

Winston-Salem Forsyth County Utility Commission

Wastewater Collection and Treatment System

Performance Report for FY 2007-2008

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, 2007 through June 30, 2008. 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 11.47 billion gallons of wastewater was treated at these facilities. The collection and treatment system includes approximately 1,481 miles of sewer lines and 52 pumping 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 Commission's Archie Elledge WWTP reported one violation of its NPDES Permit during the reporting period. Specific information regarding this violation is provided in Appendix A. The Muddy Creek WWTP reported no NPDES violations during the past year and there were no violations of the Biosolids Disposal Permit.

Despite the violation 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 5.66**. The bar chart in Appendix B shows the performance of the wastewater treatment plants during this period. Approximately 23,026 tons of regulated pollutants were removed by the treatment processes during the period ending June 30, 2008.

The Commission's goal is to have zero sanitary sewer overflows (SSO) from the sewer collection system. However, during the fiscal year 0.0012% of the wastewater collected by the sanitary sewer system was spilled to surface waters. There was a 19% decrease in the total number of SSOs during FY 2007-08 (128 vs. 158) as compared to those reported in FY 2006-07. Appendix A and D of this report lists a detailed summary of collection system overflows reported in FY 2007-08.

Since the passage of the North Carolina Clean Water Act in 1999 the total volume of annual SSOs has been tracked against the baseline year of FY 1998-99. The FY 2007-08 total volume of SSOs represents a 90.8% decrease from the volume reported for the baseline year. Diligence by maintenance personnel toward preventative maintenance and their attentiveness to response time continued to be a major factor contributing to SSO volumes remaining at a significantly lower level than that of the baseline year.

The majority of SSO occurrences were caused by sewer line blockages in FY 2007-08. Just under half, or 42.6%, of all line blockages were attributed to the accumulation of fats, oils, and grease in the collection system. This percentage does however represent a reduction in the amount SSOs attributed to fats, oils, and grease, down to 55 events from the 79 reported last year. 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, we have also spent \$775,000 dollars on contracted mainline cleaning as well as chemical root treatment which allowed us to clean approximately 702,785 linear feet of sewer lines.

During FY 2007-08, the Commission continued its proactive efforts toward the reduction of SSOs by spending over \$6.4 million on the rehabilitation of 33,764 feet of gravity sewer mains, 216 manholes, and 638 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 cleaning and closed circuit TV inspection of 103,950 feet of sewer mains. Likewise, Commission staff hydraulically cleaned 389,957 linear feet of sewer lines throughout the year. Staff and contractors also improved the access to collection system easements through the inspection and mowing/clearing of approximately 95 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 the main branch of the Forsyth County Public Library and 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, 2008.

