

**TOWN OF GRANITE FALLS
WATER RESOURCES
WATER AND WASTEWATER
TREATMENT PLANTS
2013 ANNUAL REPORT**

WATER TREATMENT PLANT

TO: Town of Granite Falls Town Council

FROM: Town of Granite Falls
Water Treatment Facility

SUBJECT: 2013 Annual Report

DATE: January 16, 2014

ITEM #1

AMOUNT OF WATER TREATED IN 2013

MONTH	AMOUNT IN MILLION GALLONS	MAXIMUM AMOUNT	MINIMUM AMOUNT	AVERAGES
JANUARY	37,582,000	1,812,000	608,000	1,212,000
FEBRUARY	31,497,000	1,663,000	523,000	1,125,000
MARCH	34,229,000	1,661,000	239,000	1,104,000
APRIL	31,748,000	1,411,000	580,000	1,058,000
MAY	34,695,000	1,651,000	579,000	1,119,000
JUNE	32,475,000	1,651,000	260,000	1,083,000
JULY	32,066,000	1,390,000	701,000	1,034,000
AUGUST	36,350,000	1,686,000	475,000	1,173,000
SEPTEMBER	38,753,000	1,708,000	1,122,000	1,292,000
OCTOBER	43,020,000	1,723,000	1,008,000	1,388,000
NOVEMBER	36,228,000	1,941,000	291,000	1,208,000
DECEMBER	34,278,000	1,423,000	610,000	1,106,000
TOTALS:	422,921,000	19,720,000	6,996,000	13,902,000
AVERAGES:	35,243,000	1,643,000	583,000	1,159,000

ITEM #2**AMOUNT OF CHEMICALS USED IN 2013**

CHEMICAL	AMOUNT USED
Activated Carbon	0 lbs.
Aluminum Sulfate	19,528 gals.
Chlorine	20,584 lbs.
Fluoride	22,339 lbs.
Lime Slurry	23,832 gals.
Polymer	708 lbs.
Potassium Permanganate	1,128 lbs.

ITEM #3**INFORMATION/REGULATIONS**

All water analyses conducted by our in house laboratory, Water Tech Labs or other subcontracted laboratories are in compliance with the Department of Environmental Health and Natural Resources (DEHNR) regulations. Water Tech Labs maintains a computer file for us to help assist and assure that we continue to complete all scheduled analyses in the proper time frame, as directed by DEHNR. The Continuing Education Rule that was implemented January 1, 1999, states that all certified operators must obtain six contact hours of continuing education each year to prevent their certification from being revoked. Every certified operator employed at the water treatment facility successfully completed those continuing education requirements for 2013. The Consumer Confidence Report (CCR), which was designed to inform the consumer about the quality of water and services we provide, was completed and delivered on or before July 1, 2013, as required by the Environmental Protection Agency (EPA). All subsequent reports must be completed and delivered to each customer on or before July 1st each year. This Consumer Confidence Report gives us an opportunity to put forth a positive public relation image for our water treatment system.

ITEM #4**IMPROVEMENTS MADE IN 2013**

1. Replaced heat pump in chemical feed building
2. Replaced actuator on filter #5
3. Replaced bearings on all three flocculators
4. Painted the newest storage clearwell

REMARKS:

