Winston-Salem Forsyth County Utility Commission
Wastewater Collection and Treatment System
Performance Report for FY 2009-2010

This report is published in accordance with the requirements of the North Carolina Clean Water Act of 1999 and provides information on the Publicly Operated Treatment Works (POTW) and Collection System operated by the Winston-Salem/Forsyth County Utility Commission. It covers the period from July 1, 2009 through June 30, 2010. This report is published and released to our customers annually.

The Winston-Salem/Forsyth County Utility Commission operates two wastewater treatment plants (WWTPs) with a combined treatment capacity of 51 million gallons per day. During the period covered by this report a total of 12.292 billion gallons of wastewater was treated at these facilities. The collection and treatment system includes approximately 1,689 miles of sewer lines and 50 operational pumping stations and four chemical odor control stations. The Utility Commission and its staff work hard to meet or exceed the requirements mandated by the North Carolina Clean Water Act and the requirements of the National Pollutant Discharge Elimination System (NPDES) permits that regulate the actual operation of the treatment plants and the disposal of our biosolids.

The Archie Elledge WWTP operates under NPDES Permit NC0037834 and the Muddy Creek WWTP operates under NPDES permit NC0050342. The treatment and disposal of residual biosolids produced by the plants is accomplished by anaerobic digestion followed by a combination of land application onto farm land or burial in a lined landfill. The land application of biosolids is regulated by the North Carolina Division of Water Quality under Permit WS0000094. The Thermal Biosolids Dryer operates under DRS permit WQ0029804 and produced 5,722 dry tons of pelletized biosolids.

The Commission's Archie Elledge WWTP reported two mercury violations of its NPDES Permit during the reporting period. The source of the mercury is currently being investigated by staff to determine its origin. The Muddy Creek WWTP reported zero NPDES violations during the reporting period. Also, there were no violations of the Biosolids Disposal Permit.

Despite the violations at the Archie Elledge WWTP, the City/County Utility Commission's two wastewater treatment plants met the minimum requirements imposed by the State of North Carolina's Division of Water Quality by a **safety factor of 3.05.** The bar chart in Appendix B shows the performance of the wastewater treatment plants during this period. Approximately 26,008 tons of regulated pollutants were removed by the treatment processes during the period ending June 30, 2010.

The Commission's goal is to have zero sanitary sewer overflows (SSO) from the sewer collection system. However, during the fiscal year, 0.015% of the wastewater collected was spilled/overflowed from the sanitary sewer system. There was a 10% decrease in the total number of SSOs during FY 2009-10 as compared to those reported in FY 2008-09 (106 vs. 117). Appendix A and D of this report lists a detailed summary of collection system and plant overflows reported in FY 2009-10.

Since the passage of the North Carolina Clean Water Act in 1999 the total annual SSOs has been tracked against the baseline year of FY 1998-99. The FY 2009-10 total volume of SSOs represents a 45.3% decrease from the total reported for the baseline year. Diligence by maintenance personnel toward preventative maintenance continued to be a major factor contributing to SSOs remaining at a lower level than that of the baseline year.

The majority of SSO occurrences were caused by grease blockages in FY 2009-10. Just under half, or 49.1%, of all line blockages were attributed to the accumulation of fats, oils, and grease in the collection system. There were 52 SSOs attributed to fats, oils, and grease during this fiscal year compared to 55 events in FY 08-09 and 55 events in FY 07-08. This reduction is indicative of the continued effectiveness of the Commission's Grease Interceptor Ordinance (in place since 2003) and public education efforts. In addition, the reduction of grease related events is attributable to maintenance personnel's proactive approach to cleaning the publicly maintained portion of sewer connections and keeping sewer main lines clean and free of grease as well as tree roots and debris, which are the other major contributors to line blockages. This year, the Commission has spent $190,500 on contracted mainline cleaning which provided for cleaning of approximately 236,860 linear feet of sewer lines. Also, an additional 798,632 linear feet of sewer mains were clean by in-house personnel. The mainline cleaning contract has been increased by 33% for next fiscal year in an attempt to continue to reduce SSOs related to debris and grease. In addition, a chemical root control contract is anticipated to treat approximately 100,000 linear feet of sewer main in the upcoming fiscal year; further reducing the risk of SSOs occurring in the system.

