

KARL F. DEAN
MAYOR



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
1600 SECOND AVENUE, NORTH
NASHVILLE, TENNESSEE 37208-2206

January 27, 2009

Mr. Humberto Guzman
Water Programs Enforcement Branch
Water Management Division
U. S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

Mr. Paul E. Davis, P. E.
Director of Water Pollution Control
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
2008 Consent Decree Annual Report

Dear Mr. Guzman and Mr. Davis:

In accordance with the provisions of the pending Consent Decree, Section XIX (Reporting Requirements), Paragraph B (Annual Report), herewith we are transmitting to you a copy of the 2008 Annual Report. A copy of this Report is being placed concurrently in the PDR.

The transmittal of this report and its placement in the PDR satisfies the pending Consent Decree requirement for presentation of an Annual Report prior to January 31, 2009.

If you have any questions concerning this Report please contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Scott A. Potter".

Scott A. Potter, P.E.
Director

Cc: Mr. Cyrus Q. Toosi, P.E., Assistant Director, Engineering
Mr. David Tucker, Assistant Director, Operations
Mr. Thomas G. Cross, Associate Director, Metropolitan Department of Law

Metropolitan Government of Nashville and Davidson County, Tennessee
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As required by Section XIX.B., of the pending Consent Decree, the Metropolitan Government of Nashville and Davidson County, Tennessee (Metro) has prepared the enclosed Annual Report covering the period from January 1, 2008, through December 31, 2008. The report includes the following information:

1. Summary of the Capacity, Management, Operation, and Maintenance (CMOM) programs implemented
2. List of projects required by the pending Consent Decree
3. Trend analysis of Sanitary Sewer Overflows (SSOs) for 2007 and 2008
4. Trend analysis of dry weather Combined Sewer Overflows (CSOs) for 2007 and 2008

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 pending Consent Decree. Also included in this table are the projects that had been previously identified in Metro's Overflow Abatement Program. 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. **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 increase in overflows due to rainfall in March 2008, April 2008 and December 2008 was the result of significant rainfall during those three months. Much of that rainfall occurred during back-to-back storm events (averaging between 6 and 7 inches per month, system wide). The majority of the overflows were caused by blockages from roots, grease and debris.

Figure 2 shows the monthly SSO Volumes within the system from 2007 through 2008 reported in million gallons (MG).

Figure 3 shows the monthly SSO Durations within the system from 2007 through 2008. The duration was a summation of the total length 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 each month the total number of hours could exceed the actual number of hours in a given month.

When the summation of total hours was calculated for the total overflows within the system during that time period, the result was a duration that exceeds the actual number of hours in each month.

The data in **Figure 2 and 3** indicates an increase in the duration and volume of overflows for the reporting period. The excessive volumes and durations in March 2008, April 2008 and December 2008 are due to exceptional wet weather events during those three months, as discussed previously. Extreme drought conditions in calendar year 2007, especially mid-year, further reduced the overflow volumes and durations for that time period, resulting in the appearance of increased overflows from rainfall in late 2007 through 2008. As shown in **Figure 1**, for the months of March 2008, April 2008 and December 2008, there were 58, 82 and 46 rainfall induced overflows.

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 as none occurred in 2007 and 2008.

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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	In 2008, targeted 28 employees for promotion if competencies demonstrated.	All 28 employees were promoted.
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	All sewer service requests are compiled into a report each week and distributed to the team which meets every two weeks to assure all items are resolved. Repeat problems are identified and investigated. Next step is computer / GIS to review for patterns	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.	6/08	Handbook is developed and will be regularly updated.	N/A	Handbook in use.
Section 4, V.e.	Acquisition Considerations	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.	1/08	Policy has been developed. Implementation pending acquisition activity.	N/A	No acquisition activities have occurred in 2008.
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.	11/06	Complete	N/A	No longer used, replaced by Granite XP software and PACP/MACP codes
		MWS will implement modified data entry into CMMS to allow entry of the standard sewer line condition codes from the TV Inspection Reports.	1/07	Complete	N/A	No longer used; replaced by GraniteXP software and PACP/MACP codes.
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	Implement chosen software.	Purchased GraniteXP

