

Winston-Salem Forsyth County Utility Commission Wastewater Collection and Treatment System Performance Report for FY 2010-2011

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, 2010 through June 30, 2011. 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 11.327 billion gallons of wastewater was treated at these facilities. The collection and treatment system includes approximately 1,701 miles of sewer lines, 49 operational pumping stations, and three 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 Thermal Biosolids Drying or burial in a lined landfill. The North Carolina Division of Water Quality under Permit WS0000094 regulates the handling of biosolids. The Thermal Biosolids Dryer operates under DRS permit WQ0029804 and produced 5,431 dry tons of pelletized biosolids.

The Commission's Archie Elledge WWTP, Muddy Creek WWTP, and the Thermal Biosolids Dryer facility reported no violations of their Permits during the reporting period. 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 3.79**. The bar chart in Appendix B shows the performance of the wastewater treatment plants during this period. Approximately 22,075.3 tons of regulated pollutants were removed by the treatment processes during the period ending June 30, 2011.

The Commission's goal is to have zero sanitary sewer overflows (SSO) from the sewer collection system. However, during the last fiscal year, 0.0008% of the wastewater collected was spilled/overflowed from the sanitary sewer system. While the total number of SSOs for last year remained consistent with those of FY 2009-2010 there was a 95% decrease in the total volume of those SSOs during FY 2010-2011 as compared to those reported in FY 2009-2010. Appendix A and D of this report lists a detailed summary of collection system and plant overflows reported in FY 2010-2011.

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 2010-2011 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 2010-2011. Of all line blockages, 45% were attributed to the accumulation of fats, oils, and grease in the collection system. There were 49 SSOs attributed to fats, oils, and grease during this fiscal year compared to 52 events in FY 2009-2010 and 55 events in FY 2008-2009. 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, \$190,500 was spent on contracted mainline cleaning which provided for cleaning of approximately 236,860 linear feet of sewer lines. In addition, 666,409 linear feet of sewer mains were clean by in-house personnel. The mainline cleaning contract will remain the same 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 125,000 linear feet of sewer main in the upcoming fiscal year; further reducing the risk of SSOs occurring in the system.

During FY 2010-2011, the Commission continued its proactive efforts toward the reduction of SSOs by spending over \$1.80 million on the rehabilitation of 19,110 feet of gravity sewer mains, 60 manholes, and 175 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, replacements, or a combination of any of these 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. In addition, the Commission funded the closed circuit TV inspection of 85,457 feet of sewer mains. Staff and contractors also improved the access to collection system easements through the inspection and mowing/clearing of approximately 45 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, 2011.

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 2010-11**

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 2010	952,010,000	0	0	0
August 2010	991,070,000	0	0	0
Sept. 2010	906,000,000	0	0	0
October 2010	1,010,290,000	0	0	0
Nov. 2010	927,000,000	0	0	0
Dec. 2010	944,880,000	0	0	0
January 2011	941,160,000	1	120	0
February 2011	854,840,000	2	1,800	0
March 2011	1,031,680,000	0	0	0
April 2011	942,900,000	0	0	0
May 2011	954,180,000	1	220	0
June 2011	872,400,000	0	0	0
ANNUAL TOTAL	11,328,410,000	4	1,840	0

Notes:

Jan 14, 2011 - 120 gallons of centrate was lost to Salem Creek due to a contractor hitting an abandoned irrigation pipe.

