, 2003)

All force mains were located by the end of 2003. The wooded easements for force mains were cleared. Force main materials, sizes, locations, lengths, and age were determined in the inventory.

Initial inspection and maintenance of force mains (December 31, 2004)

All force mains have been visually inspected from above ground to determine if any leakage from the force mains was evident. No leakage was identified. Walking the force mains to inspect for leaks will be a maintenance item performed at least once each year.

The 36-inch/48-inch Halls Mill Creek and Eslava Creek Lift Stations force main and the Pinto Island lift Station force main, which passes under Mobile River, have been identified as the force mains with the most critical needs for maintenance and/or replacement.

The Halls Mill and Eslava Lift Stations force main is constructed of pre-stressed concrete cylinder pipe (PCCP) and has been extensively evaluated to determine its condition. All pipe joints exposed above ground have been sounded and repaired where necessary. All pipe exposed above ground has been coated for protection. A long line close interval survey of the force main was performed by Allied Corrosion to determine if any of the reinforcing steel or end rings of the pipe were exposed to soil. No such defects were found. Coupons were taken from the pipe at strategic locations to inspect the inner wall of the pipe and determine if deterioration from hydrogen sulfide corrosion was significant. All coupons pulled including those pulled during the recent installation of air release valves have indicated that no significant corrosion is present. A project to replace damaged pilings supporting the force main at Eslava Creek, Baker Street, and Yeend Street is complete. The Board is also following the recommendations of the transient flow study in order to protect the force main from water hammer.

The Pinto Island force main is being replaced because a bulkhead on the east side of Mobile River where the force main rises at the river bank has been damaged repeatedly

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by barges and/or ships. The new force main will be directionally drilled HDPE pipe and rise far enough away from the river bank that no bulkhead will be necessary to protect it. The project began on January 3, 2005 following the verification of the location of a fiber optic cable.

The Force Main Action Plan was recently submitted to the EPA on January 15, 2005. Force main inventory data and head loss characteristics were evaluated to determine future maintenance tasks.

10. Gravity Line Preventative Maintenance Program (CD Paragraph 29)

10.1 Program Development

Development of the Gravity Line Preventative Maintenance Program was submitted to the EPA for approval on July 31, 2002.

10.2 Program Implementation

During the past quarter, MAWSS cleaned approximately 381,000 feet of gravity sewer and conducted television inspection on approximately 282,000 feet of pipe.

Further information regarding the cleaning and video inspection of the collection systems can be found in Appendix A-1: *Analysis of Wastewater Collection and Transmission Systems and WWTFs*.

Inframatrix, Inc. completed a pilot study to video inspect approximately 50,000 LF of sewer from within manholes. Inframatrix uses a special camera with very bright lighting and substantial zoom capabilities to video inspect pipe. The Board has determined that this technology is an effective means to quickly assess the condition of sewer lines that are 12 inches in diameter and larger.

Video from television inspection activities continues to be downloaded to a network server database. The videos are readily accessible to all departments that need the information. Also, the videos will be linked to the sanitary sewer GIS.

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11. Maintenance of Rights-of-Way Program (CD Paragraph 30)**11.1 Program Development**

The Maintenance of Rights-of-Way Program has been implemented since 2001. Program documentation was submitted to the EPA for approval on July 31, 2002.

11.2 Program Implementation

Contracts to complete grass cutting at the treatment plants, lift stations, and other facilities are in place to assist the MAWSS Grounds and Maintenance Department.

All easements were inspected following Hurricane Ivan. The Board found over 400 trees down within the easements. A project to remove these trees should be completed by the end of February 2005. Following removal of the trees, the Board will bid a contract to spray easements with herbicide. This work should start during the second quarter of 2005.

Gravity Sewer Easements

With the exception of the removal of downed trees, no easements were cleared during the fourth quarter.

Force Main Easements

With the exception of the removal of downed trees, no re-clearing work was conducted during the past quarter.

Confirm Sewer Line Stream Crossings

Following development of the GIS for the collection systems, GPS features collected in the field were overlaid with the previously developed hydrology layer to create a map layer of stream crossings. Presently, 2,509 stream crossings have been identified in the GIS. All aerial stream crossings have been identified and inspected. Damaged or deteriorated pilings that were identified during inspection activities have been repaired.

A crew has been assigned to the inspection of aerial sewer lines. Inspections will be conducted quarterly.

SECTION II: PERFORMANCE OF CONSENT DECREE WORK

12. Unscheduled Maintenance Program (CD Paragraph 31)**12.1 Program Development**

The Board submitted the Unscheduled Maintenance Program to the EPA for approval on February 28, 2003. The Program documents the process for receiving and responding to customer complaints.

13. Coordination with the City of Mobile and Other Governmental Bodies (CD Paragraph 32)**13.1 Program Development**

A report detailing the coordination responsibilities and activities relating to City, County, and State personnel was submitted to the EPA for approval on July 31, 2002.

13.2 Program Implementation

The Board continues to coordinate Right of Way (ROW) activities with the City. The Board's Mapping and Connections Department was moved under the Planning and Engineering Manager so that all new water and sewer projects could be tracked by one department and coordinated as necessary with the City, County, or State. The Board's construction inspectors and ROW representative to the City also work under the Planning and Engineering Manager. Additionally, a database application ensures sewer repair projects are properly permitted and completed within the permit schedule. The Board has personnel raising manholes in city street resurfacing projects.

**SECTION III: WATER QUALITY MONITORING
(CD CHAPTER IX)**

SECTION III: WATER QUALITY MONITORING

1. Establishing a Plan (CD Paragraph 33)

1.1 Program Development

The *Water Quality Monitoring Program* report was submitted to the EPA on February 28, 2002. Comments regarding the program were received from the EPA on May 30, 2002. MAWSS submitted responses to these comments on June 27, 2002. On December 19, 2003 the EPA accepted the responses and approved the program.

1.2 Program Implementation

The Water Quality Monitoring Program is fully implemented

A web-based data archive for the Water Quality Monitoring Program has been developed by Barry Vittor & Associates, Inc. (BVA) to present data summaries and to facilitate the downloading of monitoring data.

The data along with a map of sampling locations can be accessed through both the MAWSS website at www.mawss.com/consentdecreedocs.htm and the Barry Vittor & Associates, Inc. website at www.bvaenviro.com. Monitoring data is provided and summarized on a monthly basis.

2. Routine Water Quality Monitoring (CD Paragraph 34)

2.1 Program Development

The procedures for routine water quality monitoring of the Halls Mill, Eslava, Three Mile, Eight Mile, Ziebach, and Muddy Creek drainage basins were included in the *Water Quality Monitoring Program* report.

2.2 Program Implementation

Barry Vittor and Associates, Inc. (BVA) is continuing the biweekly, routine water quality monitoring which was initiated in June 2003. Routine water quality monitoring is currently being conducted at 25 monitoring stations. At each station, water samples for fecal coliform bacteria determination are collected. Additionally, the following water quality parameters are measured using a YSI Multiprobe: Temperature (°C), Dissolved Oxygen (mg/l), Percent Dissolved Oxygen Saturation (%), Salinity (ppt), and pH. Any

SECTION III: WATER QUALITY MONITORING

station identified by BVA with consistently elevated fecal coliform concentrations will be investigated by MAWSS.

Dry background monitoring was completed on October 29, 2003. The data indicated considerable variation in fecal coliform concentrations among the 25 monitoring stations. Station 16 in the Halls Mill drainage had consistently higher fecal coliform counts than other stations in the drainage basin. Investigations in the area conducted by MAWSS found a damaged pipe that was subsequently repaired. A review by BVA of subsequent sampling from Station 16 determined that the repairs successfully lowered fecal coliform concentrations.

Any coliform datum collected from a station during routine (biweekly) monitoring which exceeds the 75th quartile is flagged for further investigative monitoring as set out in the *Water Quality Monitoring Program*. BVA returns to sample these stations on the second day. If concentrations remain high after the second visit, BVA returns five days later. If the initial sample exceeds previous sample levels or the third sampling visit determines that fecal coliform concentrations have not returned to background levels, MAWSS is notified by BVA to investigate the potential problem. BVA will also contact MAWSS when above threshold data are encountered to see if they can be explained by an SSO or other localized spill event. The data collected to date is presented on both the MAWSS website and BVA's website.