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CMOM Report Section	CMOM Program	Recommendation	Implementation Deadline	Status	Performance Measure	Actual Performance
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	SOP's have been developed and reviewed. Prioritization matrix previously used in OAP program will continue to be used and updated with new CD program to identify any corrective action.	Review SOP's annually.	2008 review complete.
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	Program to be redefined through CAP/ER.	CAP/ER must be developed 24 months after date of entry.	Program on track to meet deadline.
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.	12/08	Complete	Adopt immediately after CD entered.	On track to implement.
		MWS will complete the conversion of the sewer model into MIKE URBAN software .	4/07	Complete	N/A	New model in use.
		The Master Sewer Growth Plan will be renewed and updated every five years.	12/08	Complete	Update every 5 years.	Completed current update.
Section 5	Operations	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.	12/08	Complete	Review SOP's annually.	Initial review completed.
Section 5, I.a.i.	Pump Station Monitoring	The integration of HSQ and Intrac into a consolidated system will be completed.	10/07	Complete	Receive 100% information on all data points.	100% of information has been consolidated into one system.
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.	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.	Update all modifications/additions as completed.	All existing O&M manuals are categorized.
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	Complete	Review SOP's annually.	2008 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	Complete	Notifications mailed as needed.	Implemented as planned.
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	Currently have a process for service connections and disconnections. Procedures updated recently to include new requirements for connections.	N/A	N/A

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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 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	Complete	40,000 LF/month and 2,000 LF/day (multiple runs) 20,370 LF/month and 1,018 LF/day (actual footage)	FY 2008 - 39,879 LF/month (multiple runs) 1,066 LF/day (actual footage)
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	Complete	See above for performance measure under first recommendation for this program.	See above for actual performance under first recommendation for this program.
		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	Complete	See above for performance measure under first recommendation for this program.	See above for actual performance under first recommendation for this program.
		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	Developed for two categories; other categories being investigated for development.	N/A	N/A
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.	6/07	Complete	N/A	N/A
		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.	1/08	SOP for sewers up to 60" diameter complete. Gathering data for SOP and goal setting for sewers larger than 60" diameter.	N/A	N/A
Section 6, II.b.	Root Control	MWS will consider development of a policy for resolving root intrusion in service lines with a customer	10/07	Complete	N/A	N/A

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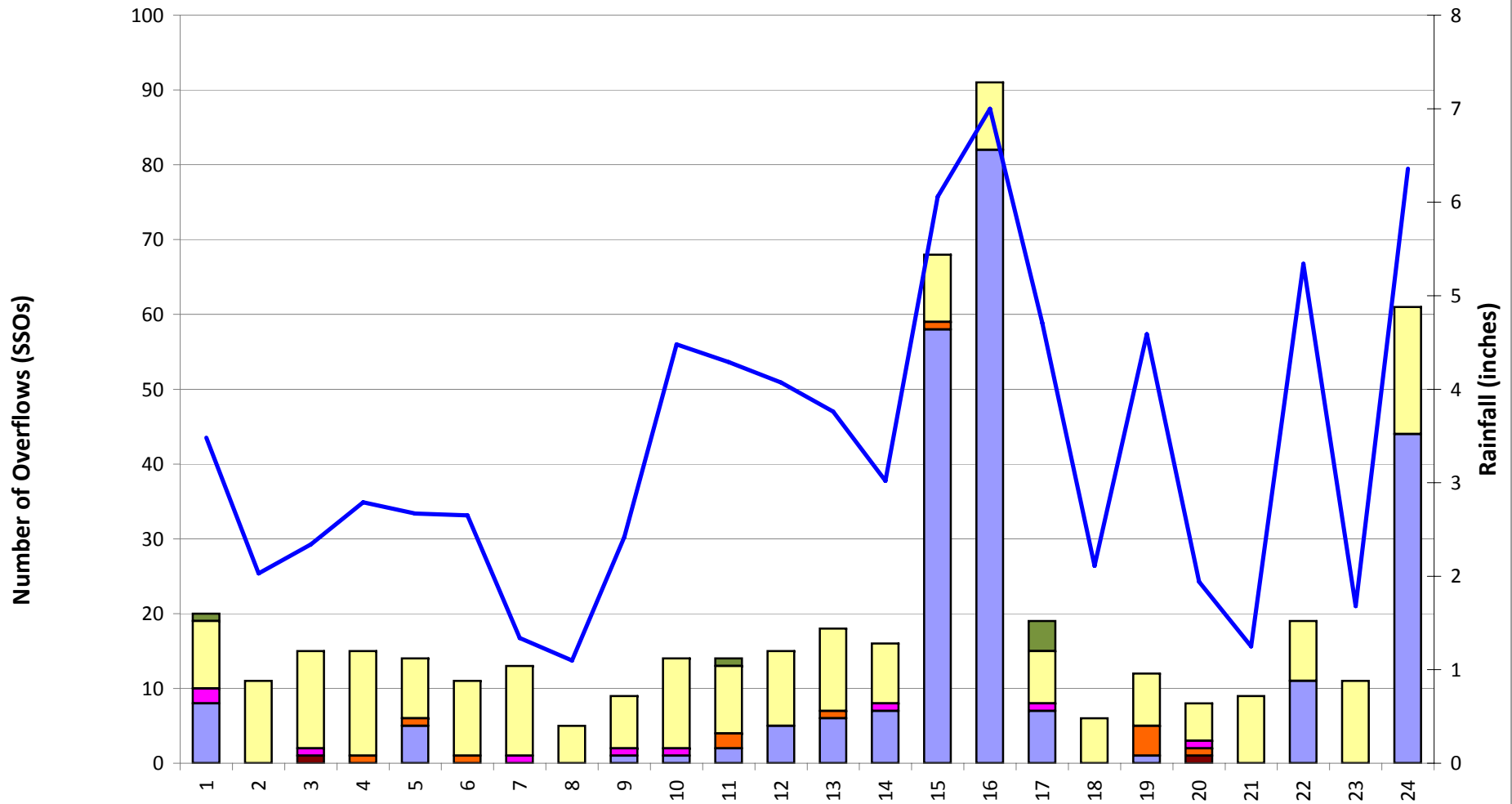
CMOM Report Section	CMOM Program	Recommendation	Implementation Deadline	Status	Performance Measure	Actual Performance
Section 6, III.	Air Valve Preventative Maintenance	MWS will develop standard operating procedures for inspection and replacement of air/vacuum valves.	12/07	Complete	Review SOPs annually.	2008 review complete.
Section 7, II.	Long-Term Control Plan	MWS will update the Long Term Control Plan on an as needed basis.	As needed.	In progress. Program to be redefined through CAP/ER.	CAP/ER must be developed 24 months after date of entry.	On track to implement
General	All	MWS will develop performance measures for all programs that do not have current measures in place.	12/07	Ongoing; pertinent items developed for all items above.	N/A	N/A