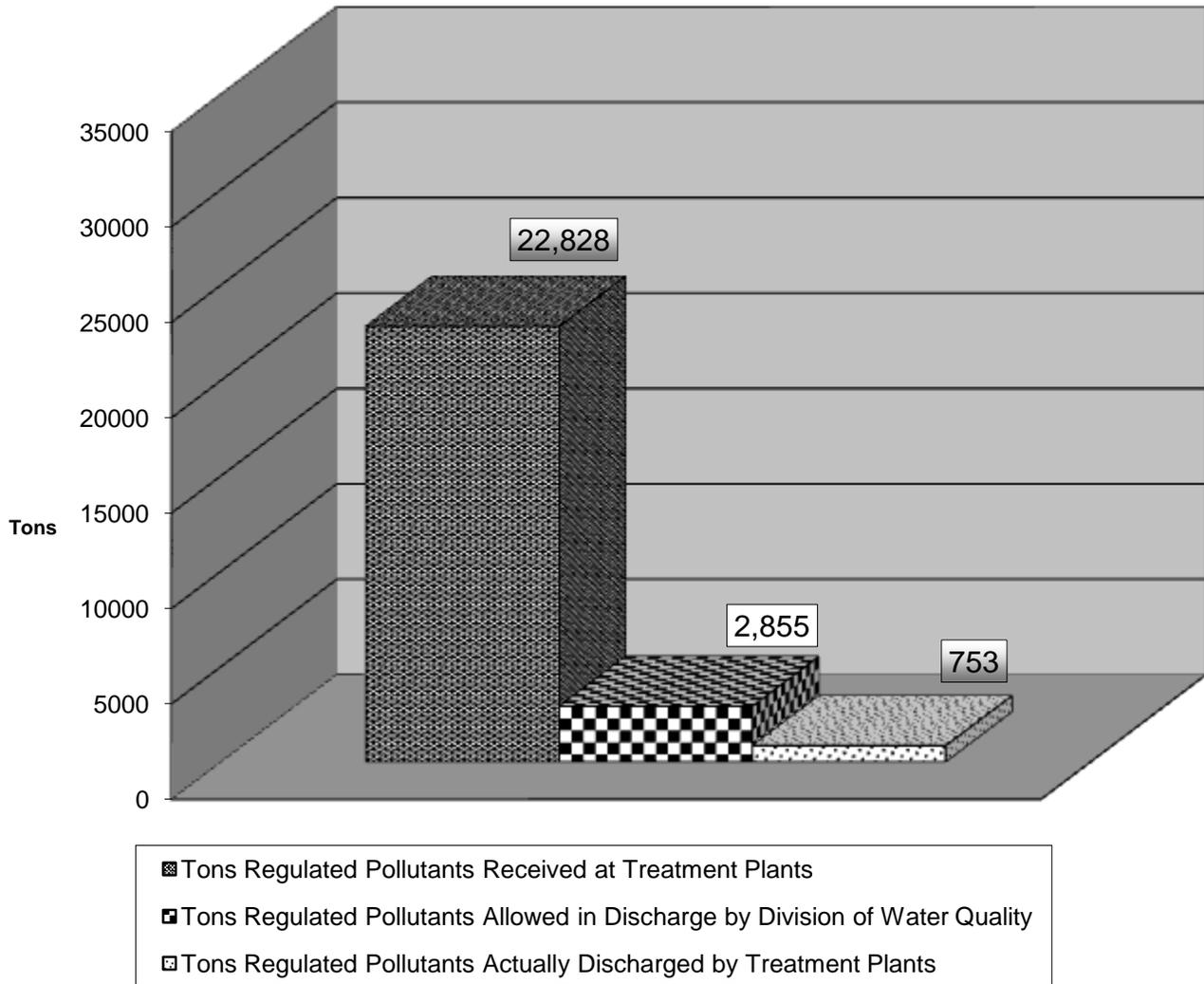
Feb 13, 2011 - 1500 gallons of non-potable (treated, but not disinfected) water reached Salem Creek due to a ruptured carrier pipe.

Feb 26, 2011 – Decant flume from lagoons had a flow restriction in the line and overflowed 300 gal of centrate on the ground. The spill did not go into any drain, stream, or body of water.

May 12, 2011 – 220 gallons of 38% sodium bisulfite was lost due to a broken line, but did not go into any stream, drain, or body of water.

