

Seventh Quarterly Report

**United States Environmental Protection Agency
Administrative Order No. CWA-04-2010-4772**

**Period
April 1, 2012 –
June 30, 2012**

July 2012

Submitted by:



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SECTION I:

OVERVIEW OF ORDER



SECTION I

OVERVIEW OF ORDER

On September 28, 2010, an Administrative Order issued by the United States Environmental Protection Agency (EPA) to the City of Oak Ridge, which was received on September 30, 2010. The Order cited numerous incidents of Sanitary Sewer Overflows (SSO's). There were four (4) general sections of the Order outlining activities required of the City with a defined schedule for compliance. Those areas are as follows:

Sanitary Sewer Overflows (Section A)

Within two (2) months (November 30, 2010), a list of SSO's which occurred in the previous two (2) years, were required to be submitted. *That list was submitted on time.*

System Evaluation and Rehabilitation Plans (SERP) (Section B)

Within six (6) months (March 30, 2011), the City was to develop work plans for Capacity Assessment of the system and a Sewer System Evaluation Survey (SSES). Following the Capacity Assessment Work Plan, the City must develop a Capacity Assessment Report in accordance with the work plan. That report was due to the EPA within one (1) year of approval of the work plan (May 3, 2012). *That report was submitted as required.* The execution of



the SSES work plan was completed within one (1) year of approval. *The results of the evaluation survey were submitted within two (2) months after completion of the survey, as required by the Order.* The only remaining submittal is the Rehabilitation Plan. Two (2) months following the results, a Remediation Plan is to be submitted for review and approval. Both the Capacity Work Plan and the Sewer System Evaluation Survey (SSES) work plan were approved by the EPA during the third quarter of the Order.

Sanitary Sewer Overflow Response Plan (SORP) (Section C)

Within six (6) months (Second Quarter), the City was to submit a Response Plan detailing procedures to be taken relative to any overflows occurring in the sewer system. *The SORP was approved by EPA during the third quarter of the Order.*

Management, Operation, and Maintenance Programs (MOM) (Section D)

The MOM portion of the Order has many components. The general topics are as follows:

- Information Management System (IMS) Programs
- Engineering
- Pump Station Operations Programs
- Maintenance Programs

The schedule for submittals varies for the different components of the MOM portion of the Order. *All of the sections have been submitted as required.*



In addition to the above referenced requirements of the Order, the City must submit quarterly reports to the EPA documenting the activities of the quarter. These reports are due on the 28th day of the month following the end of each quarter. The Order outlines the format of these reports. *The first six (6) quarterly reports were submitted on time.*

Section II of this report addresses the activities of the seventh quarter after receipt of the Order (Second Quarter Calendar 2012).



SECTION II:

ACTIONS DURING THE SEVENTH QUARTER



SECTION II

ACTIONS DURING THE SEVENTH QUARTER

A. Introduction

As stated earlier, the Order has four (4) major sections. Section A was completed on schedule with no further activity required. Section B had activities during the seventh quarter. Section C activities were completed earlier with no activities this quarter. Section D will have continuing activities. The Section B and D activities for the quarter are described below.

Section B Activities (System Evaluation and Rehabilitation Plans)

In 1991, the City of Oak Ridge began a program to eliminate overflows at the influent pumping station of the wastewater treatment plant. That program was to expand the hydraulic capacity of the wastewater treatment plant and reduce infiltration/inflow (I/I) within the system. Prior to the issuance of the Order, the treatment plant capacity was expanded to 30.0 million gallons per day (MGD). The "old program" (prior to the Order) sewer rehabilitation projects have been designated by letters. Contracts through "N" were constructed.



During the seventh quarter, work under the "old program" continued. Two (2) rehabilitation projects were placed under construction during the fifth quarter. These projects are in the Emory Valley Sewer Shed. Construction was completed on one of the projects during the seventh quarter, and the other will be complete in the early part of the eighth quarter.

Activities of Section B clearly show that the East Plant Sewer Shed was the one with the highest priority for rehabilitation. Design for rehabilitation in five (5) mini-basins was substantially completed in the seventh quarter. It is anticipated that the design of rehabilitation projects will be authorized in the eighth quarter for the remainder of the East Plant Sewer Shed.

