

## NOVATO SANITARY DISTRICT

Meeting Date: December 15, 2014

**The Wastewater Operations Committee of the Novato Sanitary District will hold a meeting at 2:00 PM, Monday, December 15, 2014 at the District offices, 500 Davidson Street, Novato.**

### **AGENDA**

**1. AGENDA APPROVAL:**

**2. PUBLIC COMMENT (PLEASE OBSERVE A THREE-MINUTE TIME LIMIT):**

This item is to allow anyone present to comment on any subject not on the agenda, or to request consideration to place an item on a future agenda. Individuals will be limited to a three-minute presentation. No action will be taken by the Committee at this time as a result of any public comments made.

**3. APPROVE MINUTES OF NOVEMBER 17, 2014 MEETING**

**4. WASTEWATER TREATMENT FACILITIES REPORT FOR NOVEMBER 2014:**

- a. Treatment Plant Performance Report
- b. Maintenance Report
- c. Safety and training
- d. Odor control and landscaping report

**5. COLLECTION SYSTEM REPORT FOR NOVEMBER 2014:**

- a. Collection System Maintenance
- b. Pump Station Maintenance
- c. Collection System Performance
- d. Safety and Training

**6. RECLAMATION FACILITY REPORT FOR NOVEMBER 2014**

- a. Ranch Operations
- b. Irrigation Parcels
- c. Irrigation Pump Station
- d. Sludge Handling and Disposal

**7. ADJOURNMENT:**

***In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the District at (415) 892-1694 at least 24 hours prior to the meeting. Notification prior to the meeting will enable the District to make reasonable accommodation to help ensure accessibility to this meeting.***

***Materials that are public records and that relate to an open session agenda item will be made available for public inspection at the District office, 500 Davidson Street, Novato, during normal business hours.***

November 17, 2014

A regular meeting of the Wastewater Operations Committee of Novato Sanitary District was held at 2:00 p.m., Monday, November 17, 2014, at the District Office, 500 Davidson Street, Novato.

**MEMBERS PRESENT:** Committee Members Jerry Peters and Brant Miller.

**DISTRICT STAFF PRESENT:**

Sandeep Karkal, Manager-Engineer  
Steve Krautheim, Field Services Manager  
Tim O'Connor, Collections System Superintendent  
Julie Swoboda, Administrative Secretary

**VEOLIA STAFF PRESENT:**

John Bailey, Project Manager, Veolia  
Lynda Farmery, Admin./Safety, Veolia  
John O'Hare, Technical Services Manager, Veolia

**OTHERS PRESENT:** None.

**AGENDA APPROVAL:** Director Miller requested that items 5 and 6 be moved to discussion before item 4. The Agenda was approved as modified.

**PUBLIC COMMENT:** None.

**APPROVAL OF MEETING MINUTES FOR OCTOBER 20, 2014:** The October 20, 2014 meeting minutes were approved as written.

**COLLECTION SYSTEMS OPERATION AND MAINTENANCE REPORT FOR OCTOBER 2014:**

The Collections System Superintendent discussed the Collection Systems Monthly Report for October 2014. He reported that the Collection Systems crew cleaned a total of 59,982 feet of sewer pipeline and that the department completed 594 maintenance work orders which were generated in October. He stated that the District's CCTV van (Closed Circuit TV) televised 85 line segments for 11,282 feet of production, and outlined the areas identified as needing repairs/further evaluation. He stated that two informal contracts were awarded: (1) Repair of a sewer main at 14 Angelica Court, and (2) Replacement of 199 feet of sewer main across Redwood Blvd. at Hill Road.

The Collections System Superintendent stated that there was 1 (one) sanitary sewer overflow in the month of October. The discharge volume was estimated at approximately 5 gallons with 100% recovery achieved. He stated that the discharge was determined to be the result of a partial debris blockage in the main line.

He noted that as of October 31<sup>st</sup>, the Collections Department and the District have worked accident free for a total of 1,325 days.

### **RECLAMATION FACILITY REPORT FOR OCTOBER 2014:**

The Field Services Manager presented the Reclamation Facilities report for October. He stated that the rancher continues to work on routine parcel maintenance and that pump No. 2 at Drainage Pump Station No. 7 was removed for inspection/repair. He stated that work was completed to empty the sludge lagoons, transferring approximately 3.5 million gallons of sludge into the Dedicated Land Disposal (DLD) site.

The Field Services Manager stated that 59.7 million gallons of treated effluent was used for irrigation of the parcels in October.

### **WASTEWATER TREATMENT FACILITIES OPERATIONS AND MAINTENANCE REPORT FOR OCTOBER 2014:**

- Treatment Plant Performance Report, Maintenance Report and Safety & Training: Veolia Project Manager John Bailey gave an overview of treatment plant operations for the month of October and stated that October was another good month with no permit exceedances, violations or excursions. He discussed the key operations and maintenance events at the Novato facility, the Ignacio Transfer Pump Station, the Recycled Water Plant, and the Sludge Lagoons. He discussed training events completed in October and stated that as of October 31<sup>st</sup>, Veolia employees have been accident free for a total of 1,611 days/ 73,462 hours. He discussed the training Veolia employees participated in during October. He reviewed the operations and maintenance report and stated that the treatment facility switched to Bay discharge on October 1.

The Project Manager stated that Jerome Meter (H2S) readings continue to be taken within the treatment plant as well as in the Lea Drive neighborhood area and that 10 (ten) odor notifications were received in October.

- Odor control, noise, and landscaping report: The Manager-Engineer stated that the District continues to work on odor control and landscaping on an ongoing basis, specifically in the Lea Drive neighborhood, and at the northeast portion of the Novato Treatment Plant site.