During FY 2009-10, the Commission continued its proactive efforts toward the reduction of SSOs by spending over $3.05 million on the rehabilitation of 14,906 feet of gravity sewer mains, 121 manholes, and 123 service laterals. The sewer mains rehabilitated primarily ranged in size from 6" to 18". The mains were rehabilitated by means of pipe bursting, cured in place lining of pipes, point repairs, or a combination of any of the three methods. The enhanced condition of these sewer mains and manholes provided by the rehabilitation projects not only contributed to the reduction of SSOs but, also aided in the reduction of infiltration and inflow by reducing and/or eliminating sewer system access points for storm water runoff and groundwater. Also, the Commission funded the closed circuit TV inspection of 23,500 feet of sewer mains. Staff and contractors also improved the access to collection system easements through the inspection and mowing/clearing of approximately 38 miles of easements.

Further, Commission staff continued to actively identify and plan for projects in an effort to reduce SSOs and infiltration and inflow into the sewer system. In addition to the benefits of reducing SSO volume and the reduction of water getting into the system, these projects have the added benefit of decreasing the amount of sewer to be treated thereby reducing overall operating costs.

As always, customer involvement will continue to be a factor in the reduction of SSOs. All customers can do their part in helping to keep the sewer system free of materials that cause blockages by not dumping debris and fats, oils, or grease into the system.

To report a sewer spill, please contact the **City of Winston-Salem 24–hour customer service line (Citylink) at (336) 727-8000.** For questions regarding the Commission's programs or additional information regarding this report, please contact Mr. David Saunders, Utilities Director at (336) 727-8418. Copies of this report may be obtained by calling Citylink at (336) 727-8000 and requesting a copy. This report is also available at all branches of the Forsyth County Public Library and it is posted on the City of Winston-Salem's website at *http://www.cityofws.org/utilities/documents.html*.

This document includes details about monitoring system discharges and overflows from our system, the preventative maintenance program the Commission has established to prevent potential problems and the degree to which we complied with State and Federal standards during the fiscal year ending June 30, 2010.

Certification of Accuracy:

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to all persons or concerns using the publicly owned wastewater collection and treatment facilities under the direction of the Winston-Salem/Forsyth County Utility Commission and that those persons or concerns have been notified as to the availability of this report.

_____ Date _____

Mr. David K. Saunders, P.E.
Utilities Director
Winston-Salem/Forsyth County Utility Commission

Appendix A: Wastewater Treatment Plant and Pump Station Overflow/Spill Information
Fiscal Year 2009-10

Month/Year	Flow Discharged From Treatment Plants, Gallons	Number of Overflow Events Reported	Volume of Overflows, gallons	Number of NPDES Permit Violations at Treatment Plants
July 2009	886,600,000	0	0	0
August 2009	909,850,000	0	0	0
Sept. 2009	883,500,000	0	0	0
October 2009	920.080,000	0	0	0
Nov. 2009	1,122,900,000	0	0	0
Dec. 2009	1,188,230,000	0	0	0
January 2010	1,128,710,000	1	3,750	1
February 2010	1,122,520,000	0	0	1
March 2010	1,136,150,000	0	0	0
April 2010	1,024,200,000	0	0	0
May 2010	994,790,000	0	0	0
June 2010	973,800,000	1	111,154	0
ANNUAL TOTAL	**12,291,330,000**	**2**	**114,904**	**2**