Wet background monitoring was completed on June 15, 2004. All 25 stations were sampled four times over a 24 hour period during a major storm event. The wet background data indicated considerable variation in fecal coliform concentrations among the 25 monitoring stations. All 25 monitoring stations exhibited increased levels of fecal coliform concentrations compared to dry background levels. This could indicate a natural build-up during dry conditions, which is washed into streams during rain events. BVA has initiated a study to consider the impact of storm drains on the fecal coliform concentrations of streams. Preliminary data indicates that fecal levels in many storm drains can be several times greater than background levels in streams.

BVA has proposed an investigative sampling program for the areas in Mobile County where high fecal coliform levels have been found in storm drains. BVA also plans to investigate the possible relationship between storm drains and sewer lines in potential

SECTION III: WATER QUALITY MONITORING

problem areas of the wastewater collection system. These investigations are coupled to BVA's suggested changes to the dye testing program described below.

BVA has recommended that routine monitoring should not be conducted during or immediately (next day) following rain events. The wet background data indicates that fecal coliform concentrations are not a reliable indicator of unpermitted discharges. BVA has recommended that routine monitoring be conducted two days after a rain event, after initial stream flushing has occurred. This will avoid triggering unnecessary follow-up investigative monitoring based upon data not representative of actual background conditions.

3. Investigative Water Quality Monitoring (CD Paragraph 35)

3.1 Program Development

Investigative water quality monitoring procedures to determine the source of pollution indicated by public complaints or the Routine Water Quality Monitoring Program were included in the *Water Quality Monitoring Program* report.

3.2 Program Implementation

Dye testing of the Three Mile Basin Interceptor was completed in March 2004. It was determined that there were no apparent leaks in the 18-inch or greater trunk lines during dye testing. A full report on the dye testing of the Three Mile Basin Interceptor can be found on both the MAWSS and BVA web sites.

The Eslava Basin was divided into two sections due to its configuration. Dye testing of the 18-inch or greater trunk lines in west section of the Eslava Basin was completed in April 2004. The results indicated a leak in this area. MAWSS was already aware of the leak and was actively repairing the problem at the time of the dye testing. Follow-up dye testing conducted after the repairs were completed confirmed the source of the leak was repaired. This report is available at both the MAWSS and BVA web sites.

Dye testing of the 15-inch or greater trunk lines in the east section of the Eslava Basin was completed in June 2004. It was determined that there were no leaks in the 15-inch or greater trunk lines during dye testing. This report is available at both the MAWSS and BVA web sites. Initial dye testing of the Virginia Street trunk line began in September

SECTION III: WATER QUALITY MONITORING

2004 and was completed during November 2004. It was determined that there were no apparent leaks in the Virginia Street sewer lines during dye testing.

Dye testing of the Milk House Creek Interceptor was initiated in late October 2004 and completed in December 2004. It was determined that there were no apparent leaks in the 18-inch or greater trunk lines during dye testing. A full report on the dye testing of the Milk House Interceptor will be posted on both the MAWSS and BVA web sites during January 2005.

BVA has suggested a change in the dye testing plan which will provide more useful information on the integrity of the MAWSS collection system. To date, BVA has completed dye tests of major trunk lines (>18") in the major drainages of Mobile County. The original sampling plan called for dye testing during both dry and wet conditions – the initial rationale for dye testing during wet conditions was to ensure that testing takes place when the sewer lines are fully charged. A typical dye test lasts for a minimum of three weeks (see the methods outlined in the WQMP) – BVA has found that rain events have occurred during each of the dye tests to date ensuring that the sewer lines were charged during some part of the dye test. At the present time, there are no compromises in the major sewer trunk lines. BVA feels that more useful data will be collected by shifting the focus of the dye testing away from wet weather testing of major trunk lines to the testing of smaller sewer lines (<18") in potentially problem areas of the collection system. The testing of the smaller sewer lines would be coupled with studies of storm drains to investigate high fecal coliform levels consistently found in parts of the collection system.

4. Water Quality Monitoring for Spill Impact (CD Paragraph 34)

4.1 Program Development

Procedures for water quality monitoring to determine the impact of unpermitted discharges were included in the *Water Quality Monitoring Program* report.

4.2 Program Implementation

Water quality monitoring for spill impact began on February 1, 2004. Once a spill occurs, a spill assessment team of BVA and MAWSS personnel is immediately notified

SECTION III: WATER QUALITY MONITORING

for rapid response to the spill site. If necessary, personnel from the Mobile County Health Department, ADEM, and the EPA are notified and/or consulted.

If the overflow enters waters and is of sufficient magnitude, the spill response team determines the number of downstream stations needed to characterize the spill (dependent on magnitude of spill, stream order and other physical parameters). Immediate water quality and fecal coliform sampling takes place at each station. A YSA Multiprobe is used to collect temperature, dissolved oxygen, percent dissolved oxygen saturation, pH, salinity, and conductivity data at each station.

The information collected during the site assessment will be evaluated to formulate a spill monitoring sampling plan. The spill monitoring plan will consist of further water quality monitoring to gauge the impacts to and recovery of the stream system to background levels. BVA has found that daily follow-up monitoring of spills is not necessary. It has been determined that most spills return to background levels within three to five days. Spill monitoring will now take place on day of the spill and on day five. If a spill does not return to background levels after five days, further monitoring would take place until background levels are reached. Spill assessment data collected during the past quarter can be found on the MAWSS website and BVA's website.

**SECTION IV: SUPPLEMENTAL ENVIRONMENTAL PROJECTS
(CONSENT DECREE CHAPTER X AND APPENDIX A)**

SECTION IV: SUPPLEMENTAL ENVIRONMENTAL PROJECTS

The Board has completed the requirements for all four of the Supplemental Environmental Projects.

1. SEP 1: Installation of New Private Residential Service Laterals in Low Income Areas within the Board's Service Area (CD Appendix A, Section I)

The Board has completed SEP 1. Lateral installations were completed on December 19, 2003. \$2,000,621.51 (present value) was spent towards the project. A total of 755 laterals were installed.

Ziebach Mini-Basin ZB09, Sub-Basin B (January 31, 2004)

As stated in Paragraph 1.1.2.2 of this status report, an additional \$78,650 was allocated to the replacement of a minimum of 39 service laterals in Ziebach Mini-Basin ZB09, Sub-Basin B. \$78,650 was spent to replace 29 laterals and investigate 24 others. The number of laterals replaced was less than anticipated because the cost of restoring private property was much higher than expected. A SEP 1 completion report was submitted on January 26, 2005 as required by CD Paragraph 43. The report provides a details of SEP 1 quantities and an itemization of associated costs.

2. SEP 2: Acquisition of Environmentally Valuable Habitat in Mobile County Through the Forever Wild Program (CD Appendix A, Section II)

This SEP required the Board to place \$300,000 into an escrow account prior to January 31, 2002, for later distribution to the Alabama Forever Wild Land Trust. On January 25, 2002, the Board deposited \$300,000 into an interest bearing escrow account. On May 2, 2003, \$300,817.31 was distributed to the Alabama Forever Wild Land Trust.

3. SEP 3: Acquisition of Environmentally Valuable Habitat in Mobile County, with a Preference for Property within the Dog River Watershed Area (CD Appendix A, Section III)

As required by this SEP, MAWSS placed \$150,000 in an escrow account for the Alabama Forest Resources Center (AFRC) on January 25, 2002. On November 7, 2002 Mobile Bay Watch requested approval from the US Justice Department for disbursement of \$120,000 to the AFRC. On November 22, 2002, the US Justice Department approved the request.

SECTION IV: SUPPLEMENTAL ENVIRONMENTAL PROJECTS

Subsequently, on November 27, 2002, the Board transferred \$120,000 to the Alabama Forest Resources Center. The remaining funds in the escrow account were not requested by the AFRC during the time period required. Consequently, the remaining funds in the account, \$30,985.60, were distributed to the Alabama Forever Wild Land Trust for acquisition of property in the Dog River watershed.