Regarding odor control, the Manager-Engineer stated that in October, it was found that media in the large odor control bed between primary clarifiers #1 and #2 was breaking down and the breakdown was resulting in potential odor release from the media decomposition and/or breakthrough. Staff obtained a quote to top-off the bed during the month of November with the concept that complete media replacement would occur next spring. The media material used in the odor control bed was discussed.

The Manager-Engineer stated that in October, staff staked out locations in the Northwest portion of the plant site to receive additional plantings. It is anticipated that all of the redwood trees currently in boxes along the western boundary of the plant site will be transplanted to this area in November, with some trees also being transplanted to the uphill area north of the primary clarifiers.

- Committee member Request for Information (RFI) on odor control system: The Manager-Engineer reviewed an email sent by Committee Member Brant Miller and discussion followed regarding details of the facilities odor control procedures. The Manager-Engineer stated that the odor control components of the remodeled treatment facility are adequate and appropriate to the treatment facility. Committee Members Peters and Miller expressed an interest in touring the treatment facility. The Manager-Engineer stated that he will agendize a tour of the treatment facility with a focus on odor control for a Board meeting in the near future.

A break was requested at 3:24 p.m.

The meeting was reconvened at 3:30 p.m.

- Review presented materials, including a proposal from Veolia Water to provide environmental compliance services, consider options, and provide direction to staff. The Manager-Engineer reviewed the current staffing in the District's Environmental Services department. He noted that the most recent Environmental Services Supervisor (ESS) left the District in late 2013. He stated that in an interim role, the ESS position had been filled with an experienced contract employee. He stated that the staffing situation now has added urgency as the District's current Environmental Compliance Analyst (ECA) has indicated that he will retire at year end, which would leave the District with no permanent full-time staff in the department.

The Manager-Engineer stated that staff had asked Veolia Water to provide a proposal to provide management and operation of the District's environmental compliance program. He stated that Veolia had provided a detailed proposal of scope of services and annual cost estimate, which was included with the Committee's materials. He requested that the Committee consider the following options and provide direction to staff: (1) Review the proposal from Veolia and recommend it for award by the District Board at the next Board meeting on December 8, 2014, or (2) Make a recommendation to the District Board at the next Board meeting on December 8, 2014 for staff to begin the hiring process for the vacant positions.

Discussion followed regarding the District's specific functions within the laboratory/environmental services areas, Veolia's detailed scope of proposed services, regulatory requirements, and the District's laboratory/environmental services costs.

Committee Member Miller moved that Veolia's Proposal for Operation of Laboratory and Pretreatment Programs be forwarded to the full Board of Directors with the recommendation that a contract amendment be negotiated with Veolia for the services contemplated.

**ADJOURNMENT:** There being no further business to come before the Committee, the meeting adjourned at 4:42 p.m. The next Wastewater Operations Committee meeting will be held on Monday, December 15, 2014.

Respectfully submitted,

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Sandeep Karkal  
Manager-Engineer

Julie Swoboda, Recording

DRAFT



December 10, 2014

Mr. Sandeep Karkal  
Manager - Engineer  
Novato Sanitary District  
500 Davidson Street  
Novato, CA 94545

**Subject: Veolia Water Operations Report – November 2014**

Dear Mr. Karkal:

I am pleased to provide the Monthly Operation Report for November 2014.

As always, please give me a call at 707-208-4491 should you have any questions.

Best regards,

A handwritten signature in blue ink, appearing to read "John Bailey".

John Bailey  
Project Manager, Veolia



**MONTHLY OPERATIONS REPORT  
November 2014**

Prepared for

**NOVATO SANITARY DISTRICT (NSD)  
WASTEWATER TREATMENT PLANT  
500 Davidson Street  
Novato, CA 94545**

Prepared by

**Veolia Water West Operating Services, Inc. (VWWOS)**

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• Laboratory Data	
• Recycled Water Report	
• Annual Performance Graphs	
• Process Control Data / Graphs	
• Customer Notifications (Odor)	

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TREATMENT PLANT PERFORMANCE SUMMARY: November 2014:

Bay Discharge – NPDES Limits

Parameter	Value		Limit	
	Ave	Max	#1	#2
Flow, MGD (monthly ave/max)	3.80	5.82	N/A	N/A
Max Peak Hour, MGD – 11/30/14, 1230 Hours	N/A	~7.50	N/A	N/A
Influent BOD <sub>5</sub> , lb/day (month ave/max)	8,671	11,433	N/A	N/A
Influent TSS, lb/day (monthly ave/max)	11,466	16,998	N/A	N/A
Effluent BOD <sub>5</sub> , mg/L (monthly ave/weekly max)	<7	8	30	45
Effluent TSS, mg/L (monthly ave/weekly max)	<5	7	30	45
Effluent BOD <sub>5</sub> - % Removal, Minimum	98	N/A	85	N/A
Effluent TSS - % Removal, Minimum	99	N/A	85	N/A
Ammonia, mg/L – (monthly ave/daily max)	0.64	0.91	6	21
pH, su (min / max)	6.9	7.1	6.5	8.5
Enterococcus, mpn (30 day geo mean)	3.2	N/A	35	N/A
Fecal Coliform, mpn (30 day median)	4	N/A	140	N/A
Fecal Coliform, mpn (90 <sup>th</sup> percentile)	23	N/A	430	N/A
Total Coliform, mpn (5 Sample Median / Max)	N/A	N/A	240	10,000
<b>Total Permit Exceedances (NPDES)</b>	0			