Section D Activities (Management, Operations, and Maintenance Programs)

1. Information Management System

- 598 weekly preventive maintenance work orders generated and completed
- Twenty-five (25) pump station inspection work orders for rain events (six (6) occurred with preventive maintenance inspections).
- Eleven (11) work orders for the replacement of pump station control panels.
- Twenty-one (21) work orders for the maintenance crew (other than preventive maintenance, rain events, and control panel replacement)
- Total to-date of 1,510 work orders generated in the INFOR system for the WWTP maintenance crew.



- 377 call-in work orders generated in the INFOR system by the Call Center.
- Total to date of 600 work orders generated in the INFOR system by the Call Center.
- Background work continues for gravity sewer implementation.
- Due to the staffing changes in the City's IT Department, the projected start-up for gravity sewer has been rescheduled until October 2012, to allow time for a GIS specialist to be hired. The position has been posted and applications have been received.

2. Engineering Programs

- System Mapping:
During the quarter, there were a limited number of manholes uncovered and added to the GIS system.
- Pump Stations:
During the past nine months, by-pass pumping connections have been installed at twenty-one (21) pump stations utilizing a contractor and the wastewater maintenance crew. By-pass pumping connections will be installed at the remaining pump stations when they are replaced or updated. Oak Ridge City Council approved Resolution #2-13-2012 on February 13, 2012, for a total cost of \$149,253 for the purchase two (4" and 8") portable standby pumps. The two sizes of pumps were required for the City to handle the different pumping requirements throughout the City.

During the 2nd quarter of 2012 (April through June), the City of Oak Ridge began the process of replacing the control panels at twenty-three (23) pump stations, as part of the sewer system upgrade in compliance with the EPA Administrative Order.

The existing control panels have met their useful life and contain obsolete equipment which is not capable of supporting telemetry or Supervisory Control and Data Acquisition (SCADA) systems. It is planned for the City to purchase and install a SCADA system within the next twelve months.



The purchase of the twenty-three (23) new control panels was approved by Oak Ridge City Council by Resolution #12-114-11 on December 12, 2011, for a total cost of \$444,889 (\$19,343 per panel). The panels were ordered and a plant site visit was conducted during fabrication of the first panels by the Wastewater Supervisor, Tom Roberts.

The new panels are capable of tracking information on the station pumps and equipment for preventative maintenance purposes. Once installed, the SCADA system will notify personnel in the event of a problem to help prevent sewer system overflows. Ultimately, all information will be fed into the Infor IMS. The panels are equipped with electric receptacles capable of connecting to a portable power generator to operate the stations during a power outage.

Beginning on March 28 through June 30, 2012, the Wastewater Maintenance Crew installed nine (9) of the twenty-three (23) panels and performed some preliminary work at two (2) other pump stations. The following is a listing of the work order information from the Infor IMS of the control panels that have been received, as well as cost information for each panel received. The average cost of replacing a panel is \$24,492, which includes \$19,343 for the panel and \$5,149 for labor, tools and materials.