Appendix B

Wastewater Treatment Efficiency During FY 2010-11



Appendix C: Fiscal Year 2010-2011 Performance Summary of Sewer Collection System

Month/Year	Total No. of SSO's	Reporting Violations	SSO w/> 1000 gallons in Surface waters*	SSO w/> 15,000 gallons in Surface waters	Total SSO Volume (gallon)	Total Sewer Collected** (gallon)	SSO Percentage of Total
July-10	7	0	1	0	11,159	952,010,000	0.0012%
August-10	7	0	0	0	2,382	991,070,000	0.0002%
September-10	5	0	1	0	3,844	906,000,000	0.0004%
October-10	8	0	1	0	2,760	1,010,290,000	0.0003%
November-10	13	0	1	0	19,065	927,000,000	0.0021%
December-10	8	0	2	0	6,851	944,880,000	0.0007%
January-11	15	0	3	0	18,853	941,160,000	0.0020%
February-11	8	0	1	0	5,915	854,840,000	0.0007%
March-11	17	0	2	0	6,610	1,031,680,000	0.0006%
April-11	6	0	0	0	4,720	942,900,000	0.0005%
May-11	5	0	0	0	1,352	954,180,000	0.0001%
June-11	10	0	3	0	11,831	872,400,000	0.0014%
2010-2011 Annual Total	109	0	15	0	95,342	11,328,410,000	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 2010 - 2011	Percentage	Quantity Total
Grease	49	45.0%	37,832
Roots	39	35.8%	27,550
Debris	9	8.3%	24,280
Inflow & Infiltration	0	0.0%	0
Vandalism	0	0.0%	0
Pipe Failure	7	6.4%	4,555
Pump Station Equipment Failure	0	0.0%	0
Severe Natural Conditions	0	0.0%	0
Other	5	4.6%	1,125
TOTAL	109	100.0%	95,342

*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 Overflow Summary

Month/Year	Probable Cause of SSO	Total SSO Volume (gallon)	SSO Volume in Surface waters	Location of SSO
JULY 2010				
7/5/2010	GREASE	800	800	905 NORTHWEST BOULEVARD
7/7/2010	DEBRIS	400	400	944 HINSHAW AVENUE
7/7/2010	PIPE FAILURE	5	5	0 McGregor ROAD
7/16/2010	DEBRIS	8,437	8,437	2560 WILLARD ROAD
7/15/2010	ROOTS	800	800	127 DAVIE STREET
7/18/2010	DEBRIS	417	417	1428 GLADE STREET
7/27/2010	Other	300	300	131 DUFFIELD CT
Total for July	7	11,159	11,159	
AUGUST 2010				
8/7/2010	GREASE	1,100	0	5312 EMBER LANE
8/7/2010	ROOTS	300	300	1469 RIDGEMERE LANE
8/16/2010	GREASE	200	200	2755 COLE RD
8/19/2010	ROOTS	120	120	2430 THURMOND ST
8/26/2010	ROOTS	100	100	326 SOUTH MARSHALL STREET
8/27/2010	PIPE FAILURE	500	500	1755 ANGUS BRIDGE STREET
8/31/2010	GREASE	62	62	529 MARSHALL STREET
Total for August	7	2,382	1,282	
SEPTEMBER 2010				
9/14/2010	GREASE	100	100	935 HANES MALL BLVD
9/19/2010	ROOTS	1,673	1,673	4360 MARANDA ROAD
9/20/2010	ROOTS	1	1	2140 22ND STREET
9/29/2010	GREASE	1,670	835	100 CRANBERRY HILL LANE
9/30/2010	GREASE	400	400	2323 KONNOAK VIEW HILL
Total for September	5	3,844	3,009	
OCTOBER 2010				
10/3/2010	ROOTS	15	15	3333 YORK ROAD
10/4/2010	ROOTS	400	200	155 SURTEES ROAD
10/5/2010	ROOTS	100	20	145 BILLY SUE DRIVE
10/7/2010	ROOTS	150	150	500 BLOCK OF VARGRAVE ST
10/15/2010	ROOTS	1,670	1,670	2244 NEW CASTLE DR
10/26/2010	ROOTS	100	100	2623 GREENBRIAR RD
10/26/2010	Other	125	0	2200 REYNOLDA RD
10/28/2010	ROOTS	200	200	1707 VILLAGE PL
Total for October	8	2,760	2,355	