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 8/29/08

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

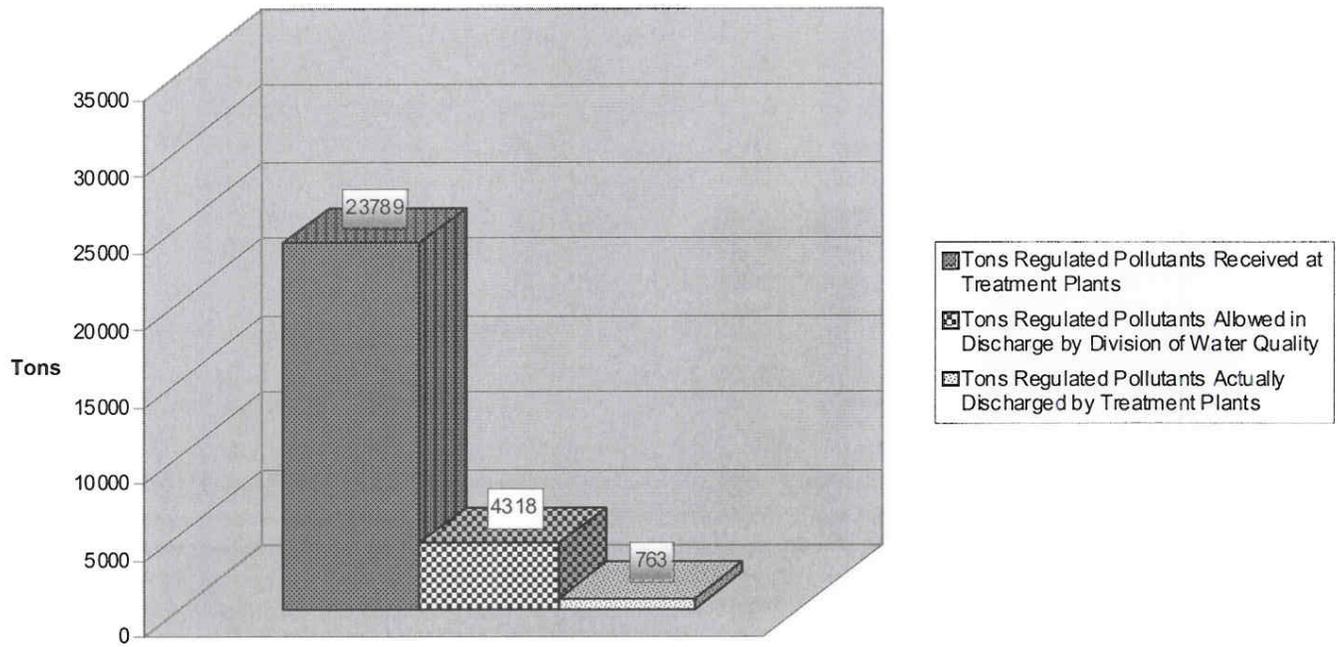
**Appendix A: Wastewater Treatment Plant and Pump Station Overflow/Spill Information
Fiscal Year 2007-08**

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 2007	959,210,000	0	0	1
August 2007	954,330,000	1	25,740	0
Sept. 2007	898,470,000	0	0	0
October 2007	983,760,000	2	950	0
Nov. 2007	886,910,000	0	0	0
Dec. 2007	946,610,000	0	0	0
January 2008	954,320,000	0	0	0
February 2008	942,720,000	0	0	0
March 2008	989,450,000	2	100	0
April 2008	1,056,720,000	0	0	0
May 2008	1,028,190,000	0	0	0
June 2008	872,350,000	0	0	0
ANNUAL TOTAL	11,473,040,000	5	26,790	1

Notes:

1. In July 2007 a violation of the NPDES permit at the Archie Elledge Wastewater Treatment Plant was received for failing a chronic toxicity test due to a slug of nickel that was found to have originated from the Salem Outfall. The Industrial Waste section performed investigations of all potential industrial sources of nickel. The source was never determined. Further monitoring of the influent and effluents did not result in any exceedance of the permit limit for nickel.
2. On **August 22, 2007** the City of Winston Salem spilled an estimated 25,740 gallons of untreated wastewater into a drainage ditch that is tributary to the Yadkin River. The spill came from the Tanglewood Pumping Station located at Steeple Chase Rd. in Clemmons. Upon completion of our investigation, it was determined that the station lost power during an evening thunderstorm which also caused the failure of the telephone telemetry system and resulted in the sanitary sewer overflow. There was no fish kill associated with the spill and all procedures defined in the Collection System permit were followed such as reporting and public notification.
3. Two overflow events occurred during **October 2007**. On October 7, 2007 an estimated 600 gallons of wastewater was spilled when a centrate line broke; on October 22, 2007 an estimated 350 gallons of hypochlorite was spilled when a hypochlorite line broke. Both of these events occurred at the Archie Elledge Wastewater Treatment Plant
4. Two overflow events occurred during **March 2008**. On March 24, 2008 an estimated 25 gallons of wastewater was spilled when a centrate line broke at the Muddy Creek Wastewater Treatment Plant; On March 26, 2008 an estimated 75 gallons of wastewater was spilled at the air relief valve for the Regional Biosolids Drying Facility pipeline.