4. SEP 4: Creation and Maintenance of a Publicly Available Database of Water Quality Monitoring in the Mobile Delta (CD Appendix A, Section IV)

This SEP required the Board to place \$50,000 into an escrow account prior to January 31, 2002, for later distribution to Mobile Bay Watch. On January 25, 2002 MAWSS deposited \$50,000 into an escrow account for this SEP. On February 2, 2004, MAWSS transferred funds in the amount of \$50,089.35 from the SEP 4 escrow account to Mobile Bay Watch for the purpose of developing a water quality database.

SECTION V: CIVIL PENALTIES
(CONSENT DECREE CHAPTER XI)

SECTION V: CIVIL PENALTIES

1. Penalties to the United States (CD Paragraph 53)

\$99,000 plus interest was electronically transferred from MAWSS to the US Justice Department on April 22, 2002 to fulfill the United States Civil Penalty requirements of the Consent Decree.

2. Penalties to the State of Alabama (CD Paragraph 53)

A certified check for \$15,000 plus interest was sent certified mail to the Alabama Attorney General's Office on April 22, 2002 to fulfill the State of Alabama Civil Penalty requirements of the Consent Decree.

**APPENDIX A-1: SSO AND UNPERMITTED DISCHARGE TABLES
(CD PARAGRAPH 98)**

**APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND
TRANSMISSION SYSTEMS AND WWTFs**

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

1. Introduction

The following semi-annual analysis of wastewater collection and transmission systems and wastewater treatment facilities meets the requirements set forth in Paragraph 23 of the CD.

2. Trends in Rehabilitation, Operation, and Maintenance

2.1 Gravity Line Maintenance

2.1.1 Hydraulic Cleaning

Approximately 1,232,000 linear feet (LF) of gravity sewer was cleaned since January 1, 2004. Of this total, approximately 693,000 LF of gravity sewer was cleaned for the first time. Excluding repeat cleaning of lines, 43 percent of the entire collection system has been cleaned since implementation of the program in 2000. Figure 2.1.1-1 shows the amount of cleaning and video inspection completed during the past four quarters.

The total footage of gravity sewers cleaned in 2004 is almost double the total footage cleaned in 2003. MAWSS placed a high priority on the cleaning and television inspection of lines not previously cleaned or televised. Over 56 percent of the sewer lines cleaned during 2004 had not previously been cleaned. While the focus was shifted towards sewer lines not previously cleaned or televised, MAWSS crews continued to maintain areas of the collection systems that require high frequency cleaning schedules such as inverted siphons, sand traps, and overflow locations. In addition to work completed by in-house crews, MAWSS contracted specialized cleaning of several large diameter trunk sewers, significantly increasing their carrying capacity. Hydraulic cleaning of 9,200 LF of the Eslava Creek Interceptor sewer, completed during the first half of 2004, removed over 550 tons of silt and debris. Recently, the Board bid and awarded a project to clean 2,900 feet of the lower end of the 30 inch and 36 inch Perch Creek Interceptor sewer. Work began on January 3, 2005.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

Figure 2.1.1-1: Footage of Gravity Sewer Cleaned and Televised

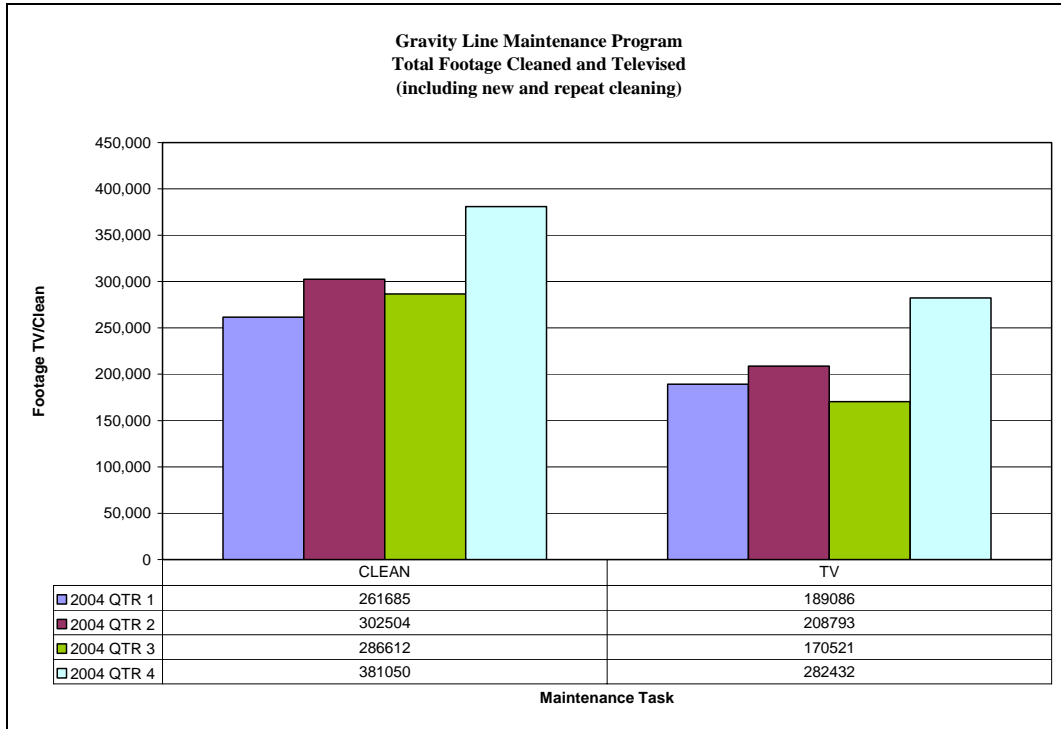
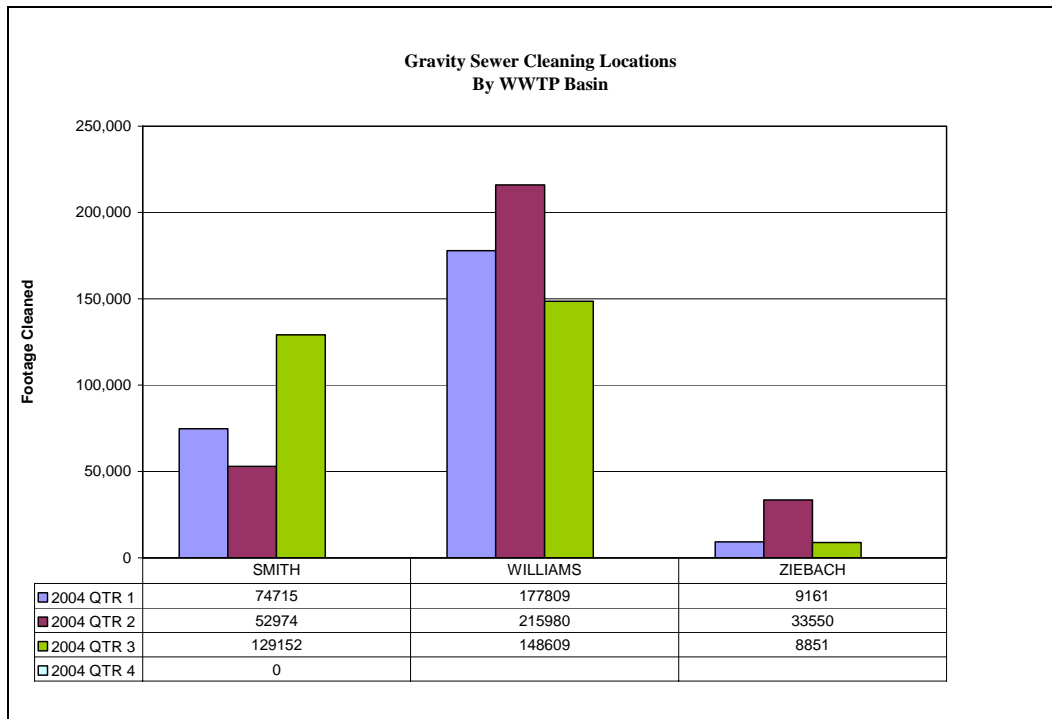


Figure 2.1.1-2 shows the distribution of cleaning efforts in each WWTP basin.

