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MAYOR



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

January 27, 2012

DEPARTMENT OF WATER AND SEWERAGE SERVICES
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Tennessee Department of Environment and Conservation
6th Floor, L & C Annex
401 Church Street
Nashville, TN 37243

Re: DOJ Case No. 90-5-1-1-09000
Submittal of Annual Report and Quarterly Report

Gentlemen:

In accordance with the provisions of the Consent Decree, Section XIX (Reporting Requirements), Subsection B, herewith we are transmitting the 2011 Annual Report which covers the time period from January 1, 2011 through December 31, 2011.

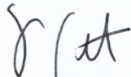
In addition, in accordance with the provisions of the Consent Decree, Section XIX (Reporting Requirements), Subsection A, herewith we are transmitting the Quarterly Progress Report which covers the time period from October 1, 2011 through December 31, 2011.

A copy of each of these reports is concurrently being placed in the Public Document Repository (PDR).

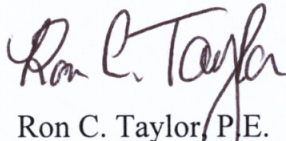
I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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.

If you have any questions concerning these reports please contact me.

Sincerely,



Scott A. Potter, P.E.
Director



Ron C. Taylor, P.E.
Overflow Abatement Program Director
Engineering Division

Cc: Mr. David Tucker, Assistant Director, Operations
Mr. Cyrus Q. Toosi, P.E., Assistant Director / Chief Engineer, Engineering
Mr. Gregory A. Ballard, P.E., Engineer 3
Mr. Thomas G. Cross, Associate Director, Metropolitan Department of Law

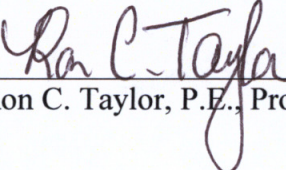


**Metropolitan Government of Nashville
and
Davidson County, Tennessee**

Department of Water and Sewerage Services

**Consent Decree
2011 Annual Report**

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Ron C. Taylor, P.E., Program Director

1/26/12

Date

As required by Section XIX.B., of the Consent Decree, the Metropolitan Government of Nashville and Davidson County, Tennessee (Metro) has prepared this Annual Report covering the period from January 1, 2011, through December 31, 2011. This report includes the following information:

1. Summary of the Capacity, Management, Operation, and Maintenance (CMOM) programs implemented
2. List of projects required by the Consent Decree
3. Trend analysis of Sanitary Sewer Overflows (SSOs) for 2010 and 2011
4. Trend analysis of dry weather Combined Sewer Overflows (CSOs) for 2010 and 2011

Table 1 provides the summary of the CMOM programs and includes those programs that were described in Metro's CMOM Self-Assessment. The status of each program, any performance measures established for each program and a review of the actual performance are included.

Table 2 provides the list of projects required by the Consent Decree. Also included in this table are the projects that had been previously identified in Metro's Overflow Abatement Program, as well as one project from the Corrective Action Plan / Engineering Report and one project from the Long Term Control Plan that were identified to start early. Each project includes the design start and end dates and the construction start and end dates.

The trend analysis for SSOs includes three graphs, each with the average rainfall from all the Metro rain gauges included. It is important to note that these graphs include SSOs related to the May 2010 flood. According to the U.S. Army Corps of Engineers, Nashville received an average of 13.56 inches of rainfall on May 1-2, 2010. This storm exceeded the 1000-year, 48-hour storm event for Nashville (11.65 inches) and resulted in extensive flooding throughout much of the Metro service area. During and following this extreme storm event, numerous overflows were reported to Metro which could not be confirmed due to access and the high volume of flood responses being performed by Metro Water Services staff. In addition, power failures related to the storm event and flood situation caused malfunctions in electronic monitoring equipment. All SSOs related to the May 2010 flood have been classified as Rainfall Induced for the purposes of this report.