**CITY OF OAK RIDGE, TENNESSEE
 CONTROL PANEL INSTALLATION - SEWER PUMP STATIONS
 4/1/2012 THROUGH 6/30/2012**

| Work Order | Date Reported | Description | Equipment | Equipment Description | Cost at 6/30/2012 |
|-------------------------------------|---------------|---|---------------|---|---------------------|
| 12456 | 3/28/2012 | Replace Control Panel: Rivers Way | PS:E30-F24 | Rivers Way: 120b Marywater Ln | \$ 26,817.75 |
| 12524 | 4/9/2012 | Replace Control Panel: West Outer Dr | PS:W22-AN3W | West Outer: 1129 West Outer Dr | \$ 24,329.09 |
| 12525 | 4/9/2012 | Replace Control Panel: Williams Lane | PS:W29-AN4W | Williams: 131 William Ln | \$ 24,425.77 |
| 12746 | 4/27/2012 | Replace Control Panel: Peach Orchard | PS:W8-B13 | Peach Orchard: 105 Wedgewood Rd | \$ 84.32 |
| 12748 | 4/27/2012 | Replace Control Panel: Radisson Cove | PS:E29-P26 | Radisson Cove: 21 Radisson Cove | \$ 84.32 |
| 12903 | 5/8/2012 | Replace Control Panel: Marina | PS:E20-L24 | Marina: 695 Melton Lake Dr | \$ 21,258.79 |
| 12904 | 5/8/2012 | Replace Control Panel: Southwood | PS:W27A-F5W | Southwood: East South Wood Ln | \$ 27,167.03 |
| 12905 | 5/8/2012 | Replace Control Panel: Rock Bridge Greens | PS:E29A-R24 | Rockbridge Greens: 117 Rock Bridge Greens | \$ 26,199.87 |
| 13144 | 6/1/2012 | Replace Control Panel: Fairbanks | PS:E13A-G19 | Fairbanks: 545 Oak Ridge Turnpike | \$ 21,576.18 |
| 13145 | 6/1/2012 | Replace Control Panel: Emory Heights | PS:E13A-G20-1 | Emory Heights: Culver Rd | \$ 23,560.85 |
| 13146 | 6/1/2012 | Replace Control Panel: Home Depot | PS:E7-G17 | Home Depot: 175d Laboratory Rd | \$ 25,091.62 |
| TOTAL COST THROUGH 6/30/2012 | | | | | \$220,595.59 |



3. Operations

- **Fats, Oils, and Grease**

- Quick Stats:
 - * 99 establishments in the program.
 - * Two (2) establishments currently non-compliant – pending further action.
 - * Five (5) establishments installed new tanks as a result of this program in the last four (4) months.
 - * One (1) establishment obtained tank certification.
- City of Oak Ridge Program Coordination updates:
 - * As of June 2012, Denny Boss will no longer manage the City's FOG Program. Matthew Widner of the Community Development Department assumed management of this program. His contact information is:
 - Office: (865) 425-3584
 - Cell: (865) 824-8693
 - Email: mwidner@oakridgetn.gov
 - * Planned informational visits, mail-outs, and media release for July and August of this year.
 - * Updates to MMS, LLC website and City page to be completed in July.
 - * Tank pumping logs are being received for the month of June.
 - * Linking new building permits to the FOG program for food service establishments (FSE) as certificate of occupancy requirement.
 - * Additional staff training, as required.



- **Collection**

- **Sewer Mains**

City crews have cleaned a total of 43,918 feet of sewer line. Of the sewer main cleaned, 31,165 feet is considered grease lines that are down stream of Food Service Establishments. The lines were cleaned in conjunction with the FOG program.

- **Emory Valley Sewer Shed**

Work continues in the Emory Valley Sewer Shed. Sewer contractors are working on the South side of Emory Valley Road while City crews were performing post-construction smoke testing on the North side of Emory Valley Road.

- **Smoke Testing**

City crews have smoke tested in the Emory Valley Sewer Shed mini systems E20, E21, E24 and E5B for a total of 41,399 feet. Smoke testing was postponed in the Emory Valley Sewer shed until the sewer contractors had completed repairs on the North side of Emory Valley Road. City crews are smoke testing at the same time contractors are working on the South side of Emory Valley Road. Smoke crews will move to the South side as contractors finish rehab work.

- **Sewer Easements**

City crews have cleared off 24,135 feet of sewer easement in the Emory Valley area to make way for upcoming smoke testing, manhole inspections, and CCTV.

- **Cleaning and CCTV**

City crews will begin cleaning and closed-circuit television inspecting sewer mains in the Emory Valley Sewer Shed. As for now, the main focus is smoke testing the Emory Valley Sewer Shed during the dry season.