Figure 2.1.1-2: Location of Gravity Line Cleaning



APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

2.1.2 Closed Circuit Television Inspections

In addition to hydraulic cleaning, over 850,832 LF of gravity sewer was inspected by closed circuit TV in the past year. TV inspection activities followed the increasing quarterly trend of hydraulic cleaning (see Figure 2.1.1-1). Since implementation of the program, approximately 36 percent of the collection systems have been inspected by TV. As with the increase in the amount of hydraulic cleaning per basin, the increase in television inspection activities can be attributed to the increase production from in-house forces.

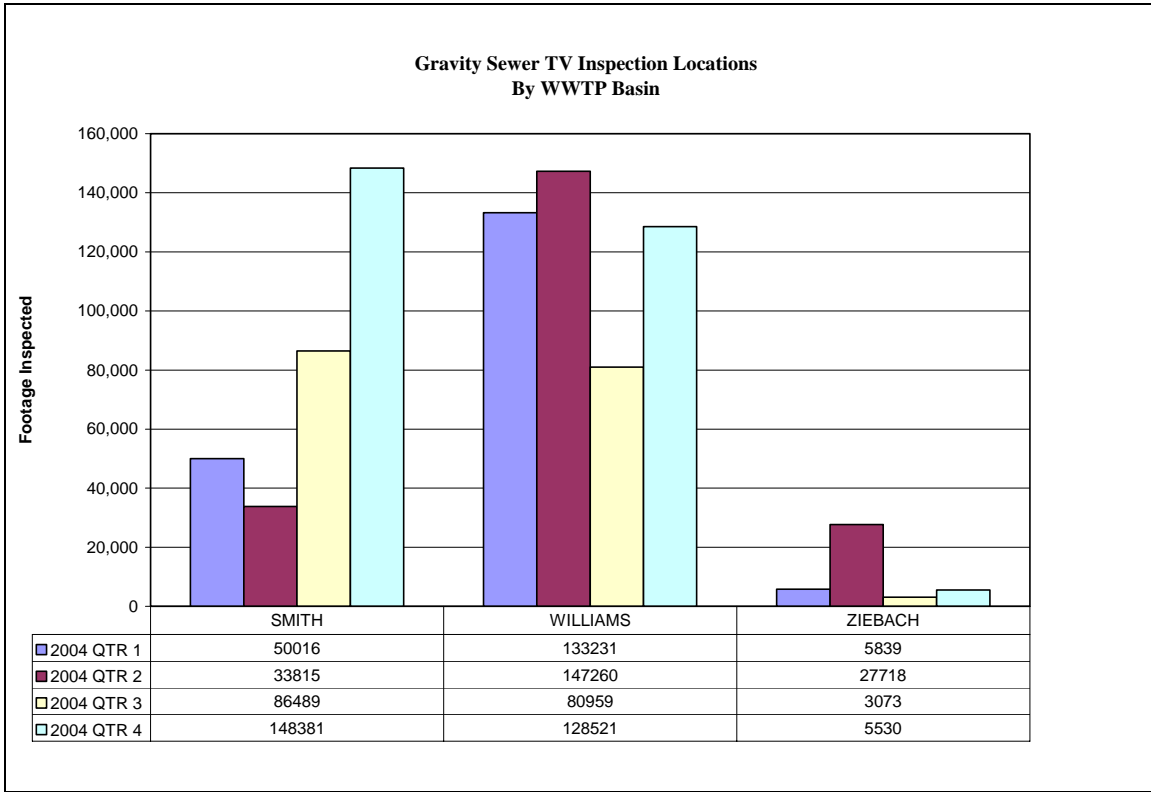
Inframatrix, Inc. completed a pilot study to video inspect approximately 50,000 LF of sewer from within manholes. Inframatrix uses a special camera with very bright lighting and substantial zoom capabilities to video main lines from within manholes. The videos will be used to prioritize defects and identify whether cleaning and conventional in-line video inspection is required. The Board has determined that this technology is an effective means to quickly assess the condition of sewer lines that are 12 inches in diameter and larger.

During the past year, MAWSS has upgraded its VHS-based sewer video program to a digital format. Videos are currently being recorded digitally and downloaded to a network server database. The server allows video information to be accessible to all departments. Additionally, the videos will be linked to the sanitary sewer GIS.

Figure 2.1.2-1 shows distribution of TV inspection activities in each WWTP basin.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

Figure 2.1.2-1: Location of Gravity Line TV Inspection



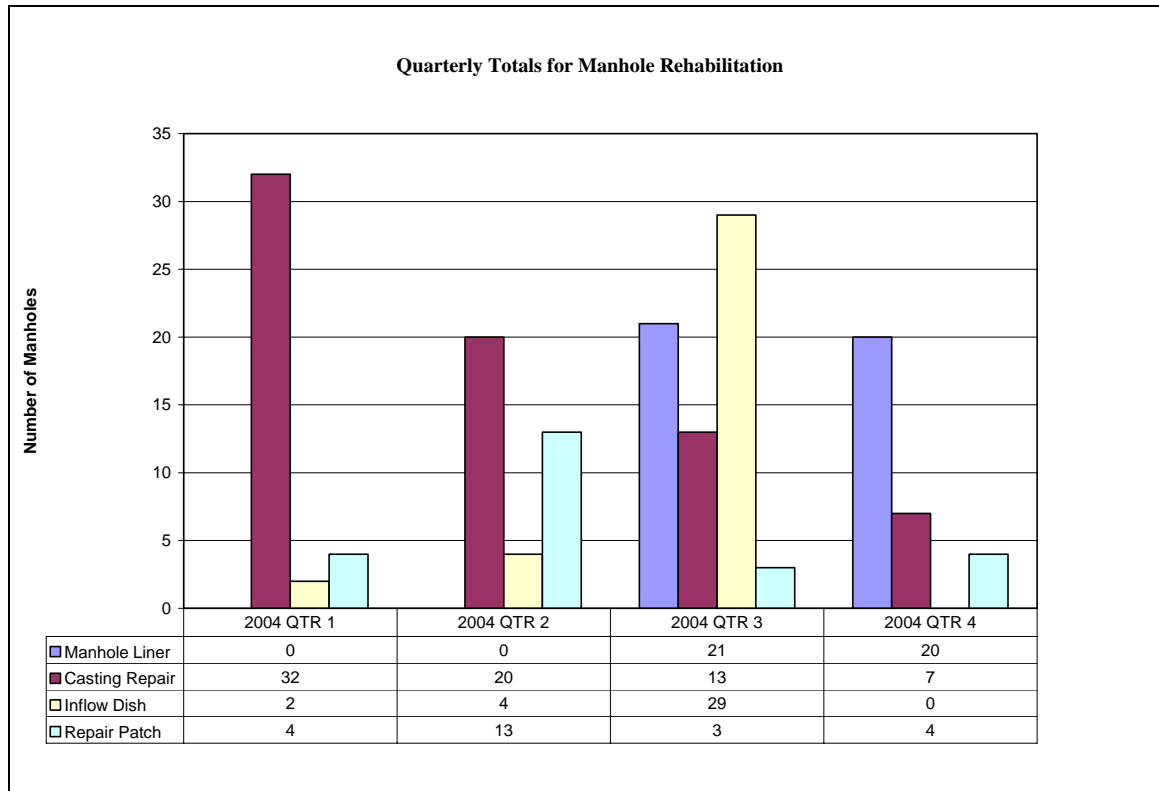
2.2 Collection System Rehabilitation

2.2.1 Manhole Rehabilitation

Manhole rehabilitation activities such as installation of inflow dishes, applying repair patches, and sealing or replacement of manhole castings are being completed by in-house personnel in order to address I/I sources. The Board has an annual contract for manhole repair and rehabilitation. Manhole rehabilitation is being performed by the contractor as needed. Figure 2.2.1-1 shows quarterly totals for manhole rehabilitation.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