NA – Not Applicable

Discussion of Violations / Excursions: NONE

Title 22 - Recycled Water Production and Quality

Description	Units	Value	Limit
Volume Produced	Million Gallons	1.34	N/A
Average Turbidity	NTU	1.1	2.0
Turbidity > 5 NTU (in 24 hour)	Minutes	0	72
Minimum CT (disinfection)	ml-min/L	<450	450
Minimum Dissolved Oxygen (DO)	mg/L	8.1	1.0
Maximum Total Coliform	mpn/100 ml	<2	2

Total November Rainfall. – 2.82 inches

Daily Max 11/20 – 0.76 inches

**SAFETY AND TRAINING:**

- Monthly plant safety inspections for Novato WWTP and Ignacio Pump Station completed
- Five Minute Tailgate training is held daily with all staff.
- No safety incidents for the month of November
- Accident Free: 6/1/10 – 11/30/14: 1,641 days / 74,830 hours
- Monthly Safety Topic and Training – Powered Industrial Trucks, Fall Protection, Hearing Protection
- Annual Hearing Test
- Performed Annual Safety Audit – Self Audit

**OPERATIONS & MAINTENANCE STATUS / REVIEW:**

**Key events for the period:**

**Novato**

- Routine rounds, readings and maintenance
- Reattached mixer in Aeration Basin #3
- Repaired mercoird (pressure) switch on Sodium Hypochlorite Pump
- Oil change and smog on all trucks
- Replaced broken section of #3 piping at Utility Water Pumps
- Repaired hole in chain link fence above old Biotower (North perimeter)
- Installed new level transducer in Headworks Channel #1
- Repaired and recalibrated dissolved oxygen (DO) probes in Aeration Basin 3F & 3D
- Drained Aeration Basin #1 for inspection

**Equipment Out of Service – Due to Planned Servicing, Maintenance, or Replacement**

- Primary Clarifier #1 (not needed at current flows)
- Secondary Clarifier #2 (not needed at current flows)
- Aeration Basins 1 (not needed at current flows)

**Ignacio Transfer Pump Station**

- Routine rounds, readings and maintenance
- Conveyance Pump #2 returned from Shop (rebuild shop) – Impeller Retrofit Complete – Needs new power cord, ordered. (Pump installed and functional as of 12/4)

**Equipment Out of Service – Due to Planned Servicing, Maintenance, or Replacement**

- None

**Recycled Water Plant (RWP)**

- Performed plant rounds and maintenance

**Equipment Out of Service – Due to Planned Servicing, Maintenance, or Replacement**

- None

**Sludge Lagoons**

- Performed routine rounds and inspection
- Cleaned Decant Line - Reclamation

**ADMINISTRATION:**

- October Electronic Self Monitoring Report submitted on November 29, 2014
- October DMR Report submitted on November 26, 2014

**ODORS:**

- Jerome Meter (H<sub>2</sub>S) readings performed in neighborhood and within treatment plant.

**MISCELLANEOUS**

- Process Control Management Plan (PCMP) meetings held weekly.
- Bay Area Science Fair Booth
- Leadership Plant Tour

**Veolia Support Staff On/Off Site (Various Times)**

John O'Hare / Ed Dix      Technical Support

Novato Sanitary District  
BOD/TSS Report



November, 2014

Date	Flow MGD	Influent				Effluent				BOD % Removal PERCENT	TSS % Removal PERCENT
		BOD		TSS		BOD		TSS			
		mg/l	lb/d	mg/l	lb/d	mg/l	lb/d	mg/l	lb/d		
11/01/14	3.42										
11/02/14	3.52										
11/03/14	3.37	348	9,781	446	12,535	<5	<141	7	197	98.6	98.4
11/04/14	3.05										
11/05/14	3.14	331	8,668	366	9,585	5	131	6	157	98.5	98.4
11/06/14	3.31										
11/07/14	3.00	291	7,281	391	9,783	7	175	7	175	97.6	98.2
11/08/14	3.14										
11/09/14	3.20										
11/10/14	3.32	332	9,193	408	11,297	6	166	3	83	98.2	99.3
11/11/14	3.75										
11/12/14	3.60	269	8,076	348	10,448	<5	<150	4	120	98.1	98.9
11/13/14	3.74										
11/14/14	3.68	241	7,397	305	9,361	<5	<153	6	184	97.9	98.0
11/15/14	3.78										
11/16/14	3.84										
11/17/14	3.40	299	8,478	299	8,478	9	255	5	142	97.0	98.3
11/18/14	3.29										
11/19/14	4.02	341	11,433	507	16,998	8	268	8	268	97.7	98.4
11/20/14	4.78										
11/21/14	4.20	208	7,286	327	11,454	8	280	9	315	96.2	97.2
11/22/14	4.34										
11/23/14	3.82	224	7,136	379	12,074	9	287	<3	<96	96.0	99.2
11/24/14	4.07	293	9,946	379	12,865	7	238	4	136	97.6	98.9
11/25/14	3.96	284	9,379	385	12,715	8	264	<3	<99	97.2	99.2
11/26/14	3.95										
11/27/14	4.05										
11/28/14	3.98										
11/29/14	5.47										
11/30/14	5.82										
<b>Weekly Averages</b>											
11/01/14	Week 1	290	8,323	383	11,004	5	143	5	135		
11/08/14	Week 2	323	8,577	401	10,634	6	149	7	176		
11/15/14	Week 3	281	8,222	354	10,369	5	157	4	129		
11/22/14	Week 4	283	9,066	378	12,310	8	268	7	242		
11/29/14	Week 5	267	8,820	381	12,551	8	263	3	110		
<b>Monthly</b>											
Minimum	3.00	208	7,136	299	8,478	<5	131	<3	83	96	97
Maximum	5.82	348	11,433	507	16,998	9	287	9	315	99	99
Total	114.01										
Average	3.80	288	8,671	378	11,466	<7	<209	<5	<164	98	99