Wastewater Treatment Efficiency During FY 2007-08



Appendix C: Fiscal Year 2007-2008 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-07	5		1	0	1,939	959,210,000	0.0002%
August-07	6		1	1	28,897	954,330,000	0.0030%
September-07	13		2	0	11,457	898,470,000	0.0013%
October-07	11		3	0	8,250	983,760,000	0.0008%
November-07	11		4	0	15,600	886,910,000	0.0018%
December-07	18		5	0	16,533	946,610,000	0.0017%
January-08	14		1	0	7,123	954,320,000	0.0007%
February-08	11		5	0	11,890	942,720,000	0.0013%
March-08	6		2	0	6,797	989,450,000	0.0007%
April-08	11		4	0	14,767	1,056,720,000	0.0014%
May-08	14		3	0	14,902	1,028,190,000	0.0014%
June-08	9		1	0	4,257	872,350,000	0.0005%
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%

*See Appendix D (attached) for a complete listing of location, SSO (Sanitary Sewer Overflow) Total, and SSO volume in Water for all spills during this fiscal year in which wastewater in excess of 1000 gallons reached the surface waters of the state.

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

SSO Occurrences attributable to:	For FY 2007-2008	Percentage	Quantity total
Grease	55	42.6%	53,852
Roots	22	17.1%	16,980
Debris	27	20.9%	17,341
Inflow & Infiltration	0	0.0%	0
Vandalism	3	2.3%	5,385
Pipe Failure	17	13.2%	18,707
Pump Station Eqpmnt. Failure	1	0.8%	25,740
Severe Natural Conditions	0	0.0%	0
Other	4	3.1%	4,407
TOTAL	129	100.0%	142,412

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-07				
7/3/2007	ROOTS	100	100	277 STOLTZ
7/13/2007	GREASE	1260	1260	5300 UNIVERSTIY PKWY
7/17/2007	GREASE	417	417	2218 CLOVERDALE AVE
7/19/2007	DEBRIS	100	25	2675 KNOB HILL RD
7/24/2007	DEBRIS	62	62	2700 LYNDHURST ST
Total for July	5	1939	1864	
August-07				
8/8/2007	DEBRIS	62	62	601 S. MARTIN LUTHER KING JR
8/13/2007	GREASE	400	400	130 OAK GROVE RD
8/17/2007	GREASE	625	625	1521 E. 25th St.
8/25/2007	DEBRIS	800	800	190 HANES MALL BLVD
8/22/2007	Pump Station Failure	25740	25,740	TANGLEWOOD PS-STEEPLE CHASE RD
8/31/2007	GREASE	1270	635	200 BRAHILL BLVD.
Total for August	6	28897	28262	
September-07				
9/3/2007	GREASE	3340	1840	624 PINEY GROVE RD
9/10/2007	GREASE	200	200	2755 PETERS CREEK PKWY
9/11/2007	GREASE	100	100	518 E. 27TH ST
9/15/2007	GREASE	450	225	4203 ORCHID PLACE
9/15/2007	DEBRIS	75	75	1005 S MAIN ST KVILLE
9/15/2007	GREASE	4900	2475	1604 CRANBERRY HILL LN
9/19/2007	GREASE	100	50	2039 SILAS CREEK PKWY
9/20/2007	GREASE	800	800	1500 MILLER ST
9/21/2007	DEBRIS	25	25	809 BARNEY AVE
9/24/2007	DEBRIS	400	400	489 VILLA DR
9/25/2007	GREASE	400	400	875 NORTHWEST BLVD
9/25/2007	ROOTS	317	317	711 COLISEUM PLAZA CT
9/28/2007	OTHER	350	350	2100 SUNNYSIDE AVE
Total for September	13	11457	7257	
October-07				
10/1/2007	GREASE	2250	2250	100 DIGGS BLVD
10/3/2007	ROOTS	50	50	940 MANLY ST
10/10/2007	GREASE	100	100	2701 RALEIGH AVE.
10/13/2007	GREASE	63	63	3000 NEW WALKERTOWN RD
10/18/2007	GREASE	1200	120	300 APPLE ST
10/19/2007	DEBRIS	1270	1270	5201 OLD OAK DR
10/20/2007	GREASE	100	100	3741 STONEY GLEN DR
10/23/2007	GREASE	317	317	138 N. CAMERON AVE
10/25/2007	DEBRIS	600	600	3600 REYNOLDA RD
10/27/2007	PIPE FAILURE	100	100	2200 GREENWAY AVE
10/29/2007	DEBRIS	2200	2200	104 EDGEDALE CT
Total for October	11	8250	7170	