Figure 2.2.1-1: Totals for Manhole Rehabilitation



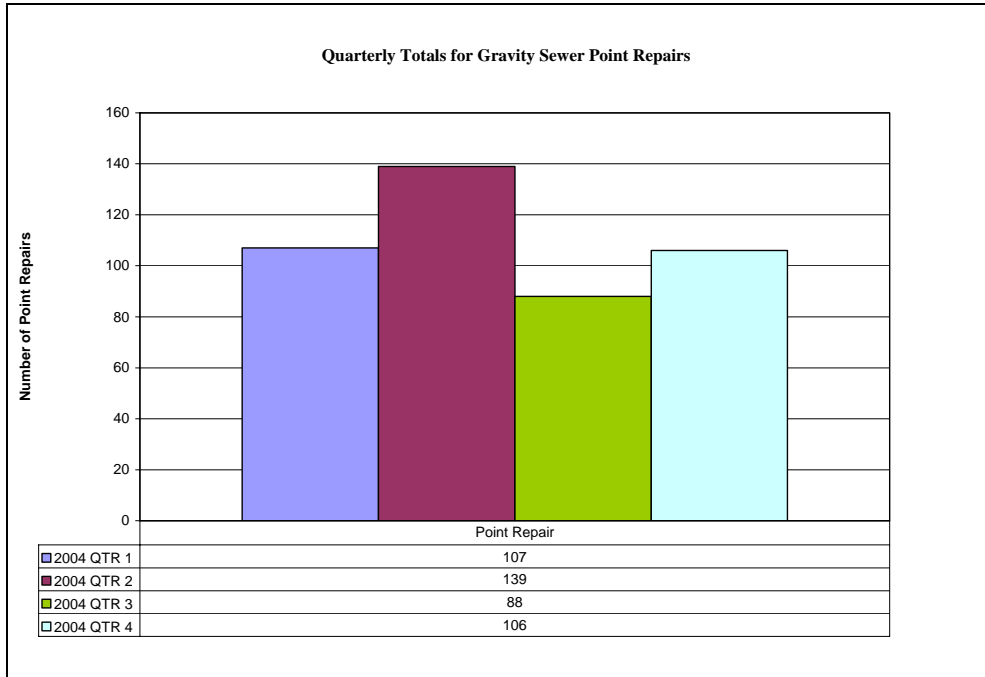
2.2.2 Gravity Sewer Rehabilitation

In January 2004, Suncoast Infrastructure, Inc. began a annual contract to install cured-in-place liners in gravity sewer lines. Since the beginning of 2004, over 17,500 LF of gravity sewer has been lined. In addition to this work, contractor and in-house crews have completed 440 point repairs in 2004.

Figure 2.2.2-1 shows quarter totals for point repairs completed by the annual contractor and in-house forces.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

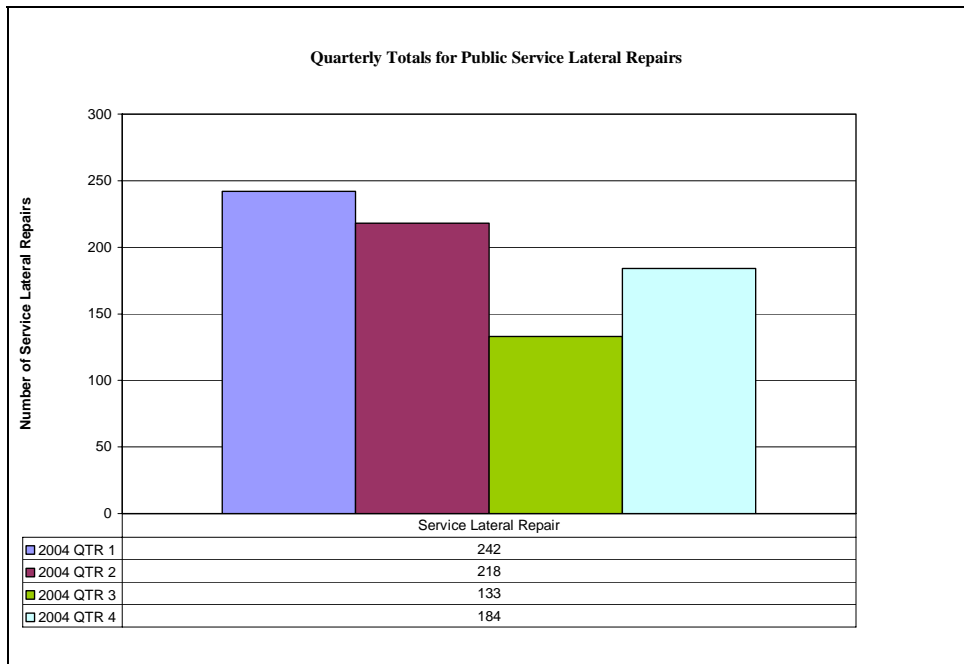
Figure 2.2.2-1: Totals Gravity Sewer Point Repairs



2.2.3 Service Lateral Rehabilitation

A total of 777 public service laterals were repaired or replaced by contractors and in-house forces. Figure 2.2.3-1 shows quarterly totals for public service lateral repairs.

Figure 2.2.3-1: Totals Service Lateral Repairs



APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

3. Analysis of Unpermitted Discharges and SSOs**3.1 Trend in Number of and Volume of Unpermitted Discharges and SSOs**

A total of 240 sanitary sewer overflows (SSOs) were reported in 2004. Of this amount, 89 (37%) were identified as having reached waters of the State or United States and, as a result, were classified as Unpermitted Discharges.

There were 333 overflows reported in 2003. In 2004, there were 240 total overflows reported, 28 percent less than in 2003. For those classified as Unpermitted Discharges, the reduction was even larger. There were 121 fewer (58%) Unpermitted Discharges in 2004 than the 210 reported in 2003. The reduction in Unpermitted Discharges can be attributed to successful efforts to reduce infiltration and inflow caused by storm events and the implementation of programs that focus on dry weather overflows. Figure 3.1-1 illustrates the cumulative totals of rainfall along with total overflows and total Unpermitted Discharges by week for each year since 2001.

The annual trends in total overflows typically follow trends in yearly rainfall totals. Infiltration and inflow (I/I) from rain events can be a direct cause of overflows by increasing flow rates beyond the capacity of the collection system. Additionally, increased flow rates due to I/I may be a secondary cause of overflows by compounding the impact of other problems such as blockages and structural failures. Despite the correlations between yearly rainfall and overflow totals, 2004 had significantly fewer overflows while recording the largest yearly rainfall total, 76 inches, since 1998. The charted data in Figure 3.1-1 shows that the frequency and magnitude of surges in number of SSOs along the trend line is less in 2004 than in previous years. This indicates that rehabilitation efforts have made the collection system less responsive to rain events.

A listing of all reported overflows for 2004 can be found in the *2004 Annual Report of Sanitary Sewer Overflows and Unpermitted Discharges*.

3.2 Hurricane Ivan (September 15, 2004)

The largest storm event of 2004 was Hurricane Ivan on September 15. The eye of the hurricane was within 10 miles of the MAWSS service area. The extreme wind and rainfall, 10.03 inches within 24 hours, contributed large volumes of I/I while causing power outages across the service area. Nine (9) overflows were reported as a result of this event.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