Figure 1 shows the monthly SSO Events/Causes in the Metro Nashville sewer system. This bar graph shows the number of overflows in the system as a result of the following causes:

- Excessive flow
- Blockage
- Repairs/Mechanical Problems
- Power Outage
- Rainfall Induced
- Other

The 167 SSOs that were the result of the May 2010 flood have been included with other rainfall-induced SSOs in this figure. This included 161 events that occurred during May 2010 and 6 events that occurred during the following months as repairs continued to be made throughout the system. Aside from SSO events during May 2010, the following months each experienced more than 40 SSO events: January 2010, February 2011, April 2011, and May 2011. In each of these months, the majority of SSOs were the result of significant rainfall events. The majority of non-rainfall induced SSOs were caused by blockages from roots, grease, and debris.

Figure 2 shows the monthly SSO volumes within the system from 2010 through 2011 reported in million gallons (MG), while **Figure 3** shows the monthly SSO durations within the system from 2010 through 2011. The durations shown are a summation of the total amount of time overflows were occurring within the system at all overflow locations. This data is provided in the units of overflow equivalent hours, meaning for any month the total number of hours for the duration of overflows could exceed the actual number of hours in a given month. For instance, if a rainfall event results in three overflows that occur concurrently for two hours each, the overflow duration for that day is six overflow equivalent hours.

The data in **Figures 2** and **3** indicates large volumes and durations during several months as discussed previously. The most significant month in terms of both volume and duration is May 2010, which reflects the flood event. As noted, in many instances overflows volumes and durations associated with that event are unknown. For the remaining months, large overflow volumes and durations are due to significant rainfall events during these months.

The average rainfall as measured within the Metro system is included on both graphs to show the relationship between rainfall and the overflow events.

There is not a trend analysis in this report for the dry weather CSOs. One dry weather CSO occurred in January 2010 due to three water transmission main breaks in the combined sewer system as a result of prolonged sub-freezing temperatures. No dry weather CSOs occurred in 2011.

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Table 1 - Summary of CMOM Programs

CMOM Report Section	CMOM Program	Recommendation	Implementation Deadline	Status	Performance Measure	Actual Performance
Section 4, II.b.	Skills Training	MWS will conduct periodic testing, drills and demonstrations of competency of skills	7/08	Ongoing. Metro tracking all required training for skills needed to perform duties related to CMOM. Reviewed with all personnel the Spill and Overflow Response Plan (SORP) including the updated notification form to report sewer overflows and building backups to TDEC.	In 2011, targeted 28 employees for promotion if competencies demonstrated.	All 28 employees were promoted. Employees participated in SORP training. Rotated staff for broadening functional capability of repair crews to assist with other assignments.
Section 4, IV.	Information Management System	MWS will develop and implement a process for reviewing all inspection, maintenance, operations and customer complaint records to identify recurring problems. A corrective action plan to address recurring problems that develop will be included.	1/08	Sewer Service Requests have been reviewed and corrected as planned. Also, conducted monthly review of sewer problems and strategy to correct sewer deficiencies. Continued to use information sheet for customers regarding property damage and 48-hour checklist for use of supervisors in the event of property damage. MWS also utilizes complaints and/or discoveries of system irregularities (from CCTV) as a basis for preventive and scheduled maintenance activities.	Number of service requests received and reviewed and number resolved.	100% received, reviewed, and resolved.
Section 4, V.d.	New Construction and Rehabilitation Inspection	MWS will develop standard operating procedures for conducting construction inspections that include methods for documenting inspections and maintaining the documentation. Include training requirements for all inspectors. Other means for managing data to closeout projects will be evaluated. MWS will develop and implement standard policy for acquisition of existing sewer systems. This policy will include a plan for bringing sewer systems to MWS's requirements and standards that must be met of the design of the existing sewer before acceptance by MWS and the criteria that will be used for the determination of the financial aspects of the acquisition.	6/08	Handbook is developed and will be regularly updated.	No update necessary at this time.	Handbook in use.
Section 4, V.e.	Acquisition Considerations		1/08	Policy has been developed. Implementation pending acquisition activity.	N/A	No acquisition activities have occurred in 2011.