# Novato Plant : Bacterial Results

## EFFLUENT: E-002 Station

### Nov-14

<b>Fecal Coliform</b>	<b>Enterococcus</b>
(1) 30-Day Median not to exceed 140 MPN/100 mL	(2) 90th Percentile not to exceed 430 MPN/100 mL
	30-Day Geometric mean not to exceed 35 MPN/100 mL

November 1, 2014		
November 2, 2014		
November 3, 2014	<b>4</b>	
November 4, 2014		
November 5, 2014	<b>8</b>	
November 6, 2014		
November 7, 2014	<b>8</b>	
November 8, 2014		
November 9, 2014		
November 10, 2014	<b>2</b>	
November 11, 2014		
November 12, 2014	<b>4</b>	
November 13, 2014		
November 14, 2014	<b>8</b>	
November 15, 2014		
November 16, 2014		
November 17, 2014	< <b>2</b>	
November 18, 2014		
November 19, 2014	<b>2</b>	
November 20, 2014		
November 21, 2014	<b>13</b>	
November 22, 2014		
November 23, 2014	<b>2</b>	
November 24, 2014	<b>11</b>	
November 25, 2014	<b>4</b>	
November 26, 2014		
November 27, 2014		
November 28, 2014		
November 29, 2014		
November 30, 2014		

90th Percentile	Ranking
Sample #1	<b>&lt;2</b>
Sample #2	<b>2</b>
Sample #3	<b>2</b>
Sample #4	<b>2</b>
Sample #5	<b>4</b>
Sample #6	<b>4</b>
Sample #7	<b>4</b>
Sample #8	<b>8</b>
Sample #9	<b>8</b>
Sample #10	<b>8</b>
Sample #11	<b>11</b>
Sample #12	<b>13</b>
Sample #13	
Sample #14	
Sample #15	
Sample #16	

November 1, 2014		
November 2, 2014		
November 3, 2014	<b>3.1</b>	
November 4, 2014		
November 5, 2014	<b>3.1</b>	
November 6, 2014		
November 7, 2014	<b>3.1</b>	
November 8, 2014		
November 9, 2014		
November 10, 2014	< <b>1.0</b>	
November 11, 2014		
November 12, 2014	<b>1.0</b>	
November 13, 2014		
November 14, 2014	<b>6.3</b>	
November 15, 2014		
November 16, 2014		
November 17, 2014	<b>7.3</b>	
November 18, 2014		
November 19, 2014	<b>2.0</b>	
November 20, 2014		
November 21, 2014	<b>6.3</b>	
November 22, 2014		
November 23, 2014	<b>1.0</b>	
November 24, 2014	<b>7.4</b>	
November 25, 2014	<b>9.7</b>	
November 26, 2014		
November 27, 2014		
November 28, 2014		
November 29, 2014		
November 30, 2014		

<b>Max</b>	<b>13</b>
<b>Min</b>	<b>2.0</b>
<b>Avg</b>	<b>5.67</b>
<b>30-Day Median</b>	<b>4</b>

90th Percentile Value **11**

<b>Max</b>	<b>9.7</b>
<b>Min</b>	<b>1.0</b>
<b>Avg</b>	<b>4.3</b>
<b>30 Day Geo. Mean</b>	<b>3.2</b>

<sup>1</sup> = indicates that more than ONE UV channel was in operation at sample time; All UV channels in operation were sampled.

<b>90th Percentile</b>	<b>12.00</b>	<b>0.9</b>	<b>10.8</b>
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**NOVATO SANITARY DISTRICT  
WATER RECLAMATION 2014  
COMPLIANCE SUMMARY REPORT**

November	Fil Inf Q	Million Gallons Delivered			Influent Turbidity		Effluent Turbidity		Cl <sup>2</sup> Dose mg/L		DO	Coliform	CT
		Rec	Bank	Pot	Max	Ave	Min +5	Ave	Min	Ave	mg/L	mpn	Min
November 1			0.011										
November 2			0.032										
November 3			0.011										
November 4	0.820	0.086					0	1.0			8.1	< 2 >	450
November 5													
November 6			0.104										
November 7	0.750	0.124					0	1.3			8.3	< 2 >	450
November 8			0.258										
November 9	0.700	0.436					0	1.4			8.3	< 2 >	450
November 10	0.490	0.230					0	1.1			8.1	< 2 >	450
November 11	0.700	0.044					0	0.9				< 2 >	450
November 12													
November 13													
November 14													
November 15													
November 16													
November 17													
November 18													
November 19													
November 20													
November 21													
November 22													
November 23													
November 24													
November 25													
November 26													
November 27													
November 28													
November 29													
November 30													
Total	3.46	0.92	0.42	0.00									450
Min	0.49	0.04	0.01	0.00	0		< 0.0	< 0.9	0.0	0.0	8.1	< 2 >	450
Max	0.82	0.44	0.26	0.00	0		< 0.0	< 1.4	0.0	0.0	8.3	< 2 >	450
Ave	0.69	0.18	0.08			NA	< 0.0	< 1.1			8.2	<	> 450
Count	5	5	5	0	0	NA	5	5	0	0		5	5

No recycled water pumped to Plum Street Reservoir after November 11th. Filters are still in operation.