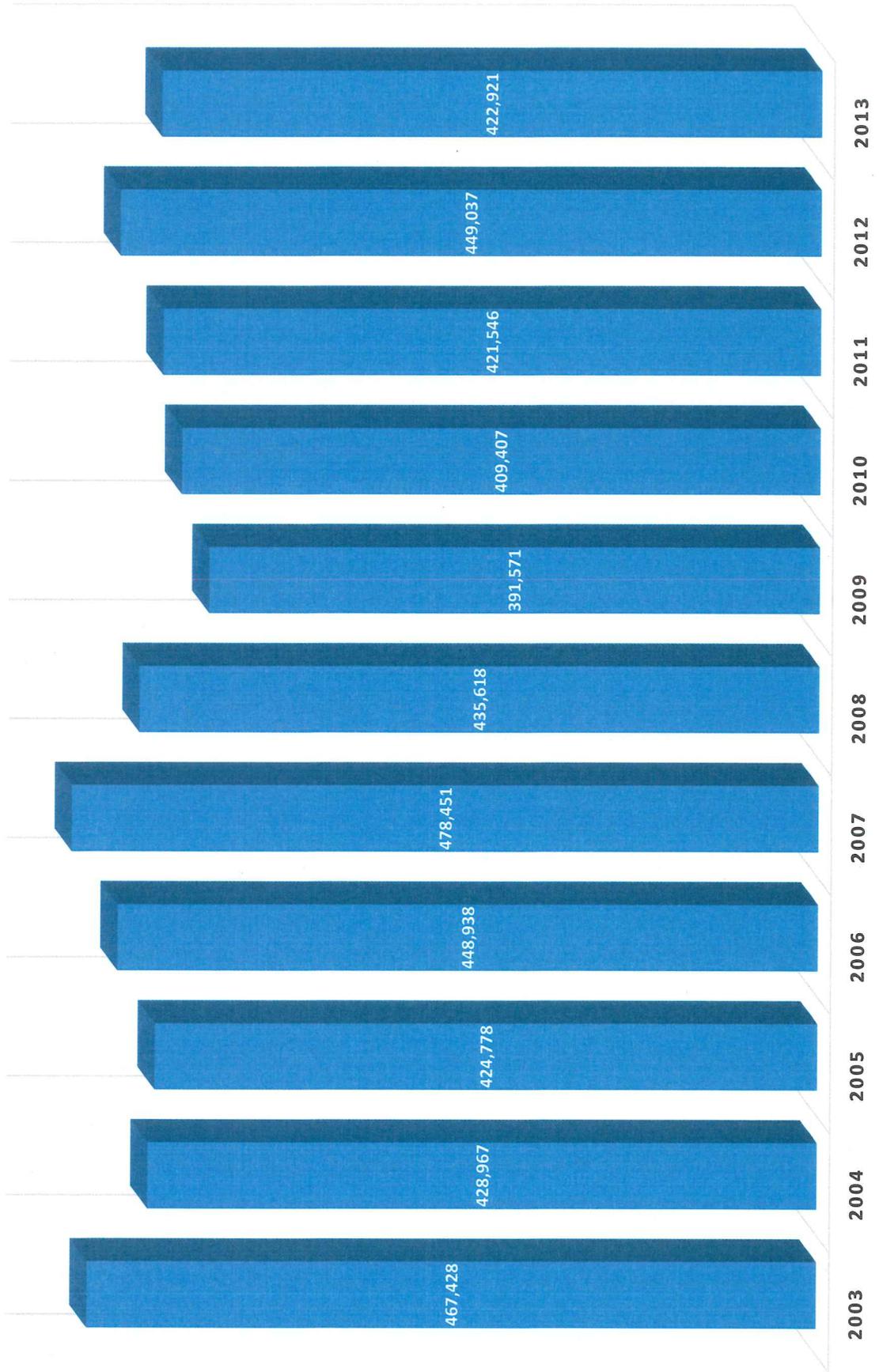
Water quality is excellent and is in compliance with all DEHNR regulations. Even though the Town of Granite Falls and its residents were under no kind of water restrictions or conservation program during 2013, we still continue to participate in the Catawba-Wateree Water Drought Management Group, with the water treatment facility's supervisor attending regular meets to assure that measures are in place to combat problems that may occur with any future drought. With any improvements we find necessary during the coming year, we hope to upgrade and update our seventy year old facility so we can continue to meet the needs of our community well into the future. We will continue to do our best to provide the best quality of water and services possible for the residents of the Town of Granite Falls.

Respectfully Submitted by,
Kim Y. Prestwood, Supervisor
Town of Granite Falls
Water Treatment Facility

AMOUNT OF WATER TREATED
(IN MILLION GALLONS)
FROM 2003-2013

MONTH	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
JAN.	36,298	35,354	33,382	35,266	35,635	37,660	31,867	35,889	30,780	36,355	37,582
FEB.	33,057	34,029	30,432	30,556	32,633	32,952	28,513	27,956	28,095	32,011	31,497
MAR.	37,594	34,947	32,809	35,130	35,466	34,678	30,988	31,362	31,778	35,133	34,229
APR.	42,067	35,284	32,571	37,603	35,811	35,554	31,132	32,480	30,372	37,811	31,748
MAY	45,641	38,826	34,741	41,512	48,234	39,903	33,179	35,215	41,316	39,782	34,695
JUNE	45,787	36,660	32,994	43,181	47,162	43,547	34,205	35,080	39,427	38,578	32,475
JULY	45,755	38,240	34,843	40,746	46,195	38,686	34,699	37,755	37,863	38,767	32,066
AUG.	45,367	38,434	38,901	39,470	52,191	36,717	36,429	35,193	38,810	37,802	36,350
SEPT.	36,391	34,969	38,807	36,947	39,292	35,963	32,498	35,962	33,321	38,034	38,753
OCT.	36,831	36,763	36,300	39,105	37,870	35,080	32,563	36,156	38,952	40,701	43,020
NOV.	31,434	32,167	36,325	34,231	33,821	33,694	32,806	31,782	36,113	37,535	36,228
DEC.	31,206	33,294	42,673	35,191	34,141	31,184	32,692	34,577	34,719	36,528	34,278
TOTAL:	467,428	428,967	424,778	448,938	478,451	435,618	391,571	409,407	421,546	449,037	422,921

**AMOUNT OF WATER TREATED
(IN MILLION GALLONS)
FROM 2003-2013**



WASTEWATER TREATMENT PLANT

TOWN OF GRANITE FALLS WASTEWATER TREATMENT PLANT ANNUAL OPERATIONAL REPORT FOR THE YEAR 2013

2013 Summary

Town of Granite Falls Wastewater Treatment Plant: The Granite Falls Wastewater Treatment Plant continued to provide effective treatment practices for 2013 meeting all of the limitations of its NPDES permit. Wastewater flows were up 19% as compared to the previous year. The increase in flow rates were mainly due to inflow/infiltration with 2013 being a wetter year compared to the previous year. The treatment plant was in compliance with all of the limitations of NPDES permit NC0021890. The NPDES permit will be up for renewal in 2014.