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CMOM Report Section	CMOM Program	Recommendation	Implementation Deadline	Status	Performance Measure	Actual Performance
Section 4, V.f.vi.	Continuous Sewer System Assessment	MWS will develop and implement standard line condition codes (1 to 5) for use when televising sewer lines. These codes will be manually recorded on TV Inspection Reports. MWS will implement modified data entry into CMMS to allow entry of the standard sewer line condition codes from the TV Inspection Reports.	11/06	Complete - GraniteXP software and PACP/MACP codes in use.	N/A	N/A
Section 4, V.f.x.	Continuous Sewer System Assessment	MWS will evaluate the software to enter standard defect codes from guidelines in to CMMS.	4/07	Complete - GraniteXP software and PACP/MACP codes in use.	N/A	N/A
Section 4, V.f.x.	Continuous Sewer System Assessment	MWS will develop and implement standard operating procedures for all assessment practices including technical procedures for carrying out each practice and a means to ensure follow-up on information that is documented during any of the assessment practices. All current forms will be reviewed that are used to determine if the appropriate information is obtained and develop new forms as necessary. A written standard method of prioritization of all assessment practices will be developed.	1/08	Continued monthly meetings to discuss chronic or newly identified sewer defects. Continued to utilize the calibrated Mike Urban (SWMM) sewer system model to better evaluate observed overflows and to identify potential overflow locations for field confirmation.	Review SOP's annually.	2011 SOP's review completed. Also reviewed and updated list of sewers to check for overflows during wet weather.
Section 4, V.g.	Infrastructure Rehabilitation Program (OAP)	MWS will develop and implement a management plan to address wet weather conditions once the sewer model is completed.	12/08* *will be updated by CAP/ER	Complete	CAP/ER must be completed by September 12, 2011.	CAP/ER was submitted on September 9, 2011.
Section 4, V.h.	System Capacity Assurance	MWS will review and update the Wastewater Capacity Management Plan following completion of the conversion of the sewer model. MWS will complete the conversion of the sewer model into MIKE URBAN software.	12/08	Complete and adopted.	N/A	In use.
Section 5	Operations	The Master Sewer Growth Plan will be renewed and updated every five years. MWS will develop and implement Standard Operating Procedures for critical operations programs. The SOPs shall include a means for follow-up on any items noted. The integration of HSO and Intrac into a consolidated system will be completed.	4/07	Complete	Number of model runs since date of entry.	There were 75 model runs for capacity analysis for January 1, 2011 through December 31, 2011. Up to date with last update in December 2008. 2011 review completed.
Section 5, I.a.i.	Pump Station Monitoring		12/08	Complete	Update every 5 years.	
Section 5, I.a.iii.	Operation and Maintenance Manuals	The feasibility of implementing electronic O & M manuals will be investigated. If it is determined that this is feasible, a new goal will be established for implementation.	10/07	Complete	Receive 100% information on all data points. Citect SCADA system in operation. All pump station telemetry is now consolidated into one system.	All critical data points are being received. The current system will continue to be reviewed and improved, as needed. All new O&M manuals are received in electronic format. Modifications have been updated.
			12/07	All new facility O&M manuals will be electronic. Operating parameters and equipment at all facilities are updated as modifications are made electronically.	Require all new O&M manuals to be submitted in electronic format. All modifications to be updated electronically.	