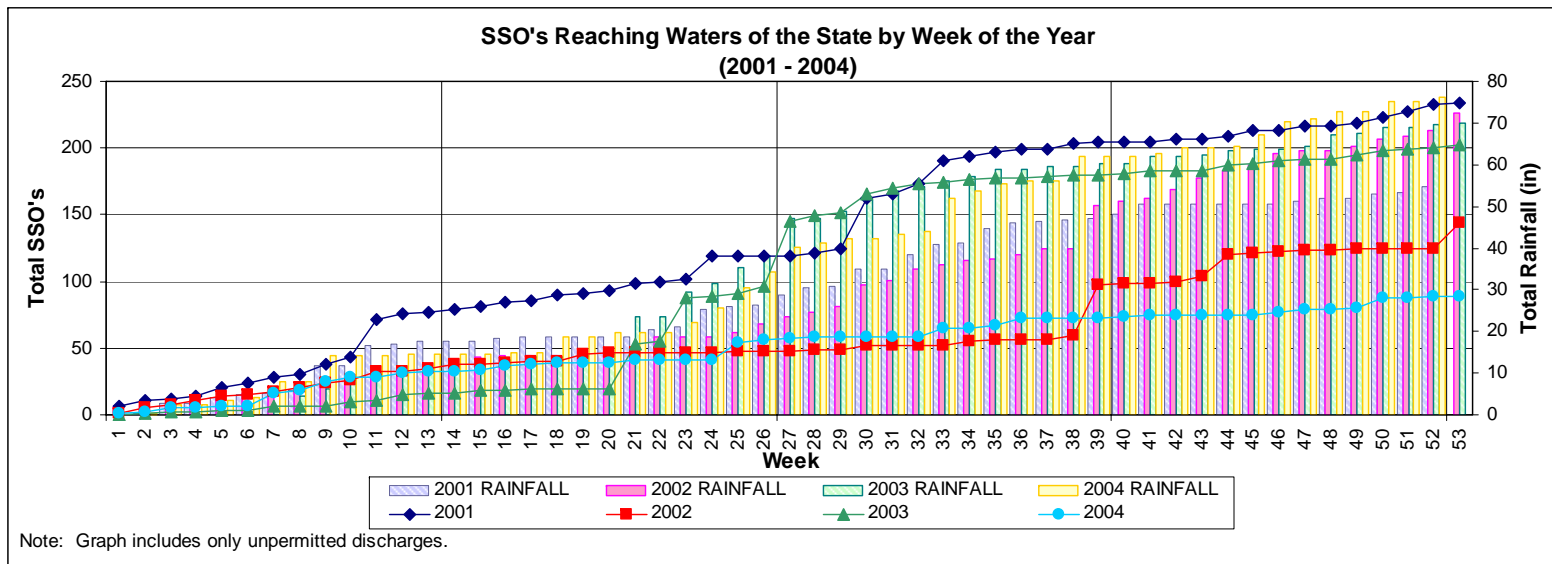
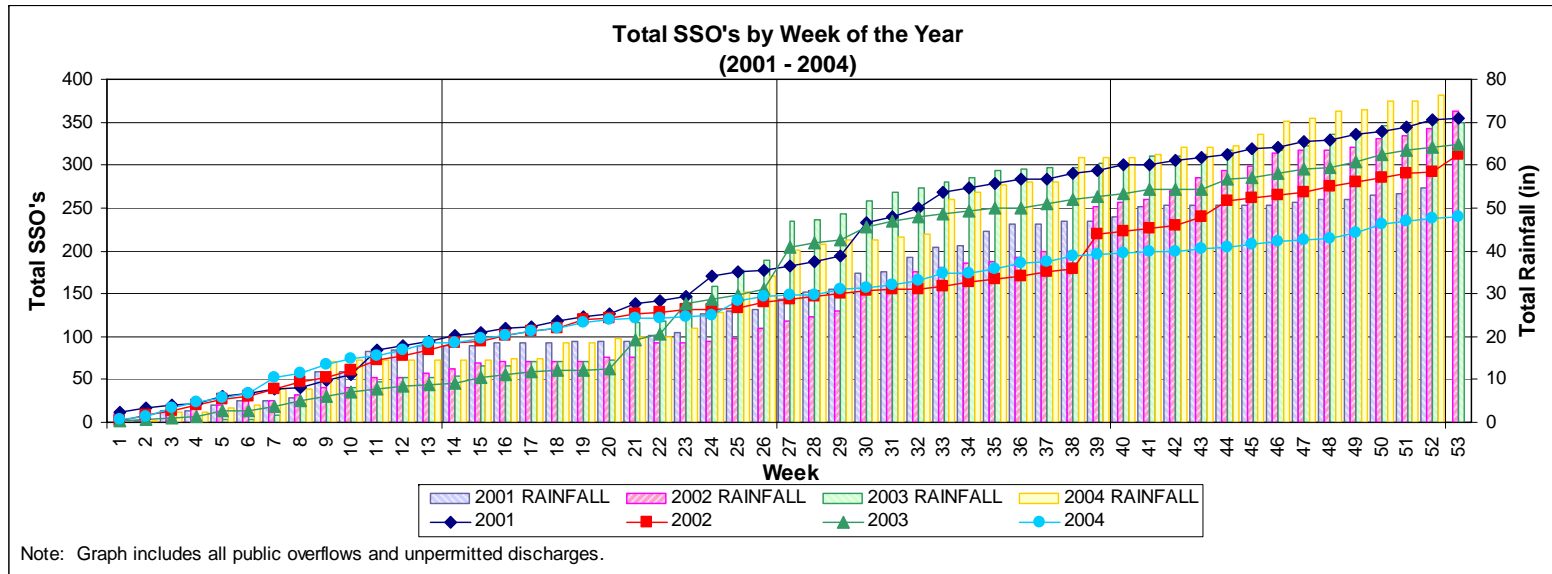
The relatively low number of overflows caused by a storm of this magnitude can be primarily attributed to the implementation of the MAWSS Preparedness Plan. As part of the plan, eight portable bypass pumps, eight portable generators, and seven vacuum trucks were available for emergency operations. Of the nine overflows, only two reached waters of the State or United States.

The largest SSO was the bypass of 1,100,000 gallons to Mobile Bay from the Ziebach WWTP. Due to personnel safety concerns, a decision was made to abandon the Ziebach WWTP for 15 hours during the hurricane due to a forecasted storm surge. The plant is located in a low lying area on the bank of Mobile Bay. The portable generator at the plant was removed to prevent the generator from being damaged by flooding. If the power was lost to the plant, flows entering the plant would not be controlled and could potentially result in long term damage to the plant. Consequently, the plant was bypassed.

It should be noted that this plant was scheduled to be taken out of service prior to Hurricane Ivan. This plan was delayed because condemnation was required to obtain easements for the new Perch Creek Lift Station force main.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

Figure 3.1-1: Cumulative Overflow and Unpermitted Discharge Totals by Week of the Year



APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

Figure 3.1-2 shows the quarterly overflow totals for 2004.

Figure 3.1-2: Trend in Number of Unpermitted Discharges and SSOs

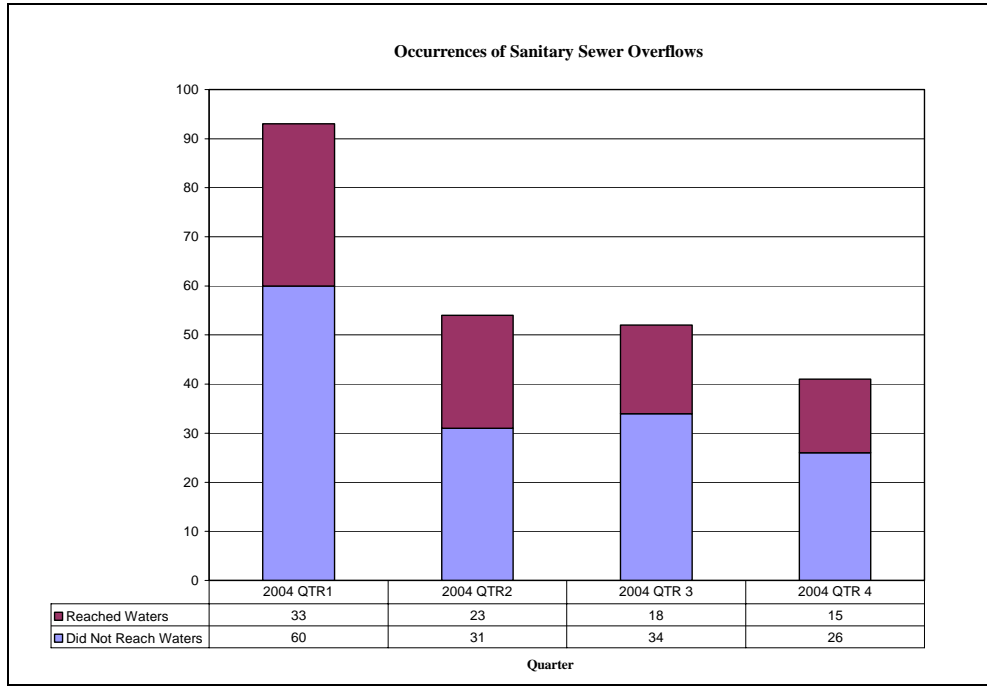
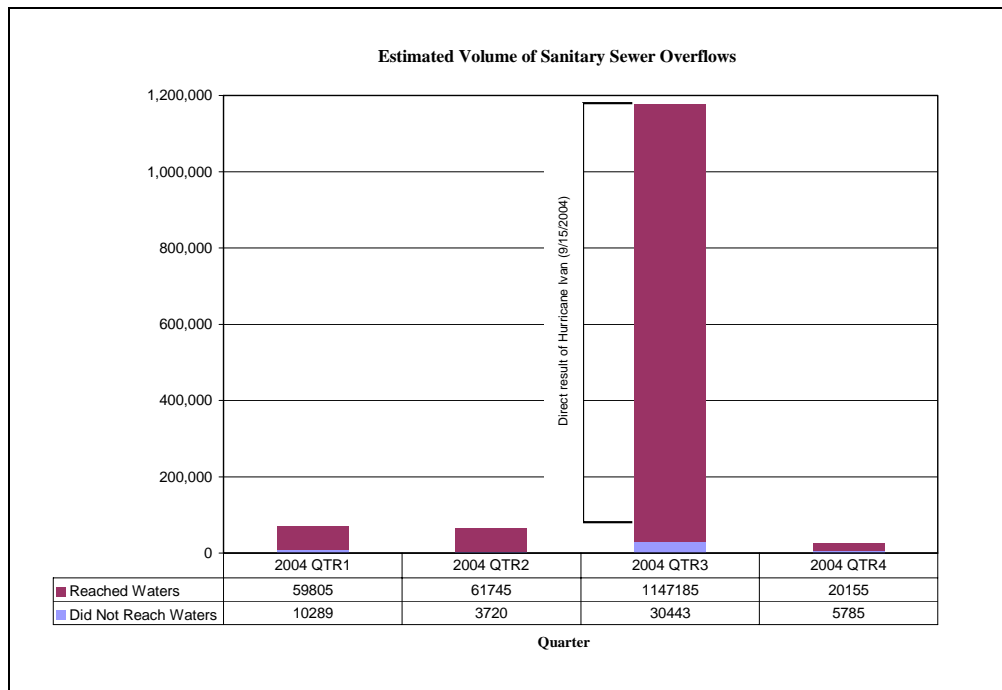