Land Application of Bio-Solids: The land application program operated without any major problems for 2013, Wastewater bio-solids totaling 338,000 gallons were applied to area farm land during the months of July and August. The land application program was inspected by the North Carolina Division of Water Quality, Aquifer Protection Section on August 21st 2013. The program was found to be in compliance with the requirements of our land application permit. Alternate methods for sludge disposal have been included as part of phase 1 of the wastewater treatment plant improvements project. Land application permit WQ0001618 will expire in March 2015.

Alum Sludge Application: Alum sludge residuals generated by the water treatment facility were land applied along with wastewater bio-solids under land application permit WQ0001618. Residuals totaling 195,000 gallons were applied. NPDES permit NC0025846 for the alum sludge facility will be up for renewal in 2014.

Maintenance and Improvements: As the wastewater facility continues to age maintenance is always a major concern. General maintenance for 2013 included the outside repainting of all seven buildings, replacement of five building and structure roofs along with repainting and repair of process tanks and components. Equipment maintenance included the redesign and construction of an additional aeration system for the aerobic digester and the replacement of the arc bar screen gear drive. Preventive maintenance was performed as scheduled.

Wastewater Treatment Plant Laboratory: The wastewater laboratory analyst position was vacated in July 2013. The position has not been filled. Field analysis is being conducted by the treatment plant staff and all other required wastewater analysis is being contracted to an independent laboratory. To meet the requirements of our NPDES permit and laboratory certification a decision on renewing the laboratory certification and filling the laboratory analyst position will have to be made during the 2014 year.

Capital Improvements Plan: As stated in the 2012 Annual Report phase 1 of the wastewater treatment plant improvements project along with the addition of a 250,000 gallon alum sludge holding tank for the water treatment plant has been included in the capital improvements plan. The phase 1 wastewater treatment plant upgrade estimated at 1.9 million dollars would be the first major upgrade since 1987. The alum sludge holding tank estimated at 600,000 dollars would handle additional backwash and settling basin waters discharged by the water treatment plant. Both of the projects were originally scheduled in the capital improvements plan for the 2013-2015 years.

Conclusion: The wastewater treatment plant went into operation on April 3rd 1987. The facility has been able to meet all the limitations of its NPDES permit for 26 years. The facility has been well maintained and well kept. Due to the age of the facility and new NPDES permit limitations that may be proposed in the next permitting cycle it is imperative that we consider all options and alternatives and proceed with planned upgrades to the facility as soon as funding sources can be secured. With the right planning we can maintain a quality well maintained and well operated wastewater facility that will accommodate the economic, residential, commercial, and industrial needs of the Town for another 26 years.

FLOW AND PRODUCTION RATES 2013 GRANITE FALLS WASTEWATER TREATMENT PLANT

	Average Flow (Million Gallons)	High Flow (Million Gallons)	Low Flow (Million Gallons)	TOTAL FLOW (Million Gallons)
January	0.476	1.977	0.264	14.756
February	0.371	1.565	0.267	10.388
March	0.332	0.566	0.271	10.292
April	0.347	0.575	0.265	10.410
May	0.430	1.495	0.275	13.330
June	0.490	1.414	0.275	14.700
July	0.462	1.358	0.275	14.322
August	0.294	0.378	0.267	9.114
September	0.278	0.316	0.260	8.340
October	0.284	0.413	0.261	8.804
November	0.333	1.341	0.273	9.990
December	0.477	1.497	0.299	14.787
AVERAGE:	0.381	1.075	0.271	11.603