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CMOM Report Section	CMOM Program	Recommendation	Implementation Deadline	Status	Performance Measure	Actual Performance
Section 5, I.b.i.	Reactive Operations	MWS will develop and implement an SOP for tracking the inventory of spare pumps for the smaller pump stations. It will be determined if tracking through CMMS is possible.	12/07	Tracking through CMMS was determined to be impractical. A new spreadsheet-based system for tracking the inventory of spare parts for smaller pump stations has been developed.	Review SOP's annually.	2011 review complete.
Section 5, IV.	Fats, Oils and Grease Control	A mailing system will be implemented to distribute a notification to all residential customers in a specific area where FOG interference has been a problem. An English/Spanish notification is being developed currently.	2/07	Use Integrated Voice Response outbound calling for notification in problem areas. Written notifications are provided in English and Spanish. Process/procedures in place.	Notifications mailed, distributed, and/or called out as needed.	90 outbound calls were made in 2011 due to grease blockages and/or overflows of the sanitary sewer. 415 notifications were distributed in 2011. N/A
Section 5, V.	Service Connection/Disconnection	MWS will review current procedures for new service connections and for service disconnections to determine if the procedures need to be updated.	5/07		N/A	N/A
Section 6, II.a.	Gravity Line Preventative Maintenance	MWS will develop a method to track the actual footage cleaned from manhole to manhole that does not include footage from multiple passes. This will provide a more accurate measure of the actual footage of the system being cleaned each year.	10/07	Modified cleaning goals based on cleaning as a result of discovered debris or locations on chronic grease/roots lists. Resources are focusing more on inspection.	16,250 LF/month and 750 LF/day (actual footage)	In 2011, 448,500 LF was cleaned, which included the removal of 1420 tons of debris. This includes cleaning completed by MWS and contractors.
Section 6, II.a.	Gravity Line Preventative Maintenance	MWS will develop goals of the actual footage to be cleaned that reflect an analysis of past CMMS cleaning data to determine the actual footage of sewers cleaned.	11/07	New goals established to emphasize quality and investigative cleaning and de-emphasis non-directed cleaning.	See above for performance measure under first recommendation for this program.	See above for actual performance under first recommendation for this program.
Section 6, II.a.	Gravity Line Preventative Maintenance	MWS will evaluate daily goals based on 210 working days per year or 17.5 days/month, which includes estimates for the many reasons crew members would not be available. Goals will be reviewed to reflect potential improvements in planning, scheduling and record keeping, along with fundamentals of continuous improvement. Also, goals will consider that there are certain segments that require more frequent cleaning.	1/08	New goals established to optimize use of resources.	See above for performance measure under first recommendation for this program.	See above for actual performance under first recommendation for this program.

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CMOM Report Section	CMOM Program	Recommendation	Implementation Deadline	Status	Performance Measure	Actual Performance
Section 6, II.a.	Gravity Line Preventative Maintenance	MWS will evaluate ways to set priority on how often various groupings of sewer categories should be inspected with television. Examples, new PVC or recently lined sewers may not be inspected for another 5 to 10 years. However, clay or sewers older than 20 years or large diameter brick sewers would have priority to inspect them within the next five years.	12/07	Investigations are directed based on priorities for directing cleaning (restricted flow due to nonstructural issues), complaints, NPDES needs, flow monitoring irregularities, etc. In 2010, contracted with two national firms to conduct inspections and cleaning of sewers affected by May 2010 Flood. In 2011, continued contractor inspections and cleaning in other areas of the system. Continued using Mobile Dispatch and Hansen Planning (Group Work Orders). This allows for standardization of process and reducing the risk of missing locations under review/report. Complete	Original CMOM Self Assessment established a goal for inspection of 360,000 feet per year per crew.	A total of 2.29 million feet of sewer was inspected in 2011. This includes inspections completed by MWS and contractors.
Section 6, II.a.	Gravity Line Preventative Maintenance	MWS will purchase software for TV units that will allow priorities to be entered into the CMMS. MWS has recently purchased three new CCTV cameras to inspect and to televise the 224 miles of CSO lines and the other large diameter sewers. Three crews began using the cameras in August 2006. As experience is gained and the process refined of using these cameras, MWS will develop a plan and standard operating procedures (SOP) to inspect a certain amount of large diameter sewers over a projected period of time. The CSO and large diameter sewer televising will be incorporated into the goals for sewer televising for the entire system. MWS will consider development of a policy for resolving root intrusion in service lines with a customer	6/07	Complete	N/A	N/A
Section 6, II.b.	Root Control	MWS will develop standard operating procedures for inspection and replacement of air/vacuum valves.	10/07	Large diameter sewer inspection contract established. In 2010, contracted with two national firms to conduct inspections and cleaning of sewers affected by May 2010 Flood. In 2011, continued contractor inspections and cleaning to other areas of the system. Updated in SORP. Submitted on May 27, 2009 to TDEC/EPA. Approved on August 18, 2009. Complete	Complete inspection of large diameter sewers in the next 5 years.	A total of 2.29 million feet of sewer was inspected in 2011. Of this, 502,710 feet of sewers 24-inch or greater in diameter were inspected. This includes inspections completed by MWS and contractors.
Section 6, III.	Air Valve Preventative Maintenance	MWS will update the Long Term Control Plan on an as needed basis.	12/07	Complete	Review SOPs annually.	2011 review complete.
Section 7, II.	Long-Term Control Plan	MWS will develop performance measures for all programs that do not have current measures in place.	As needed.	Complete	LTCP must be completed by September 12, 2011. N/A	LTCP was submitted on September 9, 2011. No new performance measures implemented in 2011.
General	All		12/07	Ongoing; pertinent items developed for all items above.		