November-07				
11/8/2007	GREASE	400	200	1804 PATTERSON AVE
11/8/2007	GREASE	7950	7950	2611 CLAREMONT AVE
11/8/2007	GREASE	1000	1000	100 NEW WALKERTOWN RD
11/8/2007	OTHER	317	317	1 SEASHELL CT
11/12/2007	DEBRIS	1670	1670	OLD GREENSBORO & 5TH ST
11/18/2007	ROOTS	100	100	001 AUTUMN VIEW DR
11/20/2007	ROOTS	63	63	1864 KENTUCKY AVE
11/21/2007	GREASE	800	800	3109 GREEN CEDAR CT
11/26/2007	GREASE	3175	3175	740 FERRELL CT
11/29/2007	GREASE	25	25	3435 ROBINHOOD RD
11/30/2007	DEBRIS	100	100	3109 GREENCEDAR CT
Total for November		11	15600	15400
December-07				
12/1/2007	PIPE FAILURE	800	800	1005 PHINEAS DR
12/3/2007	DEBRIS	100	100	305 GREGORY ST
12/4/2007	GREASE	800	800	1707 VILLAGE PL
12/4/2007	ROOTS	100	100	4444 MEREDITH DR
12/4/2007	ROOTS	400	400	2085 FRONTIS BLVD
12/9/2007	DEBRIS	250	250	115 SUMMIT ST RURAL HALL
12/10/2007	DEBRIS	800	800	1700 ROCKFORD ST
12/10/2007	ROOTS	300	300	2025 FRONTIS PLAZA BLVD
12/11/2007	GREASE	3900	3900	4255 MINERL AVE
12/13/2007	PIPE FAILURE	1000	1000	2100 SUNNYSIDE AVE
12/19/2007	PIPE FAILURE	10	10	2100 SUNNYSIDE AVE
12/19/2007	GREASE	3600	3600	570 KNOB VIEW DR
12/22/2007	ROOTS	200	200	2376 PARKWAY DR
12/26/2007	PIPE FAILURE	1300	1300	140 WEATHERWOOD
12/30/2007	ROOTS	205	205	1010 MAGNOLIA ST
12/31/2007	DEBRIS	400	400	585 UNIVERSITY PARKWAY
12/31/2007	PIPE FAILURE	1950	1950	1641 LINCOLN AVE
12/31/2007	GREASE	418	418	3420 HARTFORD ST
Total for December		18	16533	16533
January-08				
1/10/2008	PIPE FAILURE	400	400	237 STAFFORDSHIRE RD
1/16/2008	GREASE	670	335	400 JEFFERSON AVE
1/16/2008	PIPE FAILURE	300	300	1900 FIFTH ST
1/21/2008	ROOTS	200	20	4751 RANDALL ST
1/22/2008	GREASE	400	200	2450 MEADOW PARK LN
1/23/2008	GREASE	100	100	1151 MLK JR. DRIVE
1/25/2008	ROOTS	2600	1300	4500 OGBURN AVE
1/26/2008	ROOTS	200	20	3735 WYANDOTTE AVE
1/27/2008	GREASE	250	12	5780 HARPER FERRY RD
1/27/2008	OTHER	400	10	2444 S. STRATFORD RD
1/29/2008	DEBRIS	168	168	700 CAMERON AVE
1/29/2008	GREASE	400	400	900 ALDER ST
1/29/2008	GREASE	400	400	800 CAMERON AVE
1/30/2008	GREASE	635	635	1600 MANSFIELD DR
Total for January		14	7123	4300