Figure 3.1-3 shows the quarterly total volumes of reported overflows during 2004.

Figure 3.1-3: Trend in Volume of Unpermitted Discharges and SSOs

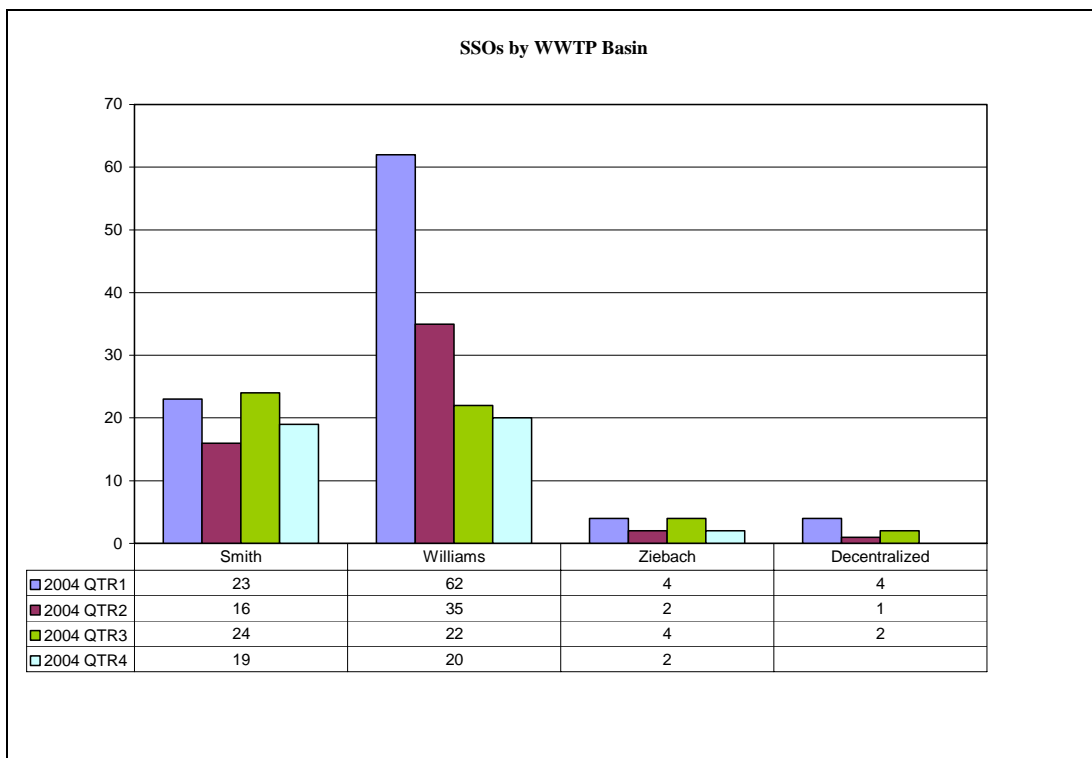


APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

3.3 Trend in the Location of Unpermitted Discharges and Overflows

A quarterly total of SSOs per WWTP basin is provided below. The Williams WWTP collection system is the largest of the Board’s three WWTP collection systems and generally has the most reported overflow occurrences. The number of reported overflows within this collection system has dropped significantly since the first quarter of 2004. As a result, the reduction in overflows reported in 2004 versus 2003 can primarily be attributed to the reduction in reported overflows within the Williams WWTP.

Figure 3.3-1: Trend in Location of Unpermitted Discharges and SSOs



3.4 Trend in the System Component Responsible for Unpermitted Discharges and SSOs

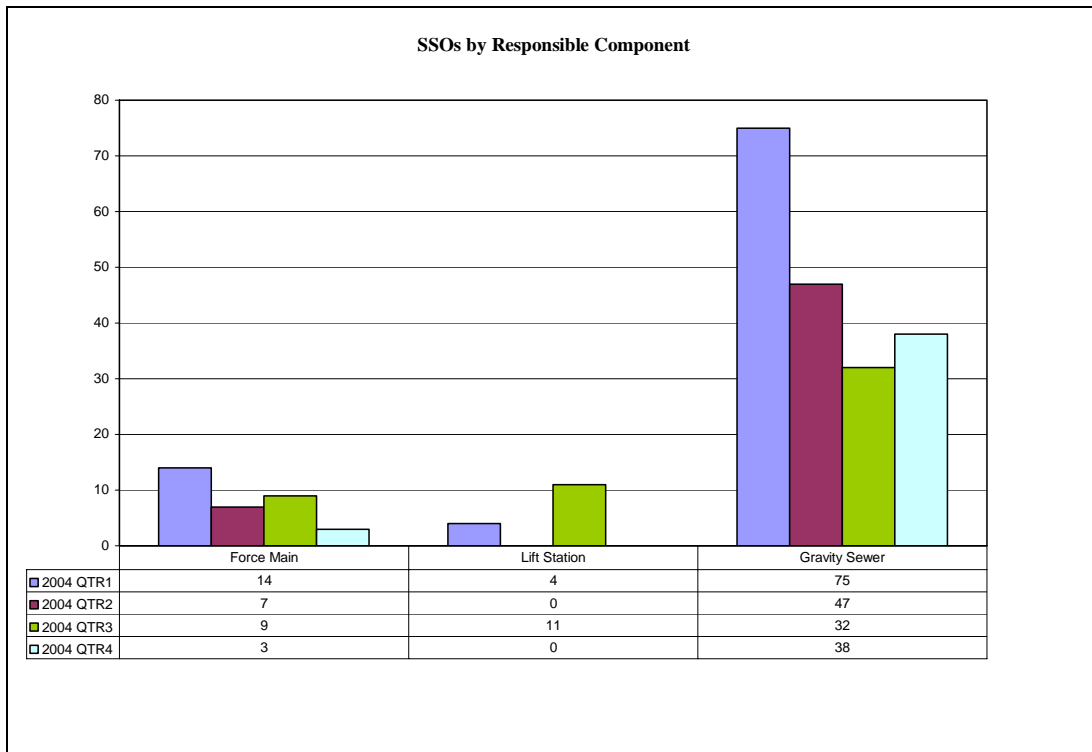
Figure 3.4-1 identifies the distribution of SSOs between force mains, lift stations, and gravity sewers per quarter. During the year, the Board focused on finding and repairing inflow defects within the gravity system. Flow monitoring and hydraulic modeling results are being used to identify inflow sources and their impact on capacity. Additionally, the Board contracted the specialty cleaning of several large diameter trunk sewers in order to improve their carrying capacity. A downward trend in gravity sewer overflows reflects these efforts.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

The number of overflows at lift stations increased significantly in the third quarter of 2004. This can be attributed to the widespread loss of power caused by Hurricane Ivan. Seven of the 11 overflows at lift stations were directly attributable to the Hurricane.