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Table 2 - Design/Construction Projects

Projects Required by Consent Decree						
Project Number	Project Name	Project Description	Design Start Date	Design End Date	Construction Start Date	Construction End Date
97-SG-8-2&3	Dry Creek Facilities Improvements	Improvements to existing WWTP for optimization of wet weather flows, solids handling, and odor mitigation	3/1/2004	11/19/2004	7/5/2005	12/4/2008
03-SC-136A	Barker Road / Omohundro EQ Basin	Construction of a 15 MG EQ Basin and Wastewater Pump Station (WWPS) for the Separate Sanitary Sewer System	2/23/2006	10/2008	2/2/2009	12/21/2009 (operational)
Continuation Projects from Current OAP Program						
94-SG-5F-1	Boscobel CSO - Village Court	Upsized CSS trunk sewer, rehabilitation of sanitary sewer, solids and floatable controls, and appurtenances	10/4/2005	7/1/2007	1/16/2008	10/27/2008
91-SC-36B	28th Avenue North Sewer Rehabilitation Phases 1 & 2	Rehabilitation of sanitary sewer system	4/6/2006	8/30/2007	3/15/2008	3/12/2009
90-SC-75A	Hurricane Creek WPS Improvements	Replacement of pumps, controllers, and grinders at existing WWPS to improve reliability	12/1/2005	10/23/2006	11/12/2007	9/1/2008
05-SC-33	Basswood / West Park EQ Basin	Construction of a 10 MG EQ Basin and WWPS for the Separate Sanitary Sewer System	6/21/2006	10/2008	2/18/2009	11/17/2010
94-SC-5B	Washington CSO Regulator	Construction of new replacement CSO Regulator to incorporate solids & floatables control and in system storage to reduce CSOs	12/18/2006	3/1/2010	12/1/2010	6/30/2012 (estimated)
90-SC-150H	Inglewood Sewer Rehabilitation Phase 4	Rehabilitation of sanitary sewer system	2/7/2006	10/30/2006	7/13/2009	1/8/2010
99-SG-9C	Hermitage Area Sewer Rehabilitation	Rehabilitation of sanitary sewer system	8/2/2006	11/10/2006	7/13/2009	2/7/2010
06-SC-188	Whites Creek WWPS Disinfection / Optimization	Improvements to existing WWTP for optimization of wet weather flows and increased capacity of disinfection system	12/12/2008	10/30/2010	11/21/2011	1/1/2013 (estimated)
93-SC-34T	Whites Creek WWFS Design	Improvements to the Whites Creek WWFS, including a new WWFS and Force Main	11/15/2009	3/25/2011	2/13/2012 (estimated)	12/1/2013 (estimated)
06-SC-185	Mill Creek 36" Trunk Sewer Repair	Repair / Rehabilitation of Separated Sewer System	7/6/2007	10/6/2007	3/21/2011	9/30/2011
Early Start CAP/ER and LTCP Projects						
11-SC-067	Driftwood Equalization Basin Expansion	Expansion of the existing CSO detention basin to capture 3.1 MG of additional storage	8/8/2011	3/22/2012 (estimated)	8/1/2012 (estimated)	2/28/2013 (estimated)
99-SC-009L	Dodson Chapel Pumping Station and Equalization Basin Expansion	Improvements to the existing facility including a new duty pump station, expanded wet weather pumping, and 11 MG of additional storage	9/15/2011	3/1/2012 (estimated)	4/1/2012 (estimated)	11/30/2013 (estimated)