<b>Total Banked + Title 22</b>	<b>1.34</b>
<b>Potable Water Delivered</b>	<b>0.00</b>
<b>Total Water Delivered</b>	<b>1.34</b>

November 2014 Monthly Summary Report Station= Novato WWTP

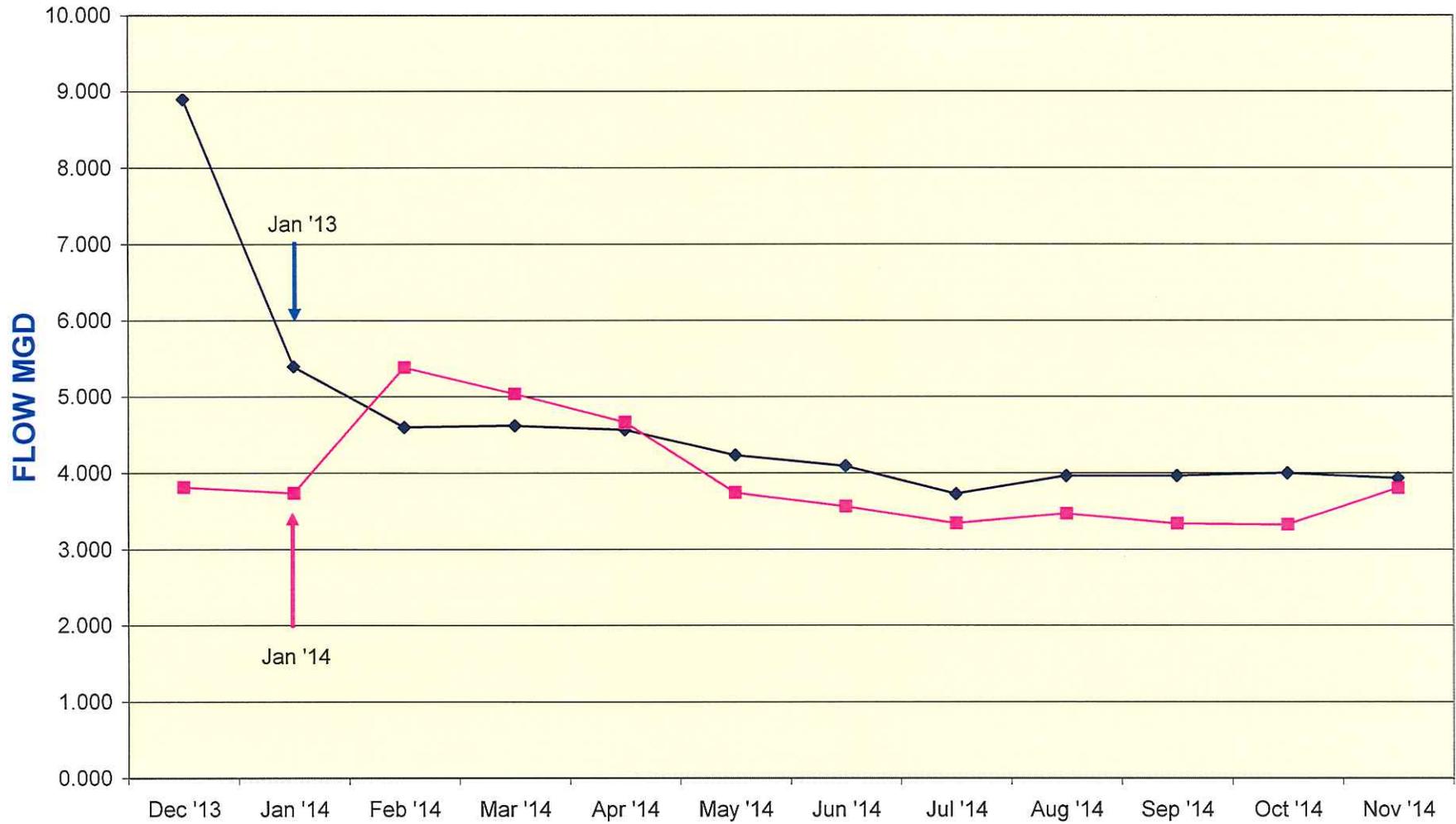
Date	O Temp Max	O Temp Min	Dew Max	Dew Min	Heat Max	O Hum Max	O Hum Min	Rain Max	Speed Max
1	67	48	56	46	65	100	53	0.00	19
2	71	48	53	44	69	100	41	0.00	15
3	71	44	62	44	68	100	47	0.00	14
4	72	43	61	43	71	100	49	0.00	9
5	75	46	65	46	74	100	51	0.00	10
6	77	49	63	49	78	100	54	0.00	16
7	78	48	65	48	79	100	56	0.00	9
8	79	46	69	46	81	100	51	0.00	8
9	80	47	68	47	82	100	50	0.00	8
10	77	46	64	46	78	100	53	0.00	10
11	69	54	60	50	68	100	59	0.00	11
12	67	49	56	44	66	100	61	0.03	10
13	67	52	66	52	69	100	88	0.08	11
14	70	46	65	46	70	100	66	0.00	16
15	72	44	61	44	71	100	50	0.00	14
16	66	43	56	33	64	100	30	0.00	9
17	66	37	51	34	64	100	38	0.00	12
18	62	44	50	38	62	85	54	0.00	12
19	56	49	54	45	56	100	68	0.47	10
20	57	52	57	52	57	100	100	0.76	16
21	59	48	59	48	59	100	100	0.01	8
22	68	53	66	49	69	100	76	0.19	22
23	68	43	52	43	66	100	48	0.00	9
24	70	38	58	38	69	100	55	0.00	6
25	64	41	55	41	64	100	69	0.00	9
26	67	42	57	42	66	100	60	0.00	6
27	66	42	58	42	65	100	66	0.00	8
28	66	40	66	40	68	100	80	0.13	9
29	66	55	66	55	68	100	93	0.60	9
30	60	52	59	52	60	100	94	0.55	13
Month	80	37	69	33	82	100	30	2.82	22
	°F	°F	°F	°F	°F	%Rh	%Rh	In	mph