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Table 2 - Design/Construction Projects

Projects required by pending 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	1-20-2009	12-31-2009 (estimated)
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	28 th Avenue North Sewer Rehabilitation Phases 1 & 2	Rehabilitation of sanitary sewer system	4-6-2006	8-30-2007	3-15-2008	12-31-2008 (estimated)
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	1-20-2009	12-31-2009 (estimated)
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	TBD	TBD	TBD
90-SC-150H	Inglewood Sewer Rehabilitation Phase 4	Rehabilitation of sanitary sewer system	2-7-2006	10-30-2006	Calendar Year 2009	TBD
99-SG-9C	Hermitage Area Sewer Rehabilitation	Rehabilitation of sanitary sewer system	8-2-2006	11-10-2006	Calendar Year 2009	TBD
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	TBD	TBD	TBD
93-SC-34T	Whites Creek WWPS Design	Improvements to the Whites Creek WWPS, including a new WWPS and Force Main	Calendar Year 2009	TBD	Calendar Year 2010	TBD
06-SC-185	Mill Creek 36" Trunk Sewer Repair	Repair / Rehabilitation of Separated Sewer System	7-6-2007	10-6-2007	Calendar Year 2009	TBD

Figure 1 - Monthly SSO Events / Causes



	1/07	2/07	3/07	4/07	5/07	6/07	7/07	8/07	9/07	10/07	11/07	12/07	1/08	2/08	3/08	4/08	5/08	6/08	7/08	8/08	9/08	10/08	11/08	12/08
Total Causes / SSOs	20	11	15	15	14	11	13	5	9	14	14	15	18	16	68	91	19	6	12	8	9	19	11	61
Excessive Flow	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	0
Blockage	9	11	13	14	8	10	12	5	7	12	9	10	11	8	9	9	7	6	7	5	9	8	11	17
Repairs / Mechanical	2	0	1	0	0	0	1	0	1	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0
Power Outage	0	0	0	1	1	1	0	0	0	0	2	0	1	0	1	0	0	0	4	1	0	0	0	0
Rainfall Induced	8	0	0	0	5	0	0	0	1	1	2	5	6	7	58	82	7	0	1	0	0	11	0	44
Other	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Rain (inches)	3.48	2.03	2.34	2.79	2.67	2.65	1.34	1.10	2.42	4.48	4.29	4.07	3.76	3.02	6.06	7.00	4.71	2.11	4.59	1.94	1.25	5.34	1.68	6.36