Figure 1 - Monthly SSO Events and Causes

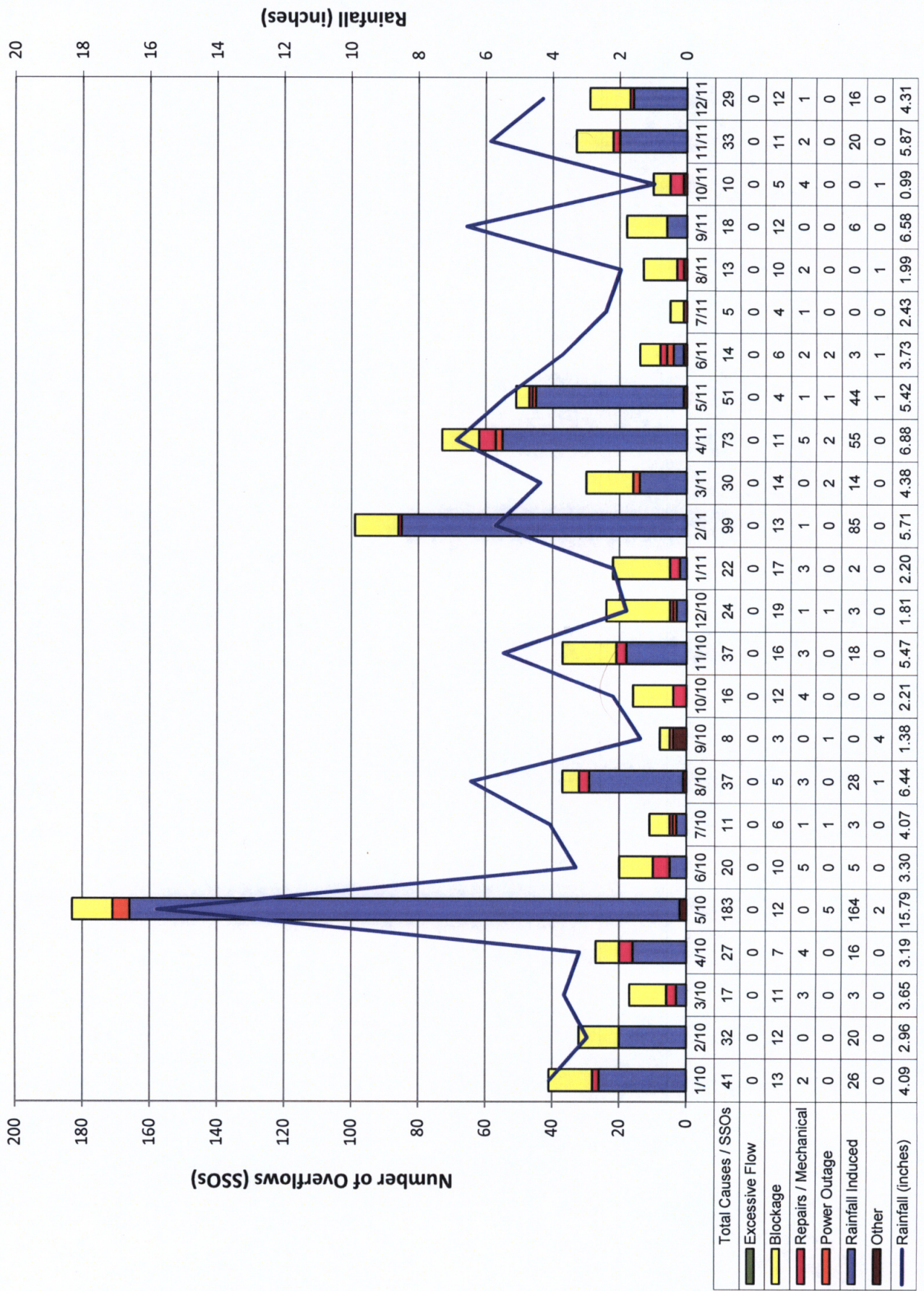