DD Heat=

DD Cool=

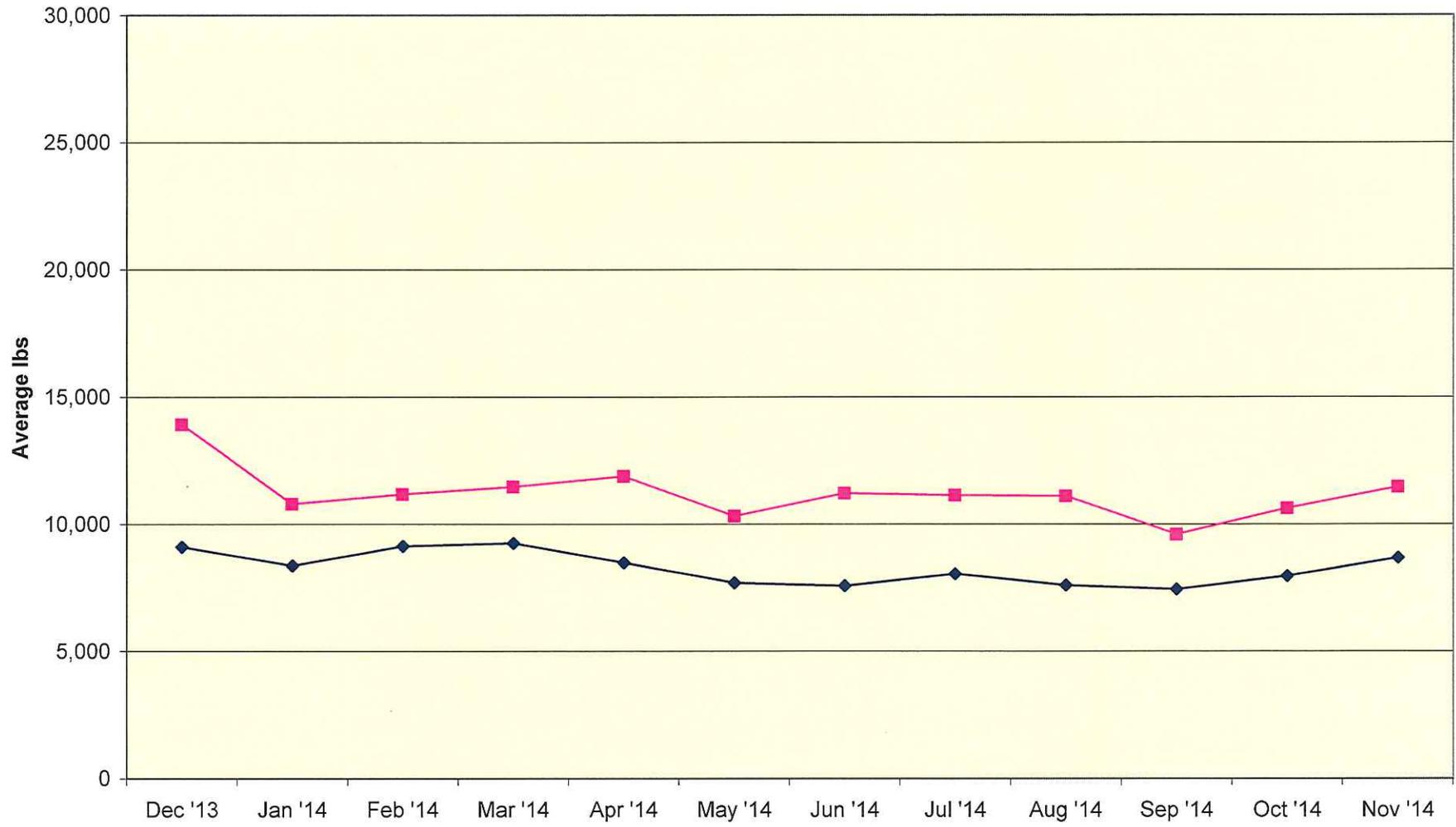
# FLOW COMPARISON

—◆— 2012 / 13    —■— 2013 / 14



### Influent Load BOD / TSS lbs

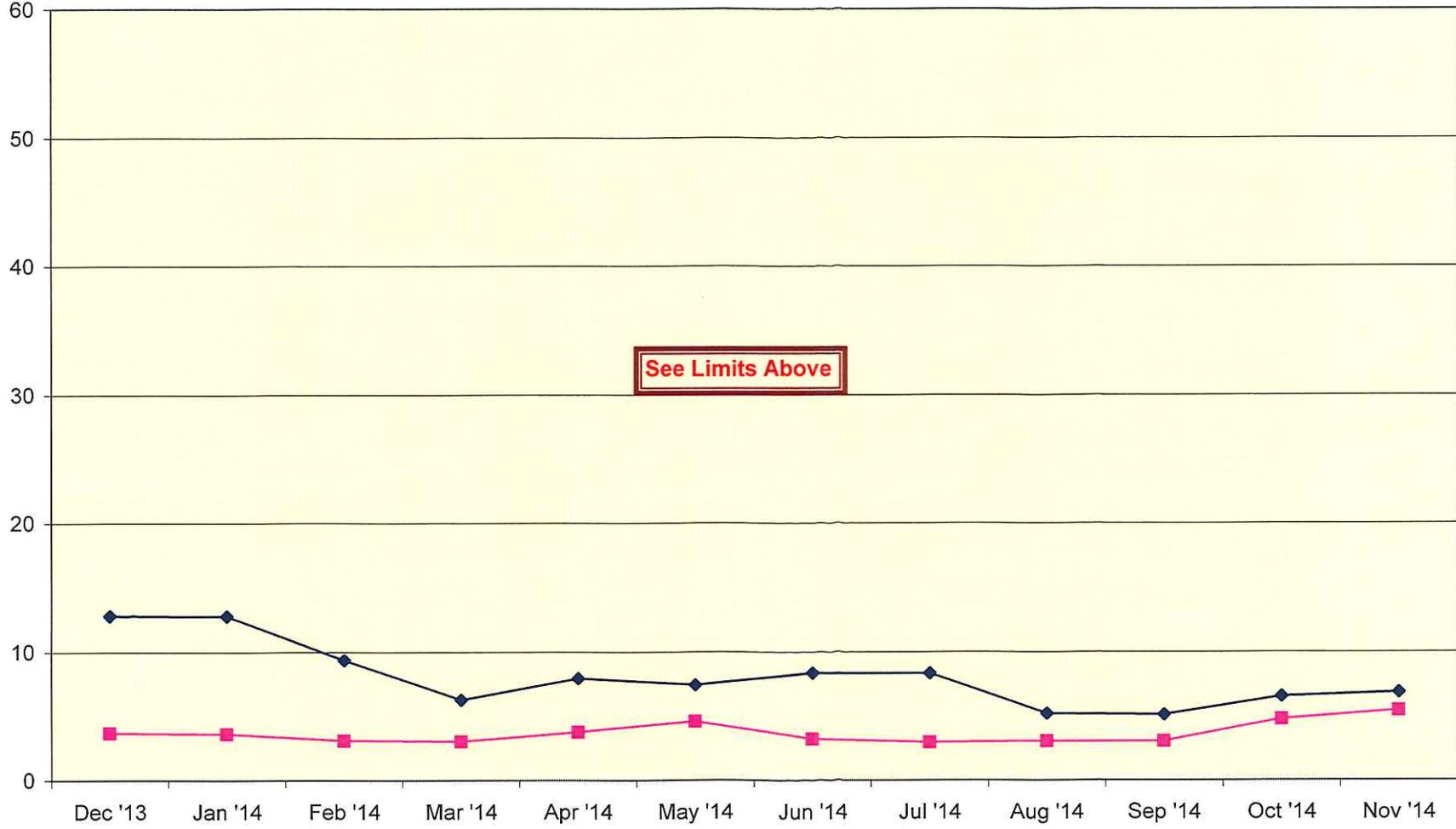
◆ BOD lbs    ■ TSS lbs



# Effluent BOD / TSS Concentration

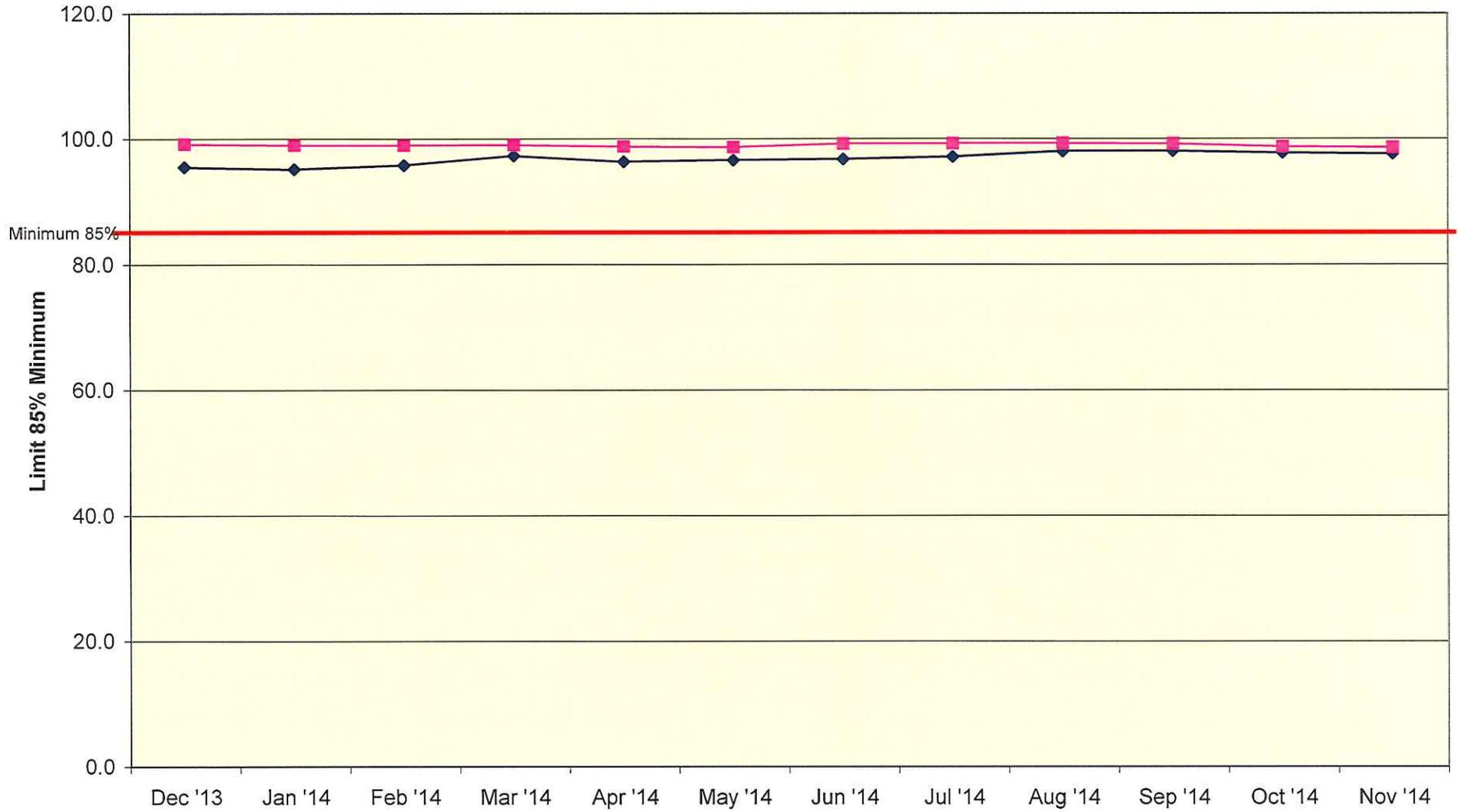
**NPDES LIMITS WET SEASON**  
BOD & TSS - 30 mg/L Monthly Ave, 45 mg/L Weekly Ave  
NPDES LIMITS DRY SEASON  
BOD - 15 mg/L Monthly Ave, 30 mg/L Weekly Ave  
TSS - 10 mg/L Monthly Ave, 20 mg/L Weekly Ave  
WDR (Waste Discharge Requirements) RECLAMATION  
BOD - 40 mg/L