The Force Main Action Plan was recently submitted on January 14, 2005. Force main inventory data and head loss characteristics were evaluated to determine future maintenance tasks.

Figure 3.4-1: Trend in System Components Responsible for Unpermitted Discharges and SSOs

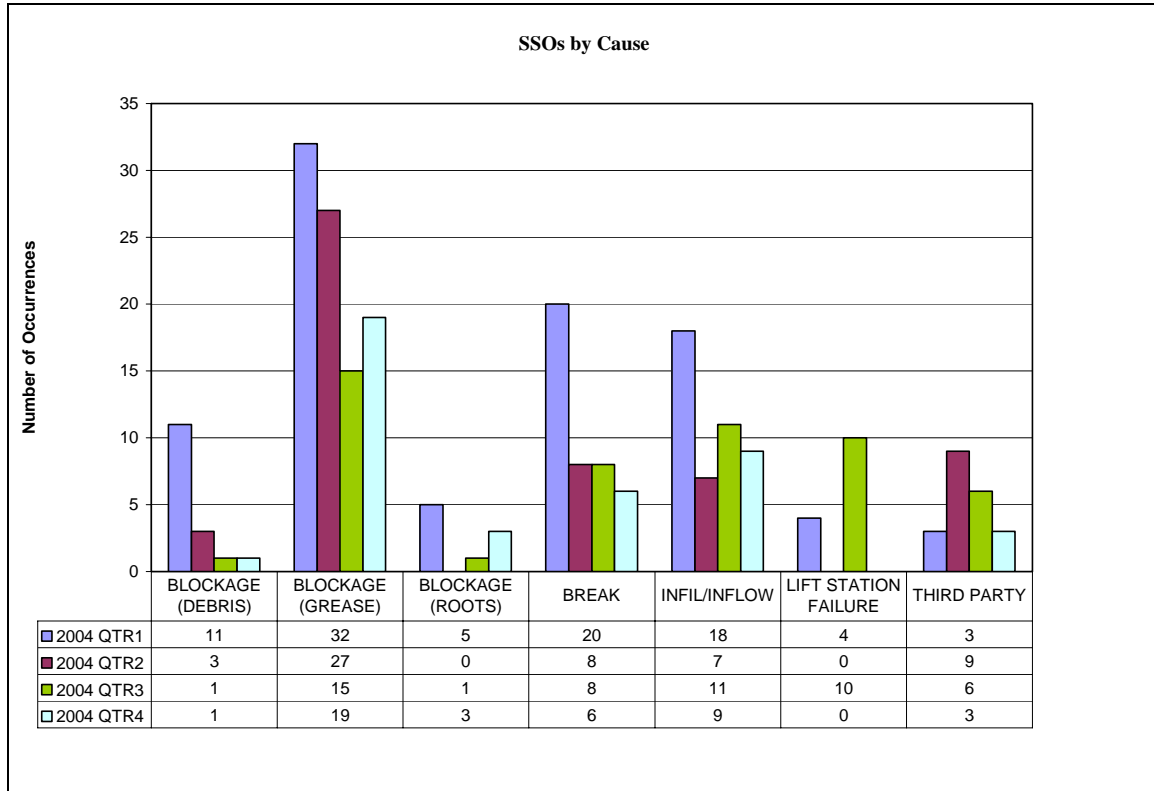


3.5 Trend in the Suspected Cause of Unpermitted Discharges and Overflows

Figure 3.5-1 identifies the trend in causes of Unpermitted Discharges and SSOs for 2004. Grease related overflows, which typically comprise a significant portion of the reported overflow total, displayed a downward trend for the year. Overflows attributed to I/I were relatively low despite 2004 recording a total of 76 inches of rainfall.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

Figure 3.5-1: Trend in Causes of Unpermitted Discharges and SSOs



4. Conclusions

Over the past year, the Board has made significant improvements in its operations and maintenance programs.

Cleaning and television inspection efforts were targeted in areas where no prior cleaning or television inspection had been conducted. Additionally, the Board contracted the cleaning of several large diameter trunk sewers, significantly improving their capacity. Over 1200 point repairs were made along gravity sewers and public portions of service laterals and over 17,000 feet of pipe was rehabilitated using cured-in-place-pipe (CIPP). The Board has recently purchased two combination cleaning trucks for 2005. Along with the new trucks, the Board is adding staff and conducting training to substantially increase cleaning and video production. The Board’s resources for cleaning sewers will be a fleet of 10 combination cleaning trucks and one jet truck. Additionally, specifications are being developed to add two new video units and replace two old units. The two old units will be used as standby units in the event a unit goes out of service.

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

The Grease Control Program which began in October 2002 has had a significant impact on the reduction in grease related overflows. However, since grease related overflows continue to remain a leading cause of overflows, the Board is continuously evaluating the program for improvements. In addition to the extensive monitoring and compliance efforts, the Board is also exploring new ways to educate the public on the adverse effects of grease on collection system performance. In March of 2004, MAWSS personnel began distributing a revised Grease Control Program Manual to Food Service Facilities (FSFs). Additionally, MAWSS forces began placing door hangers with grease control information in areas where video inspection of the sewer system indicate further grease control education is needed. Other proposed educational programs being explored include a presentation to elementary school students explaining the problems associated with grease and the correct methods of grease disposal. The Board recently hired a public affairs manager to develop programs that will educate the public about water and sewer issues.

The Board has also implemented new procedures to address secondary causes of grease related overflows. All sewer lines associated with overflows are inspected with closed circuit television cameras (CCTV) and placed on a cleaning schedule. Video information from grease related overflows is reviewed to determine if pipe defects are allowing grease to accumulate. Defects such as roots and dropped joints that can be corrected through point repairs or cured-in-place-pipe (CIPP) are scheduled for repair. Sewer lines with shallow grades or sags that are accumulating grease remain on a frequent cleaning schedule until the lines can be re-laid at a steeper grade, if possible.

Operations and maintenance at lift stations also received significant improvements over the past year. A combination cleaning truck has been permanently assigned to the cleaning of lift station wet wells. Backup systems such as diesel pumps and backup generators at several lift stations. Other stations received major upgrades. The Virginia Street Lift Station Upgrade Project and the Florida Street Lift Station Relocation Project were completed at the end of 2003. Construction of upgrades to the Halls Mill Lift was completed during the third quarter of 2004. Completion of the Eslava Creek Lift Station upgrades is expected no later than the end of May 2005. Work to reroute the Faye Lane Lift Station is substantially complete. This upgrade will remove up to 4 MGD from the Eslava Creek Lift Station during heavy rain events.

All of these efforts have substantially reduced overflows. Yearly totals of reported overflows have been trending downward for the last four years. The number of overflows reported in 2004

APPENDIX A-2: ANALYSIS OF WASTEWATER COLLECTION AND TRANSMISSION SYSTEMS AND WWTFs

were the lowest ever despite the occurrence of Hurricane Ivan and the fact that 2004 was the wettest year since 1998.

The Board has authorized borrowing \$25 million a year for the next 4 years through the State Revolving Fund (SRF) to be used for system improvements. These funds will be borrowed as needed.

A recent 10% increase in the water and wastewater rate took place January 1, 2005. The increase is expected to support repayment of SRF loans.

Although the Board is experiencing significant reductions in SSOs, it is not known if SSOs will be reduced to a satisfactory level by the termination date of the Consent Decree, September 30, 2007. Consequently, the Board is evaluating the possibility of requesting an extension of the Consent Decree deadline after evaluating SSO reductions in 2005.