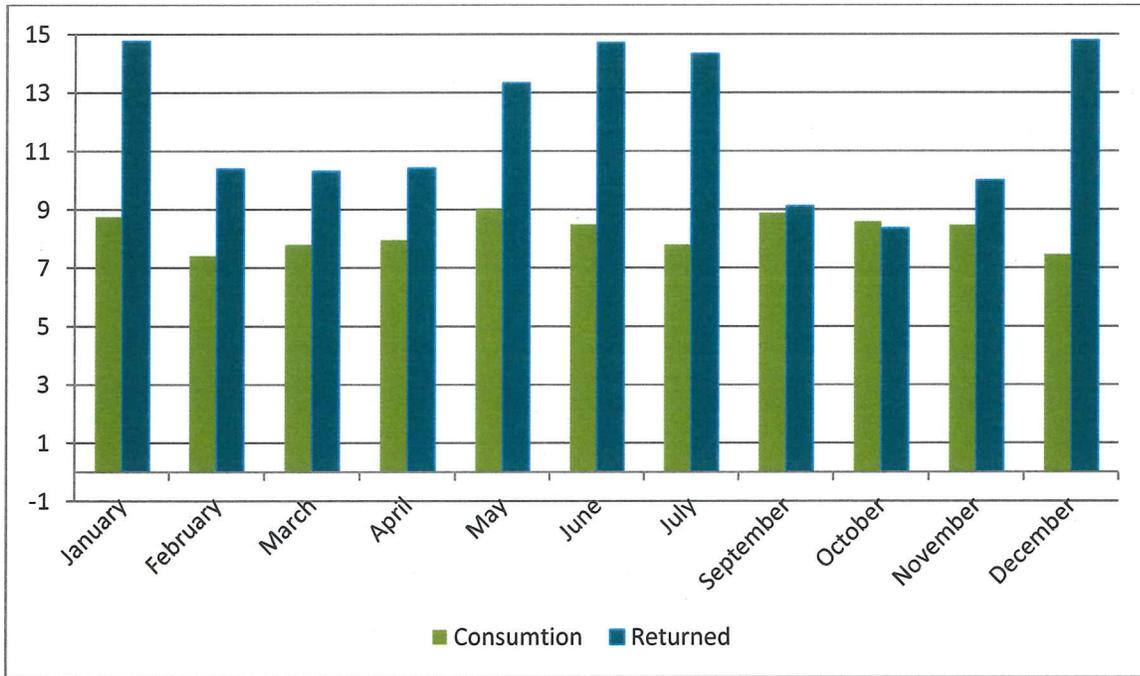
TOTAL GALLONS TREATED 2003	173,321,000	TOTAL GALLONS TREATED 2004	156,414,000
TOTAL GALLONS TREATED 2002	157,142,000	TOTAL GALLONS TREATED 2005	159,568,000
TOTAL GALLONS TREATED 2001	145,747,000	TOTAL GALLONS TREATED 2006	144,697,000
TOTAL GALLONS TREATED 2000	162,674,000	TOTAL GALLONS TREATED 2007	128,720,000
TOTAL GALLONS TREATED 1999	165,332,000	TOTAL GALLONS TREATED 2008	126,039,000
TOTAL GALLONS TREATED 1998	185,600,000	TOTAL GALLONS TREATED 2009	129,638,000
TOTAL GALLONS TREATED 1997	176,841,000	TOTAL GALLONSTREATED 2010	116,415,000
TOTAL GALLONS TREATED 1996	176,521,000	TOTAL GALLONS TREATED 2011	117,293,000
TOTAL GALLONS TREATED 1995	175,210,000	TOTAL GALLONS TREATED 2012	112,578,000
TOTAL GALLONS TREATED 1994	177,660,000	TOTAL GALLONS TREATED 2013	139,233,000
TOTAL GALLONS TREATED 1993	174,105,000	AVERAGE GALLONS TREATED 2013	381,000
TOTAL GALLONS TREATED 1992	144,470,000	% CHANGE FROM 2012	19%
TOTAL GALLONS TREATED 1991	139,680,000	% CHANGE FROM 1987	24%
TOTAL GALLONS TREATED 1990	148,660,000		
TOTAL GALLONS TREATED 1989	151,178,000		
TOTAL GALLONS TREATED 1988	120,300,000		
TOTAL GALLONS TREATED 1987	106,190,000		