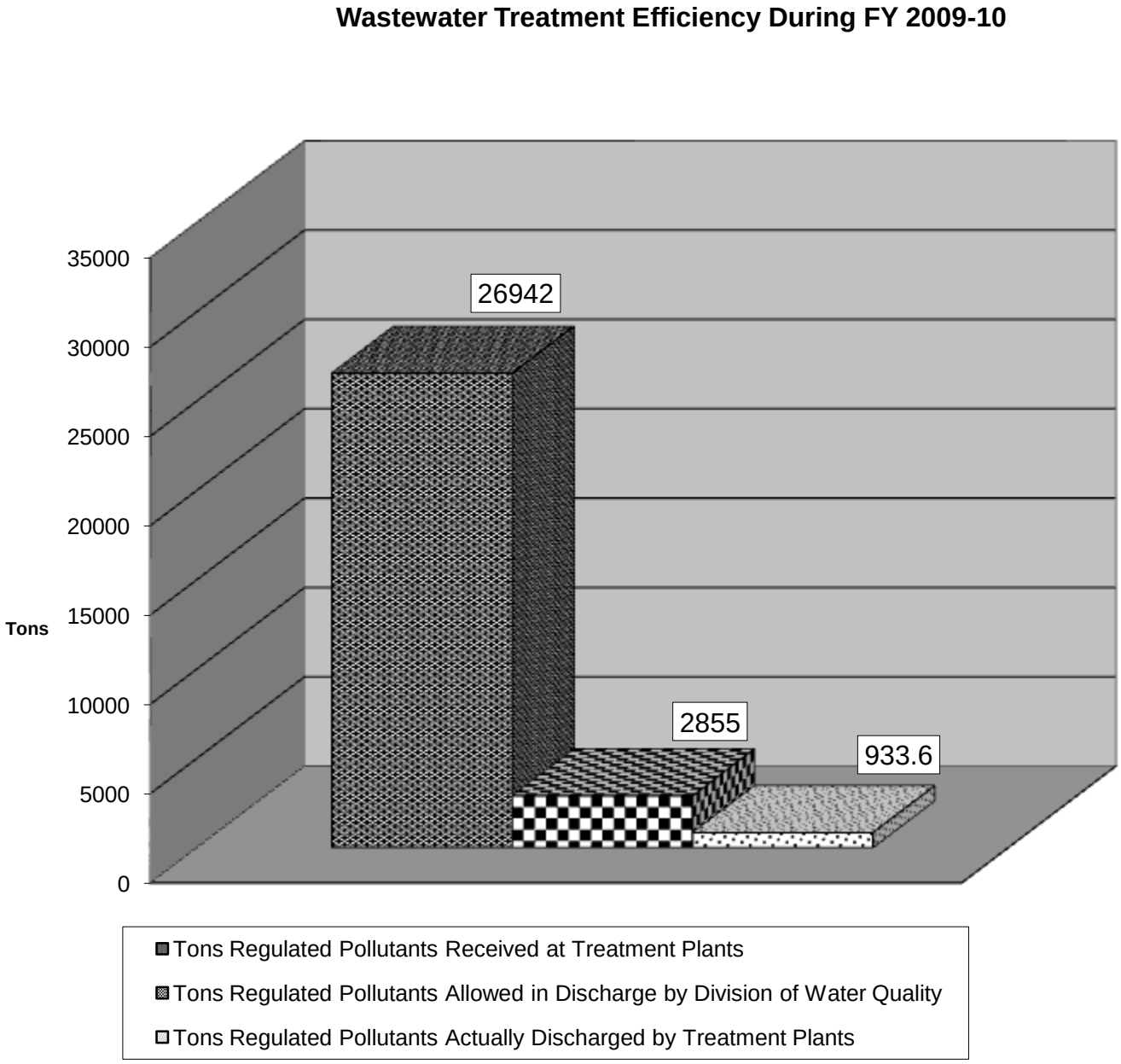
Notes:

Jan & Feb 2010 – Elledge Plant had NPDES Permit violations on Mercury. Staff is investigating for source of Mercury being discharged to the collection system.

1/25/2010 – During a flood event, debris clogged screening equipment at the head of the plant which resulted in a 3,750 overflow of wastewater to a storm drain.

6/3/2010 – A short and intense storm produced four inches of rainfall over a two hour period which overloaded screening equipment with debris and caused them to fail. This resulted in a 111,154 gallon overflow of wastewater to a storm drain.