February-08				
2/4/2008	ROOTS	900	900	2780 GREEN OAK DR
2/6/2008	GREASE	1950	488	000 MEDICAL DR
2/12/2008	ROOTS	300	30	000 WILLIARD RD
2/14/2008	GREASE	1200	600	61 MILLER ST
2/15/2008	GREASE	100	50	3358 NOTTINGHAM RD
2/16/2008	DEBRIS	1400	1400	100 LAURENSFIELD WAY
2/17/2008	DEBRIS	1800	900	1525 FRED CHAPEL LN
2/18/2008	PIPE FAILURE	100	10	4500 PEBBLE LAKE DR
2/18/2008	DEBRIS	1300	650	703 MARSHALL ST
2/19/2008	GREASE	300	150	130 ECHO GLEN DR
2/21/2008	ROOTS	2540	500	612 PINEY GROVE RD
Total for February		11	11890	5678
March-08				
3/6/2008	GREASE	100	40	236 TRENT ST
3/12/2008	PIPE FAILURE	335	335	1534 CLEVELAND AVE
3/14/2008	PIPE FAILURE	812	406	713 WALNUT ST
3/18/2008	GREASE	1950	1950	519 LAKE CREST DR
3/25/2008	VANDALISM	2800	1400	705 ANSON ST
3/25/2008	ROOTS	800	800	604 STONEY GLEN CR
Total for March		6	6797	4931
April-08				
4/2/2008	DEBRIS	317	317	3814 S.MAIN ST
4/4/2008	GREASE	635	635	235 OAKHURST ST
4/7/2008	VANDALISM	1950	1950	800 WHISPERING BROOK
4/8/2008	GREASE	200	100	5300 COUNTRY SIDE CT
4/9/2008	GREASE	400	400	2705 GILMER AVE
4/10/2008	PIPE FAILURE	1600	0	100 GRETA WAY
4/14/2008	ROOTS	5400	5400	100 HUBERT CT
4/16/2008	OTHER	3340	3340	3048 ZACHARY'S KEEP
4/25/2008	GREASE	700	700	100 COLE RD
4/25/2008	GREASE	200	200	3326 GRANDVIEW CLUB RD
4/29/2008	GREASE	25	25	809 SALT ST
Total for April		11	14767	13067
May-08				
5/1/2008	DEBRIS	100	50	100 CROMARTIE ST
5/2/2008	DEBRIS	950	950	2696 WEYMOTH DR
5/4/2008	GREASE	550	550	1772 SALEM AVE
5/7/2008	DEBRIS	417	100	104 LUZELLE DR
5/8/2008	GREASE	650	325	HWY 52 & PATTERSON
5/10/2008	PIPE FAILURE	2100	2100	3385 SLEDD CT
5/16/2008	PIPE FAILURE	7150	0	406 TRADE ST
5/20/2008	VANDALISM	635	635	111 JOHN OGDEN LN
5/20/2008	GREASE	200	100	1526 NORTH CLEVELAND AVE
5/20/2008	PIPE FAILURE	50	50	918 WACHOVIA CT
5/23/2008	DEBRIS	1200	1200	398 HANCOCK DR.
5/24/2008	PIPE FAILURE	400	400	400 UNDERWOOD
5/25/2008	DEBRIS	400	400	5255 SHATTALON DRIVE
5/27/2008	ROOTS	100	100	1920 WEST FIRST ST.
Total for May		14	14902	6960

June-08					
6/4/2008	ROOTS	1905	1905	1300 SOUTH PARK	
6/5/2008	DEBRIS	375	375	7711 N. CAMERON AVE.	
6/7/2008	GREASE	400	400	326 LAKE RIDGE	
6/10/2008	PIPE FAILURE	300	300	225 LOCKLAND AVE	
6/11/2008	GREASE	100	100	1500 EAST 11TH STREET	
6/13/2008	ROOTS	100	100	2926 COCKERHAM STREET	
6/17/2008	GREASE	25	25	2238 PATTERSON AVE	
6/18/2008	GREASE	952	952	2550 STOCKTON	
6/25/2008	ROOTS	100	100	935 MAGNOLIA ST	
Total for June		9	4257	4257	0
Total for FY 2007 - 2008		129	142,412	115,679	