GALLONS OF LIQUID BIO-SOLIDS APPLIED TO AREA FARM LAND **338,000**

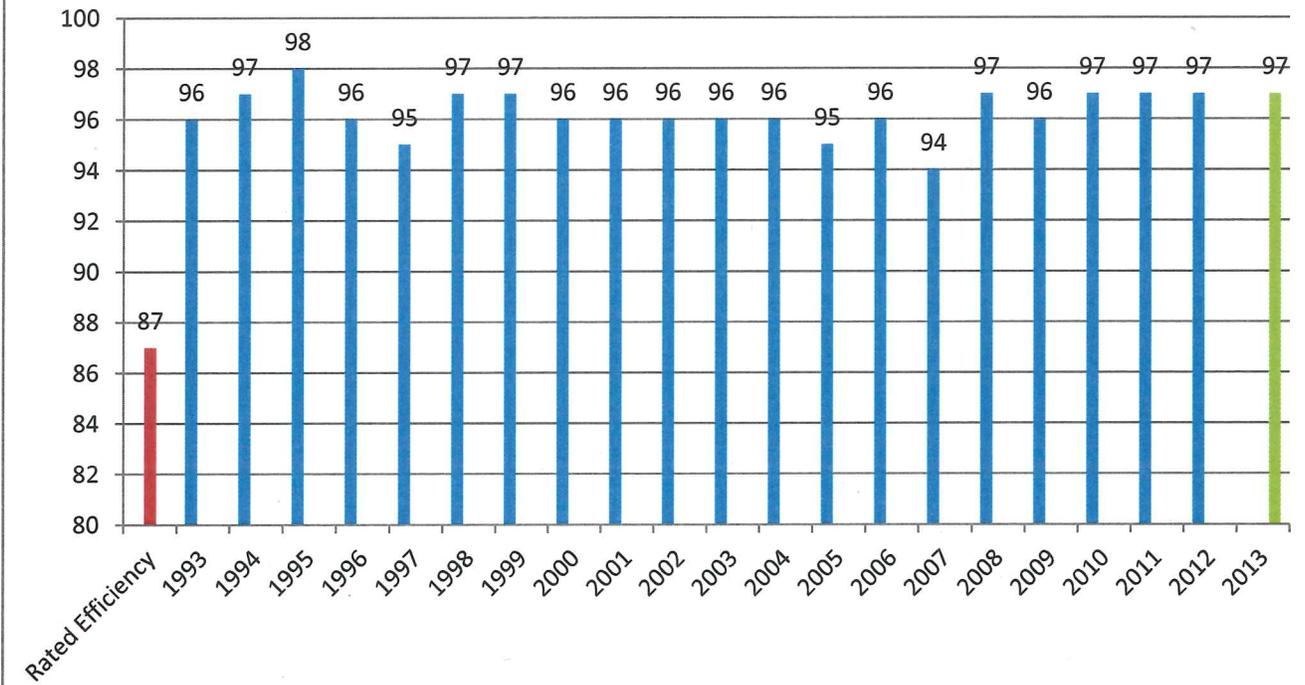
AVERAGE BOD & TSS RESULTS 2013		GRANITE FALLS WASTEWATER TREATMENT PLANT			
	INFLUENT BOD	INFLUENT TSS	EFFLUENT BOD	EFFLUENT TSS	
	mg/l	mg/l	mg/l	mg/l	
JANUARY	210.6	179.3	5.96	5.99	
FEBRUARY	229.2	117.5	4.60	8.11	
MARCH	201.3	139.4	6.18	5.96	
APRIL	203.9	128.8	5.85	5.66	
MAY	245.2	112.7	7.74	4.99	
JUNE	209.0	75.4	6.43	5.10	
JULY	264.4	121.2	5.77	7.95	
AUGUST	336.0	86.9	4.82	5.87	
SEPTEMBER	312.2	187.1	4.32	6.68	
OCTOBER	439.6	183.9	4.56	11.38	
NOVEMBER	299.9	191.4	5.09	9.13	
DECEMBER	271.1	122.1	5.96	12.28	
AVERAGE INFLUENT BOD FOR 2013		268.5			
AVERAGE INFLUENT TSS FOR 2013		137.1			
AVERAGE EFFLUENT BOD FOR 2013		5.61	PERMIT LIMIT	25 / 30 mg/l	
AVERAGE EFFLUENT TSS FOR 2013		7.43	PERMIT LIMIT	30 mg/l	
OVERALL TREATMENT PLANT EFFICIENCY (ACTUAL)		97%			
RATED EFFICIENCY OF TREATMENT PLANT (DESIGN)		87%			

GALLONS OF WASHWATER DISCHARGED FROM GRANITE FALLS ALUM SLUDGE FACILITY NPDES PERMIT # NC0085246								
2013	Gallons							
January	714,000							
February	480,000							
March	564,000							
April	520,000							
May	424,000							
June	400,000							
July	320,000							
August	320,000							
September	564,000							
October	320,000							
November	564,000							
December	752,000							
TOTAL GALLONS OF WASHWATER DISCHARGED 2013						6,056,000		
AVERAGE GALLONS OF WASHWATER DISCHARGED PER EVENT						48,000		
TOTAL GALLONS OF ALUM SLUDGE APPLIED TO AREA FARM LAND						195,000		