Appendix B


Wastewater Treatment Efficiency During FY 2009-10
Tons
35000
30000
25000
20000
15000
10000
5000
0
26942
2855
933.6
Tons Regulated Pollutants Received at Treatment Plants
Tons Regulated Pollutants Allowed in Discharge by Division of Water Quality
Tons Regulated Pollutants Actually Discharged by Treatment Plants

Appendix C: Fiscal Year 2009-2010 Performance Summary of Sewer Collection System

Month/Year	Total No. of SSO's	Reporting Violations	SSO w/> 1000 gal. in Surface waters*	SSO w/> 15,000 gal. in Surface waters	Total SSO Volume (gal)	Total Sewer Collected** (gal.)	SSO Percentage of Total
July-09	6		1	0	7,347	886,600,000	0.0008%
August-09	5		2	0	10,472	909,850,000	0.0012%
September-09	2		0	0	150	883,500,000	0.0000%
October-09	7		3	0	5,620	920,080,000	0.0006%
November-09	12		3	2	170,629	1,122,900,000	0.0152%
December-09	7		0	0	4,330	1,188,230,000	0.0004%
January-10	16		0	0	7,891	1,128,710,000	0.0007%
February-10	13		3	1	1,612,027	1,122,520,000	0.1436%
March-10	11		0	0	2,800	1,136,150,000	0.0002%
April-10	9		2	0	8,134	1,024,200,000	0.0008%
May-10	9		1	0	3,260	994,790,000	0.0003%
June-10	9		1	0	7,474	973,800,000	0.0008%
2009-2010 Annual TOTAL	**106**	**0**	**16**	**3**	**1,840,134**	**12,291,330,000**	**0.0150%**
2008-2009 Annual TOTAL	117	0	20	0	85,433	11,607,400,000	0.0007%
2007-2008 Annual TOTAL	129	0	31	1	142,412	11,473,040,000	0.0012%
2006-2007 Annual TOTAL	161	0	40	8	571,946	12,475,820,000	0.0046%
2005-2006 Annual TOTAL	159	0	46	3	317,585	12,182,250,000	0.0026%
2004-2005 Annual TOTAL	211	0	49	3	246,290	12,621,450,000	0.0020%
2003-2004 Annual TOTAL	241	0	69	2	322,050	12,822,200,000	0.0025%
2002-2003 Annual TOTAL	269	0	116	16	2,305,175	13,408,980,000	0.0172%
2001-2002 Annual TOTAL	228	0	70	1	338,806	11,467,900,000	0.0030%
2000-2001 Annual TOTAL	193	0	84	4	533,108	11,930,700,000	0.0045%
1999-2000 Annual TOTAL	189	3	119	9	1,154,350	12,289,000,000	0.0094%
1998-1999 Annual TOTAL	194	0	118	21	1,541,054	11,804,100,000	0.0131%

SSO Occurrences attributable to:	FY 2009-2010	Percentage	Quantity Total (gal)
Grease	52	49.1%	38,969
Roots	29	27.4%	19,019
Debris	4	3.8%	1,720
Inflow & Infiltration	3	2.8%	165,950
Vandalism	0	0.0%	0
Pipe Failure/Pump Station Equipment Failure	16	15.1%	1,613,976
Other	2	1.9%	500
TOTAL	**106**	100.0%	**1,840,134**

*See Appendix D (attached) for a complete listing of locations, SSO (Sanitary Sewer Overflow) Totals and SSO "Volume in Surface Water" for all spills during this fiscal year.