Figure 2 - Monthly SSO Volumes

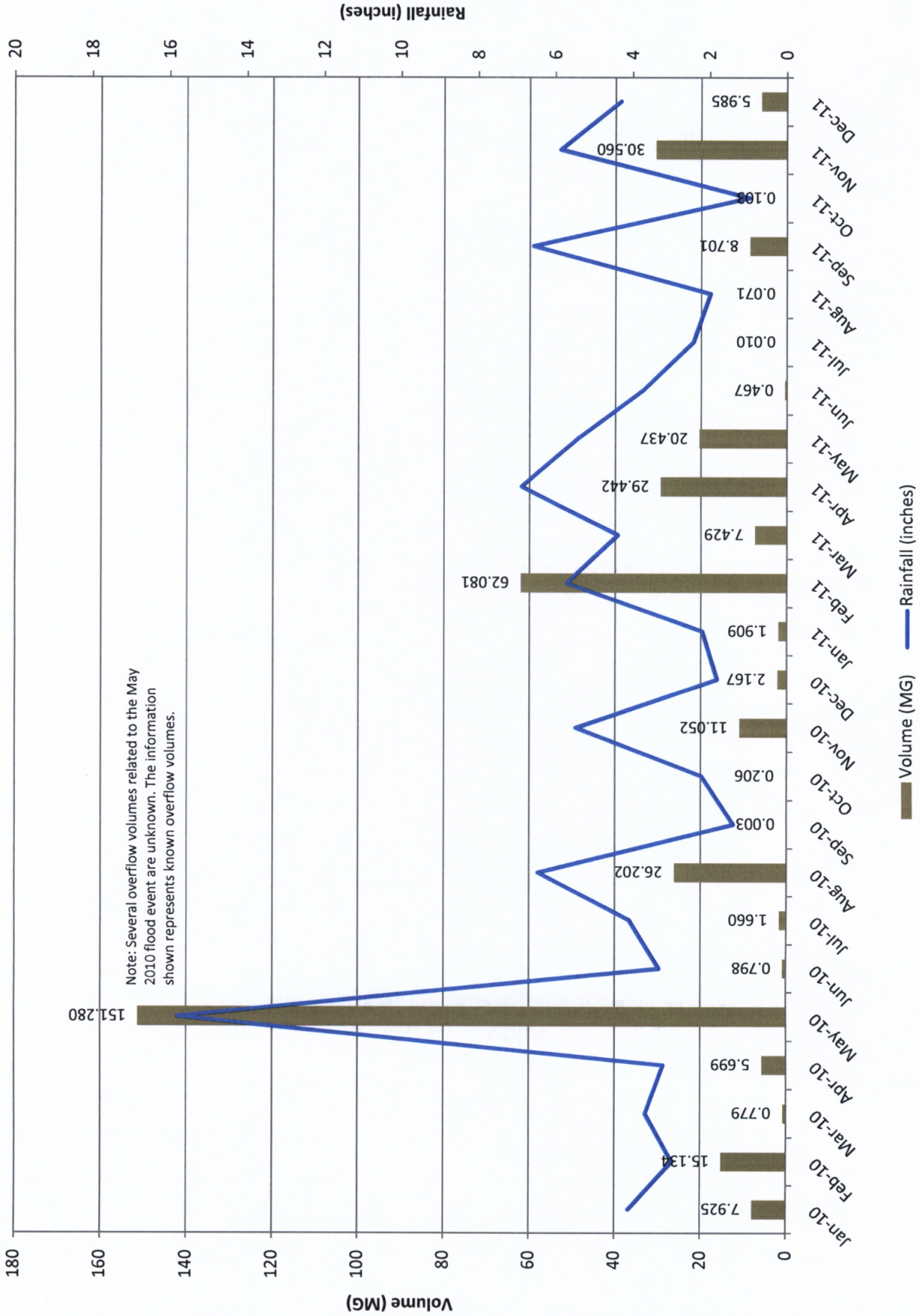


Figure 3 - Monthly SSO Durations