2013 Wastewater Consumption, Amount Returned (million Gallons)



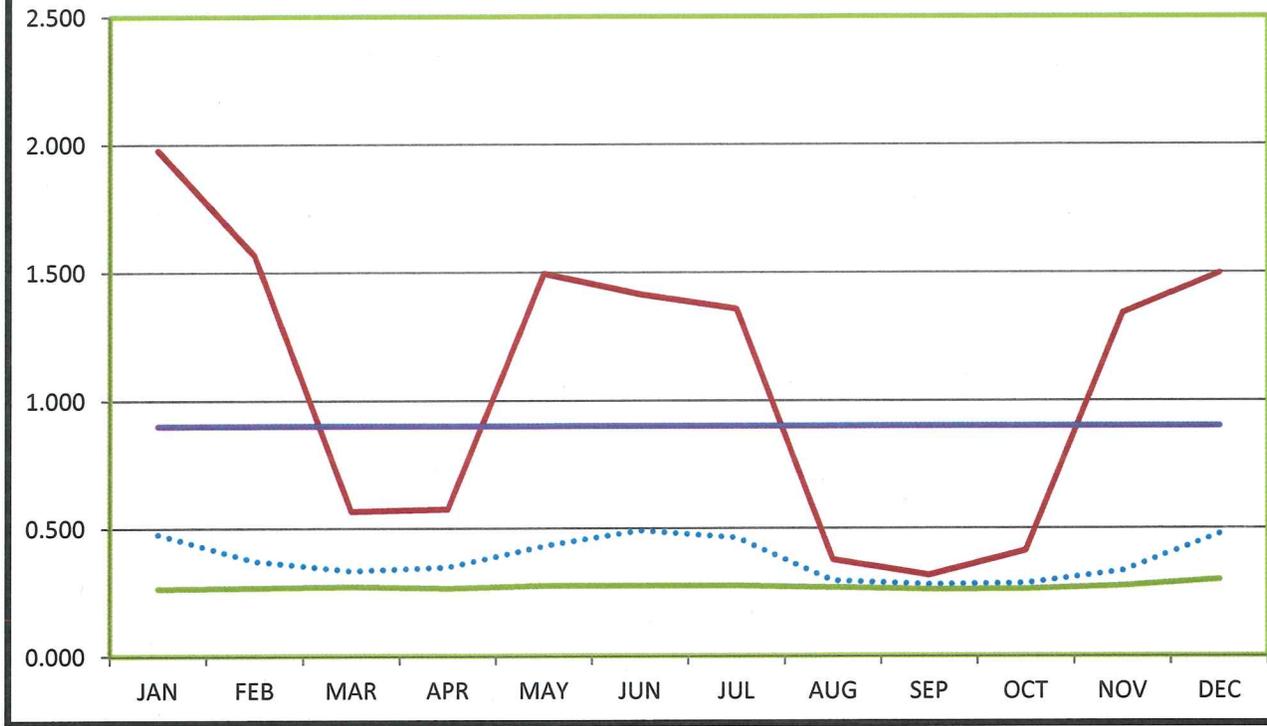
GRANITE FALLS WWTP EFFICIENCY %



DESIGN RATED EFFICIENCY 87%

ACTUAL 2013 EFFICIENCY 97%

GRANITE FALLS WWTP 2013 FLOW RATES

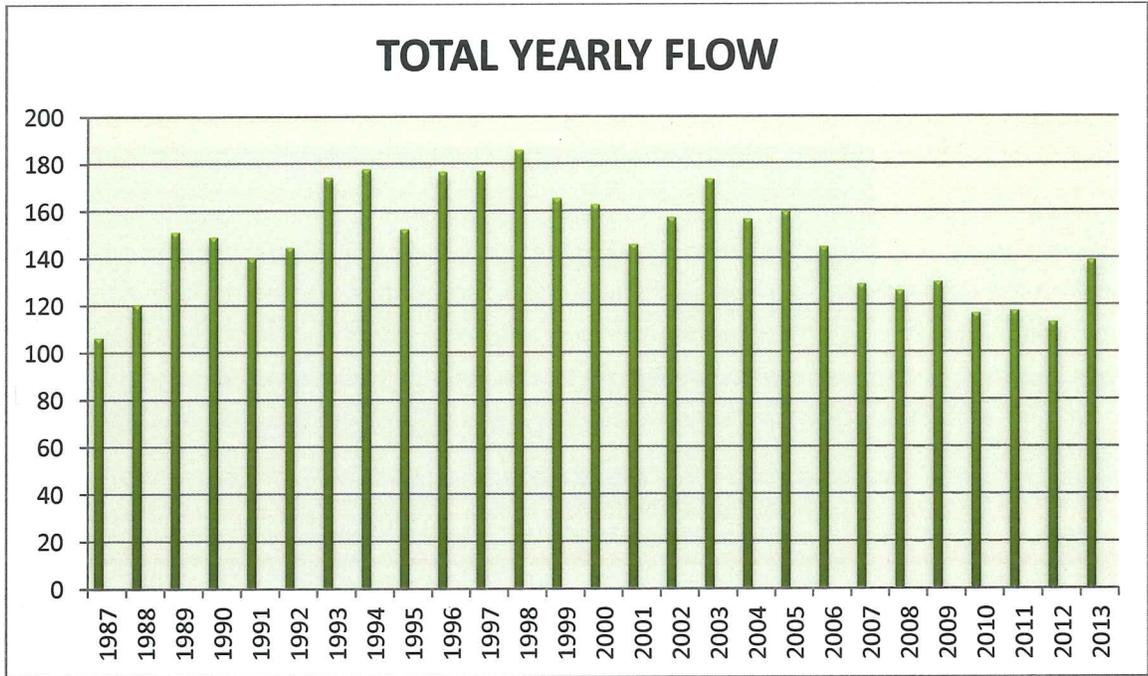


LOW FLOW MG _____

AVERAGE FLOW MG

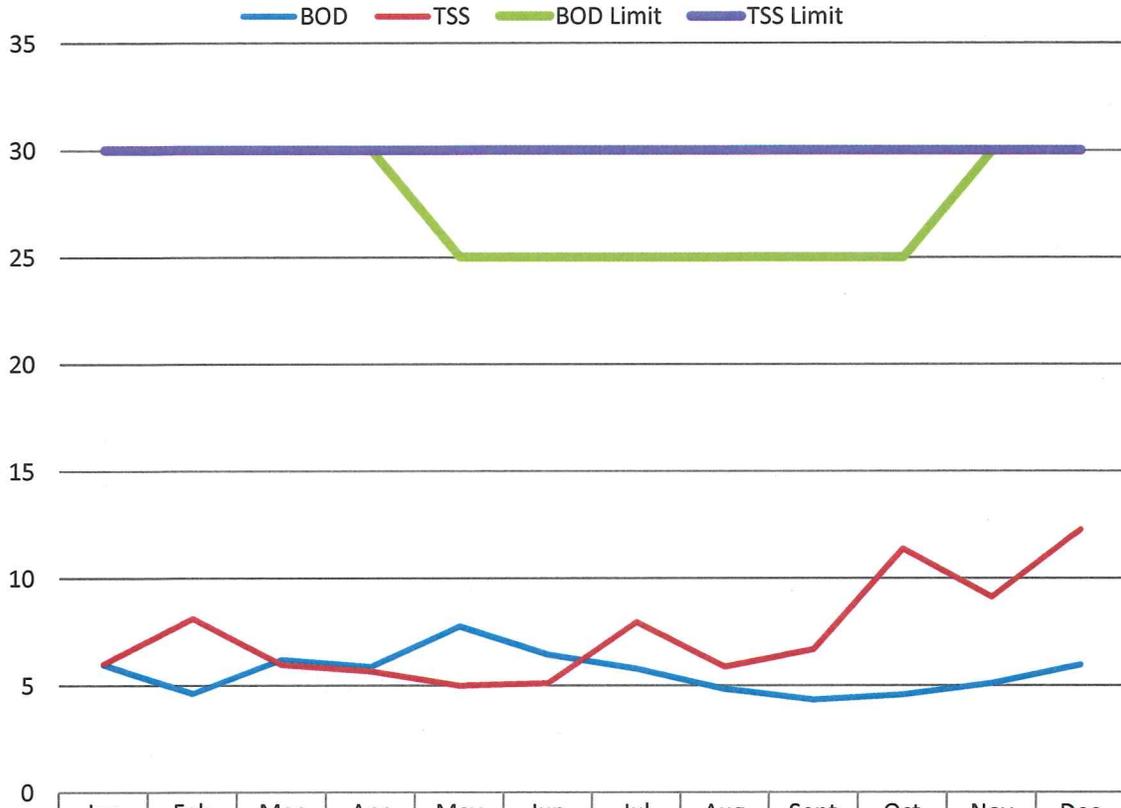
HIGH FLOW MG _____

PERMIT LIMIT MG _____



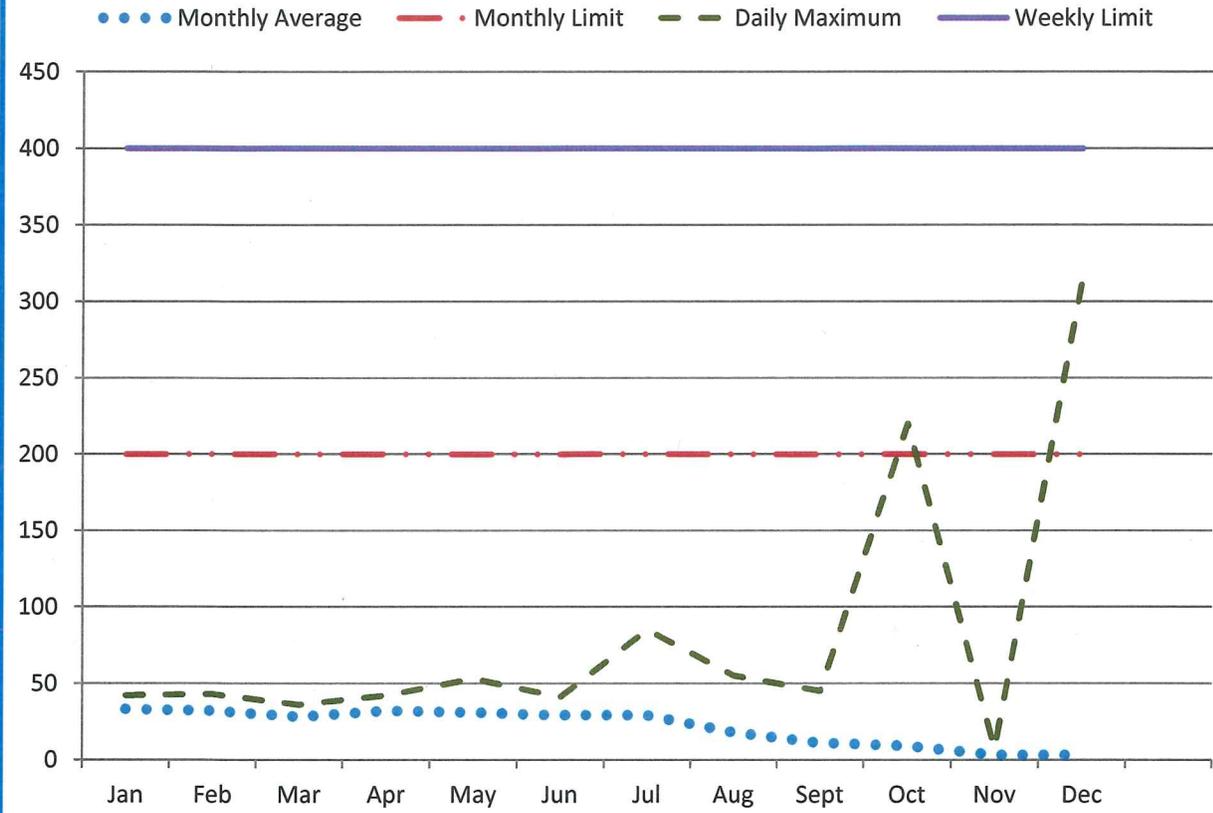
TOTAL FLOW IN MILLION GALLONS 1987-2013 GRANITE FALLS WWTP