Month/Year	Probable Cause of SSO	Total SSO Volume (gallon)	SSO Volume in Surface waters	Location of SSO
NOVEMBER 2010				
11/1/2010	DEBRIS	11,075	11,075	2201 S BROAD ST
11/2/2010	GREASE	800	80	549 ARBOR HILL RD
11/5/2010	ROOTS	100	100	1819 ANGELO ST
11/8/2010	GREASE	200	200	2300 BLOCK OF DANIEL ST
11/9/2010	GREASE	920	460	1912 ALTHEA STREET
11/13/2010	ROOTS	400	400	2412 ELIZABETH AV
11/13/2010	GREASE	700	700	140 STONEY BROOK BV
11/14/2010	GREASE	400	400	2499 BUCHANAN ST
11/16/2010	ROOTS	200	200	1028 BEACHER RD
11/18/2010	ROOTS	150	150	1120 JUNIA AVE
11/22/2010	GREASE	2,200	2,200	2900 LOWERY ST
11/29/2010	ROOTS	250	250	945 NORTHWEST BOULEVARD
Total for November	13	19,065	16,632	
DECEMBER 2010				
12/9/2010	GREASE	795	795	303 FOREST HILL AV
12/9/2010	DEBRIS	501	501	3609 GLENN AV
12/9/2010	ROOTS	30	30	5319 OAK RIDGE PL
12/10/2010	GREASE	50	50	515 BROOKLINE ST
12/17/2010	GREASE	500	250	4130 OAK RIDGE DR
12/22/2010	GREASE	2,340	2,340	103 LUZELLE DR
12/24/2010	GREASE	635	635	4870 THALES RD
12/28/2010	PIPE FAILURE	2000	2000	4981 HUNTCLIFF RD
Total for December	8	6,851	6,601	
JANUARY 2011				
1/1/2011	GREASE	1,670	1,670	5012 HUTCHINS STREET
1/4/2011	ROOTS	3,758	3,758	1001 SALEM LAKE ROAD
1/9/2011	GREASE	835	835	1020 EAST DEVONSHIRE STREET
1/9/2011	PIPE FAILURE	1,000	1,000	3700 RIEDSVILLE ROAD
1/11/2011	GREASE	417	417	380 W. BODENHIEMER, KERNERSVILLE
1/12/2011	ROOTS	1,000	950	706 W. MOUNTAIN STREET KERNERSVILLE
1/14/2011	GREASE	635	635	14TH STREET AND DAIRY STREET INTERSECTION
1/18/2011	GREASE	381	381	4244 TISE AVENUE
1/18/2011	ROOTS	4,000	4,000	475 ARBOR HILL ROAD, KERNERSVILLE
1/22/2011	ROOTS	200	200	1010 MAGNOLIA STREET
1/22/2011	ROOTS	400	400	1100 EDENWOOD DRIVE
1/24/2011	GREASE	400	400	902 HAZELWOOD DRIVE
1/24/2011	GREASE	3,757	375	1083 SUNSET DRIVE
1/24/2011	ROOTS	300	300	3469 TINSLEY PARK DRIBE
1/28/2011	PIPE FAILURE	100	100	225 STAFFORDSHIRE ROAD
Total for January	15	18,853	15,421	