Figure 2 - Monthly SSO Volumes

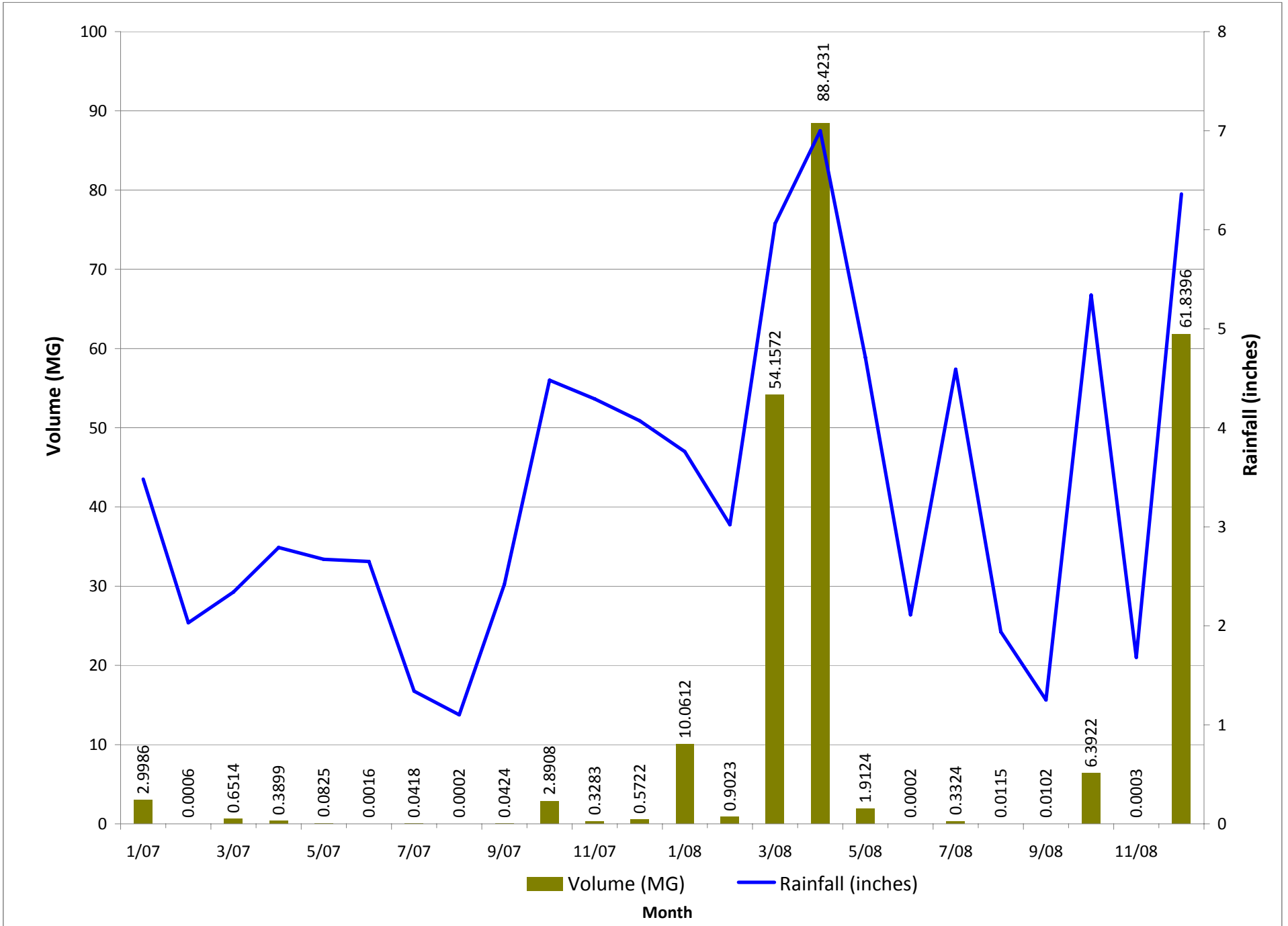


Figure 3 - Monthly SSO Durations