2013 BOD & TSS RESULTS GRANITE FALLS WWTP

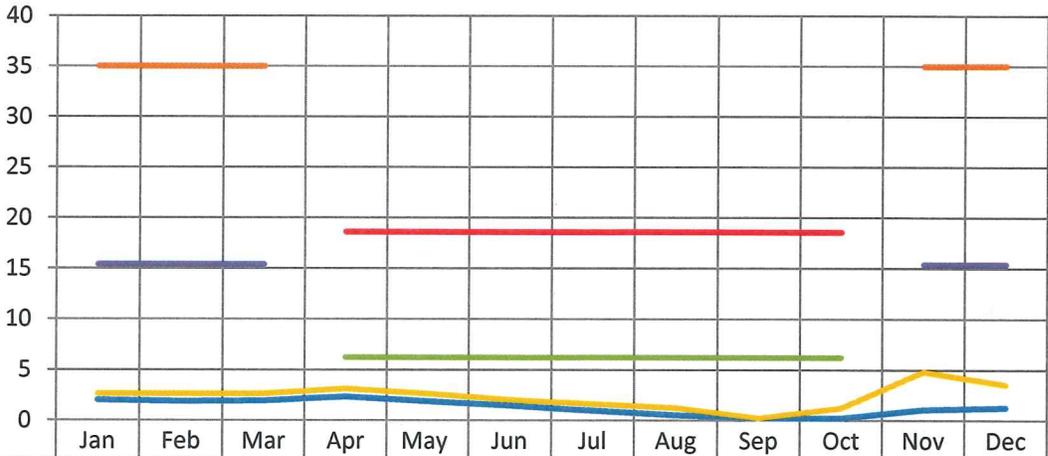


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
BOD	5.96	4.60	6.18	5.85	7.74	6.43	5.77	4.82	4.32	4.56	5.09	5.96
TSS	5.99	8.11	5.96	5.66	4.99	5.10	7.95	5.87	6.68	11.38	9.13	12.28
BOD Limit	30	30	30	30	25	25	25	25	25	25	30	30
TSS Limit	30	30	30	30	30	30	30	30	30	30	30	30

2013 Fecal Coliform Results Granite Falls WWTP



2013 Ammonia Nitrogen Results Granite Falls WWTP



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly Average	1.97	1.85	1.92	2.29	1.84	1.45	0.93	0.50	0.20	0.19	1.04	1.26
Daily Maximum	2.6	2.6	2.6	3.1	2.6	2.0	1.6	1.2	0.21	1.2	4.8	3.5
Monthly Summer Limit				6.2	6.2	6.2	6.2	6.2	6.2	6.2		
Monthly Winter Limit	15.4	15.4	15.4								15.4	15.4
Summer Weekly Limit				18.6	18.6	18.6	18.6	18.6	18.6	18.6		
Winter Weekly Limit	35.0	35.0	35.0								35.0	35.0

— Monthly Average — Daily Maximum — Monthly Summer Limit
— Monthly Winter Limit — Summer Weekly Limit — Winter Weekly Limit