Month/Year	Probable Cause of SSO	Total SSO Volume (gallon)	SSO Volume in Surface waters	Location of SSO
FEBRUARY 2011				
2/5/2011	ROOTS	635	635	2250 MARTIN STREET
2/8/2011	DEBRIS	100	100	888 NORTHWEST BOULEVARD
2/9/2011	GREASE	1,270	635	990 FOXHALL DRIVE
2/9/2011	DEBRIS	10	10	889 NORTHWEST BOULEVARD
2/11/2011	GREASE	50	25	200 BARLOW CIRCLE
2/18/2011	ROOTS	50	50	2931 EMERSON STREET
2/24/2011	GREASE	2,200	2,200	5003 WINSTER DR
2/28/2011	GREASE	1,600	320	3666 CASH DRIVE
Total for February	8	5,915	3,975	
MARCH 2011				
3/1/2011	GREASE	120	120	1704 ROCFORD STREET
3/2/2011	GREASE	600	300	5003 WINSTER DR
3/3/2011	Other	100	100	400 BLOCK OF YATES ROAD
3/4/2011	GREASE	100	100	3376 TINLEY PARK DRIVE
3/6/2011	ROOTS	1,670	1,670	3410 BUENA VISTA ROAD
3/8/2011	GREASE	162	162	2600 URBAN STREET
3/9/2011	ROOTS	100	100	842 DONNELL STREET KERNERSVILLE
3/10/2011	GREASE	200	200	920 BRENNER STREET
3/15/2011	ROOTS	63	63	124 SPRINGDALE AVE
3/15/2011	GREASE	1,670	1,670	334 WALLS STREET RURAL HALL
3/21/2011	GREASE	800	800	330 STEWART ROAD
3/22/2011	PIPE FAILURE	150	150	2521 STOCKTON STREET
3/23/2011	GREASE	100	100	1620 LOCUST STREET
3/24/2011	Other	100	100	214 N. HAWTHORNE ROAD
3/25/2011	GREASE	200	200	4217 ORCHID DRIVE
3/30/2011	ROOTS	75	75	1190 BURKE PARK LANE
3/30/2011	ROOTS	400	400	3819 HARTFORD STREET
Total for March	17	6,610	6,310	
APRIL 2011				
4/6/2011	GREASE	2,300	2,300	3799 HARTFORD STREET 17 EAST 12TH STREET(OFF HATTIE AVENUE)
4/11/2011	GREASE	200	10	
4/19/2011	GREASE	120	120	727 WEST MOUNTAIN ST
4/29/2011	Other	500	500	1000 CREST WOOD DRIVE
4/29/2011	ROOTS	800	800	2710 SAINT CLAIRE ROAD
4/30/2011	PIPE FAILURE	800	800	1221 STADLER RIDGE ROAD
Total for April	6	4,720	4,530	
MAY 2011				
5/6/2011	ROOTS	100	50	905 E THIRD ST
5/17/2011	GREASE	317	317	25th AND DUNLEITH
5/24/2011	ROOTS	200	100	3500 ROBINHOOD ROAD
5/24/2011	GREASE	100	100	800 CAMERON AVE
5/30/2011	GREASE	635	137	3665 NORTH PATTERSON AVE
Total for May	5	1,352	704	

Month/Year	Probable Cause of SSO	Total SSO Volume (gallon)	SSO Volume in Surface waters	Location of SSO
JUNE 2011				
6/13/2011	ROOTS	400	400	3809 CLINARD AV
6/14/2011	GREASE	1,840	1,840	1800 E TWENTY-FIFTH ST
6/15/2011	ROOTS	400	400	BUS. 40 @ SILAS CREEK PKWY
6/16/2011	GREASE	400	400	212 AUTUMN VIEW DR
6/16/2011	DEBRIS	1,670	1,670	1251 TERRY RD
6/17/2011	ROOTS	812	406	EAST END BLVD
6/23/2011	GREASE	100	100	1250 SOMERSET CROSSING LN
6/23/2011	GREASE	400	400	1850 LAKE POINTE DRIVE
6/25/2011	ROOTS	5,428	5,428	4182 MALBETH CT
6/30/2011	GREASE	381	381	3501 PLAZE RIDGE COURT
Total for June	10	11,831	11,425	
2011	109	95,342	83,403	