**This is the total volume of treated waste discharged from the plant but is assumed to be equal to what is collected.

APPENDIX D: Collection System Sanitary Sewer Overflows

Month/Year	Probable Cause of SSO	Total SSO Volume (gal.)	SSO Volume in Surface waters	Location of SSO
JULY 2009				
7/1/2009	ROOTS	400	200	504 BRANCH STREET
7/7/2009	GREASE	410	10	1524 N. CLEVELAND AVE
7/9/2009	ROOTS	800	400	822 BIRCH LANE
7/14/2009	ROOTS	317	317	143 BENT TWIG CIRCLE
7/15/2009	GREASE	3,750	1,875	1930 FRANCISCAN DRIVE
7/27/2009	ROOTS	1,670	167	5532 MORAVIAN HEIGHTS LANE
Total for July	6	7,347	2,969	
AUGUST 2009				
8/3/2009	GREASE	7,500	3,750	1001 SALEM LAKE ROAD
8/3/2009	GREASE	187	187	500 W. 8TH STREET
8/13/2009	GREASE	2,000	1,500	2450 REYNOLDS PARK ROAD
8/14/2009	GREASE	635	635	2450 REYNOLDS PARK ROAD
8/25/2009	GREASE	150	75	5300 Countryside Court
Total for August	5	10,472	6,147	
SEPTEMBER 2009				
9/2/2009	ROOTS	100	100	444 Lynn Ave
9/28/2009	GREASE	50	50	2943 DAHLIA DRIVE
Total for September	2	150	150	
OCTOBER 2009				
10/2/2009	GREASE	100	100	4804 COUNTRY CLUB ROAD
10/8/2009	DEBRIS	1,100	1,100	3000-BLOCKOF LUTHER STREET
10/9/2009	GREASE	100	100	ATTUCKS AVE NEAR BOWEN BLVD
10/13/2009	GREASE	200	200	1460 TRADE MART BLVD
10/21/2009	PIPE FAILURE	2,600	2,600	1205 CLEVELAND AVE
10/29/2009	GREASE	250	250	1620 LOCUST AVENUE
10/30/2009	GREASE	1270	1,270	104 CLEVELAND AVENUE
Total for October	7	5,620	5,620	
NOVEMBER 2009				
11/6/2009	PIPE FAILURE	36	36	1030 FIFTH STREET
11/9/2009	GREASE	1,600	1,600	2450 REYNOLDS PARK ROAD
11/10/2009	ROOTS	63	63	TWENTY EIGHT STREET
11/10/2009	GREASE	200	100	715 CORJON ROAD
11/11/2009	I&I	42,000	42,000	5656 SHATTALON DRIVE
11/12/2009	I&I	123,750	123,750	1300 SOUTH MAIN STREET
11/13/2009	ROOTS	1,005	503	1225 WASHINGTON PARK LN
11/14/2009	PIPE FAILURE	25	25	512 SALT STREET
11/20/2009	GREASE	500	500	800 SALEM CREST CIRCLE
11/23/2009	GREASE	500	500	1630 LOCTUS AVENUE
11/24/2009	GREASE	800	400	536 MISSION ROAD
11/30/2009	PIPE FAILURE	150	150	0 KENVILLE GREEN CIRCLE
Total for November	12	170,629	169,627	

Month/Year	Probable Cause of SSO	Total SSO Volume (gal.)	SSO Volume in Surface waters	Location of SSO
December 2009				
12/3/2009	GREASE	975	975	5171 WINSTER DRIVE
12/4/2009	GREASE	100	25	183 OVERDALE ROAD
12/5/2009	GREASE	835	835	2110 BLUE STONE LN
12/9/2009	DEBRIS	400	400	3700 PATTERSON AVENUE
12/10/2009	ROOTS	1,600	160	338 BARNES ROAD
12/11/2009	DEBRIS	20	10	2427 NEWARK STREET
12/11/2009	GREASE	400	400	3052 CAMERON VILLAGE CT
Total for December	7	4,330	2,805	
JANUARY 2010				
1/4/2010	ROOTS	300	300	2515 ALDERNEY LN
1/4/2010	DEBRIS	200	200	0 WHISPERING BROOK RD
1/16/2010	PIPE FAILURE	500	500	1425 E. SEVENTEETH ST
1/16/2010	GREASE	663	663	1110 CREEKSHIRE WAY
1/21/2010	GREASE	1,200	600	2770 DUDLEY ST
1/22/2010	ROOTS	600	600	3300 INDIANA AV
1/24/2010	GREASE	335	335	810 AUSTIN LN
1/25/2010	GREASE	1,000	1,000	727 BROOKLINE ST
1/25/2010	GREASE	400	400	1004 EAST DEVONSHIRE ST
1/25/2010	ROOTS	100	100	730 BRANDONMERE LN
1/25/2010	GREASE	100	100	1896 NORTHWIND DR
1/25/2010	GREASE	800	800	4708 TOLLEY CREEK DR
1/25/2001	GREASE	800	800	3654 YALE AV
1/25/2010	ROOTS	400	400	1149 HAWTHORNE RD
1/27/2010	GREASE	75	25	3864 CRUSADE DR
1/27/2010	GREASE	418	418	2701 GILMER AVE
Total for January	16	7,891	7,241	
FEBRUARY 2010				
2/3/2010	ROOTS	1,670	835	410 GOSSETT ST
2/5/2010	PIPE FAILURE	9,800	9,800	200 JUNIA AVE
2/5/2010	ROOTS	1,000	1,000	4200 JASMINE CT
2/5/2010	GREASE	400	400	1124 COOK ST
2/5/2010	GREASE	600	600	319 HALED ST
2/8/2010	GREASE	1,670	21	361 WEST WALL ST
2/12/2010	PIPE FAILURE	335	84	1151 SOUTH HAWTHORNE RD
2/14/2010	PIPE FAILURE	1,582,875	1,582,875	TANGLEWOOD PS
2/15/2010	PIPE FAILURE	335	17	1149 S HAWTHORNE RD
2/17/2010	GREASE	92	92	110 BLOCK OF 29TH ST
2/19/2010	PIPE FAILURE	11,000	11,000	3376 MIDDLEBROOK DR
2/21/2010	ROOTS	2,000	260	833 BRENT ST
2/24/2010	GREASE	250	250	2051 BOWEN BV
Total for February	13	1,612,027	1,607,234	