- **Manhole Inspections**
City crews have inspected and marked the locations of fifty (50) manholes for street resurfacing. The manholes will be replaced with a new frame and cover.
- **Rain Gauges**
City personnel continue to read and record rainfall data from rain gauges located at three (3) locations in the city representing the East, West, and the center of town. The city also utilizes the NOAA Weather Service for rain fall totals and for rain events.
- **Ground Water Monitoring**
City personnel continue to check sixteen (16) manhole locations that are set up for monitoring the level of ground water. These locations were checked a total of four (4) times this quarter.
- **Flow Metering**
City personnel continue to monitor the flow of the sewer during rain and dry weather. There are currently sixteen (16) meters located strategically throughout the City's sewer system. These flow meters are checked and downloaded on a weekly schedule.
- **Rain Events**
For this quarter, the City of Oak Ridge has had a total of twenty-seven (27) rain events and no SSO's.
- **Rainfall data**
Monthly rainfall amounts for Oak Ridge from the NOAA Weather Service for this quarter were as follows:
April: 3.10"
May: 2.84"
June: 1.06"
- **SSO's**
No sanitary sewer overflows were reported this quarter.



SECTION III:

**OTHER GENERAL
COMMENTS**



SECTION III

OTHER GENERAL COMMENTS

The City has been extremely active over the first seven quarters of the Administrative Order. To date, all requirements have been met both for content and timeliness.

The City and EPA have had discussions concerning the National Nuclear Security Administration's (NNSA) Y-12 facility. The City recognizes they own their collection system and hold its permit. However, the Y-12 facility (an independent customer) operates at a level higher than city or state government. That facility, from a practical perspective, is not the same as any other industrial customer. This situation is one where the City and EPA should collaborate to affect a timely solution to the matter.

The Y-12 quarterly report is attached as Appendix A.



SECTION IV:

**SSO'S DURING SEVENTH
QUARTER**



SECTION IV

SSO'S DURING SEVENTH QUARTER

During the seventh quarter, there were no storm events which resulted in overflows. There were no overflows due to blockage in the sewers.



APPENDIX A:

Y-12 Quarterly Report



**Status of Y-12 National Security Complex
Sanitary Sewer Inflow and Infiltration Program
June 30, 2012**

The Y-12 Complex resumed smoke testing of the sanitary sewer system during the second quarter of calendar year 2012. Following is a summary of issues identified during recent smoke tests and actions planned for the third quarter of the year.

- A large opening (6-inch) was discovered in a 15-inch pipe in the eastern portion of the Y-12 Complex. This opening was in a low lying area and there was evidence of significant storm water inflow around the opening. The pipe was repaired the same day.
- An inflatable plug in the abandoned 15-inch sewer line that runs beneath and parallels Bear Creek Road was replaced with a mechanical plug and concrete.
- A lateral from the slab of a demolished building was not properly plugged. This will be corrected during the third quarter 2012.
- One missing clean-out cap was replaced.
- Via visual observation of two in-line manholes, it appears a small amount of groundwater was entering the pipe. A video surveillance is planned for the third quarter 2012 to better identify the location and severity of infiltration.
- Two leaks from an old building slab were observed. This will require an excavation to identify and repair.
- Two, open 4-inch pipes were identified on an old building slab. This was considered a significant source due to the slab having a 4-inch curb around the perimeter and the only outlet for storm water was into the open pipes. One additional opening was discovered on a different building slab. Both situations were corrected on the day of discovery.
- Smoke was observed in a grassy area that will require a video inspection and probable excavation to identify and correct the source. This smoke test was conducted on June 19, 2012, and witnessed by inspectors from the U.S. Environmental Protection Agency during their multi-media inspection of the Y-12 Complex. Photographs were taken and provided to the inspectors.
- A test revealed the presence of smoke in a building down spout and nearby storm water catch basin. This has the potential to be a significant source of storm water inflow into the sanitary sewer system and appears to be a cross-connection. A video inspection is currently scheduled for the third week of July, depending on weather.
- Smoke tests of 18 additional manholes were conducted during the second quarter with no identified issues.

- The two warehouses originally scheduled for demolition in May 2012 are still standing. Demolition of these buildings is being reconsidered; a final decision is pending. Should the buildings be demolished, a lift station pump will be removed and flowable fill poured into the manhole. As a result, approximately 100 feet of cast iron pipe will be removed from the system.
- No useful data was gathered from the flow meters deployed throughout the Y-12 Complex due to the lack of significant rain during the second quarter.
- Smoke testing will continue into the third quarter and beyond. Issues which are easily repairable will be resolved in an expedient manner. Larger issues which require video surveillance or excavations will be prioritized and addressed as soon as possible.