Month/Year	Probable Cause of SSO	Total SSO Volume (gal.)	SSO Volume in Surface waters	Location of SSO
MARCH 2010				
3/4/2010	GREASE	400	200	1001 REYNOLDA RD
3/4/2010	ROOTS	400	400	5335 COUNTRY CLUB RD
3/9/2010	ROOTS	250	250	512 SALT ST
3/9/2010	ROOTS	200	200	600 MAIN ST
3/13/2010	GREASE	200	200	115 SUMMIT ST
3/15/2010	GREASE	200	200	2900 IVY AVE
3/17/2010	GREASE	250	250	296 AUTUMN VIEW LN
3/29/2010	GREASE	200	200	2825 NEW WALKERTOWN RD
3/29/2010	I&I	200	200	JUNIA AVE
3/31/2010	GREASE	400	400	140 WEATHERWEOOD CT
3/31/2010	GREASE	100	100	149 NEW WALKERTOWN RD
Total for March	11	2,800	2,600	
APRIL 2010				
4/2/2010	ROOTS	1,800	900	3712 ROCK CREST DRIVE
4/12/2010	OTHER	100	100	3255 ROBINHOOD RD
4/13/2010	ROOTS	417	42	2500 BLOCK OF WOODBERRY DR
4/13/2010	PIPE FAILURE	2,200	2,200	811 S. MAIN STREET KERNSVILLE RD
4/16/2010	PIPE FAILURE	200	200	901 HUTTON ST
4/18/2010	GREASE	417	417	3700 PATTERSON AVE
4/19/2010	PIPE FAILURE	2,000	2,000	2100 SUNNYSIDE AVE
4/22/2010	ROOTS	800	800	2009 CEDAR POST RD
4/22/2010	ROOTS	200	200	3140 BURKESHORE RD
Total for April	9	8,134	6,859	
MAY 2010				
5/2/2010	ROOTS	10	10	450 GREEN MEADE RD
5/10/2010	PIPE FAILURE	300	300	2405 MARKWOOD AVE
5/12/2010	GREASE	10	5	1732 HARRISON AVE
5/11/2010	PIPE FAILURE	1,600	1,500	0 BLOCK OF 26TH ST
5/13/2010	GREASE	400	400	3774 HARTFORD ST
5/13/2010	GREASE	20	20	1952 LAKE DR
5/20/2010	ROOTS	400	400	2138 24TH ST
5/26/2010	ROOTS	400	400	4164 GREEN MEAD RD
5/31/2010	ROOTS	120	120	4021 TANGLE LANE
Total for May	9	3,260	3,155	
JUNE 2010				
6/2/2010	ROOTS	340	340	BUTTERFIELD DR
6/3/2010	OTHER	400	400	1530 SPRAGUE ST
6/4/2010	ROOTS	1,607	0	131 CARTER CIRCLE
6/8/2010	ROOTS	50	5	233 GREEN ST
6/9/2010	GREASE	1,670	417	2200 CLOVERDALE AVE
6/17/2010	GREASE	400	400	3745 STONEY GLENN DR
6/21/2010	PIPE FAILURE	20	20	2980 GREENWICH RD
6/23/2010	GREASE	2,087	2,087	3850 REIDSVILLE RD
6/24/2010	GREASE	900	900	400 FREEDOM
Total for June	9	7,474	4,569	
FY 2009-2010 Total	106	1,840,134	1,818,976	