◆ BOD ■ TSS



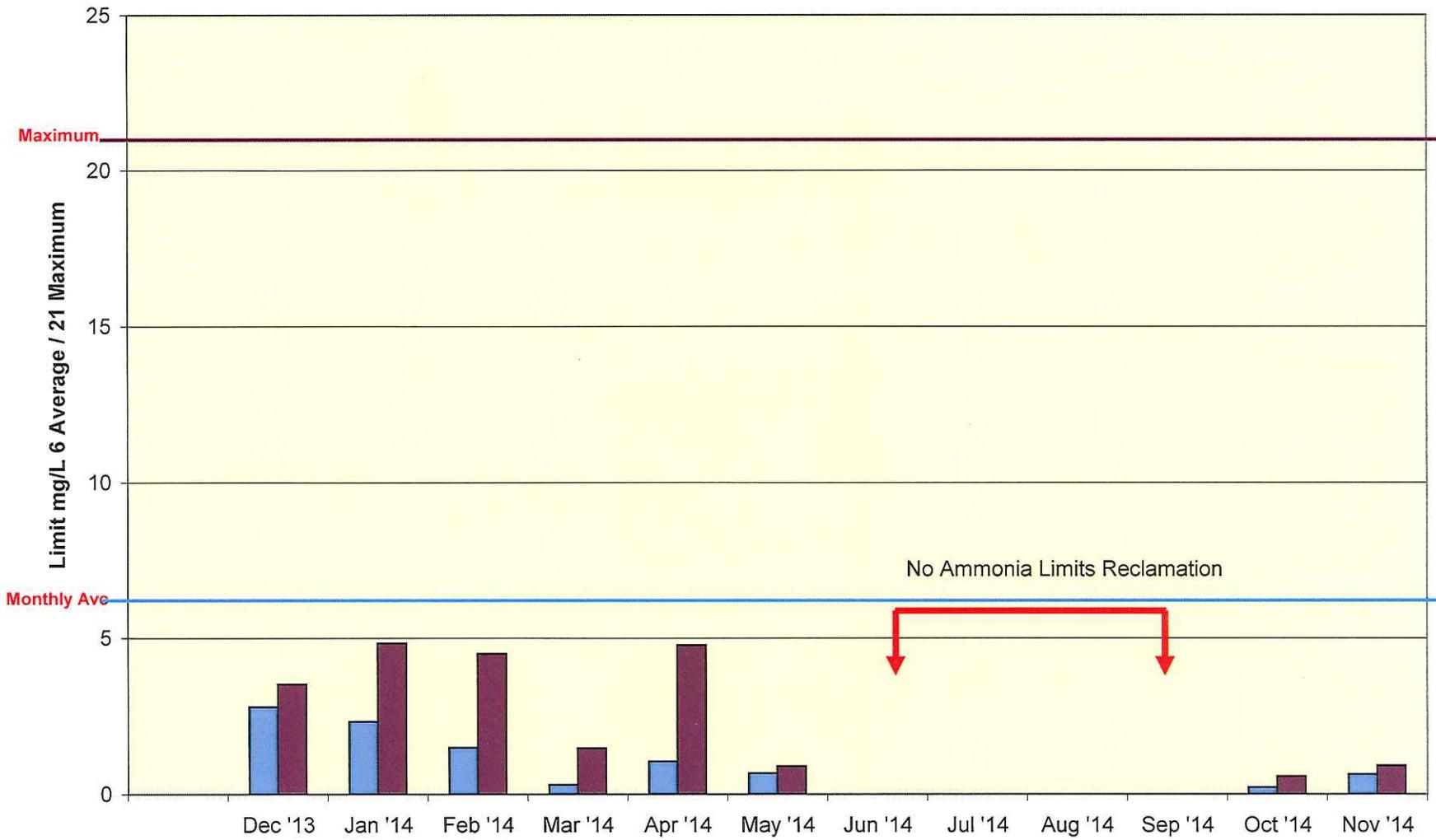
# BOD / TSS Percent Removal

◆ BOD ■ TSS



# Effluent Ammonia

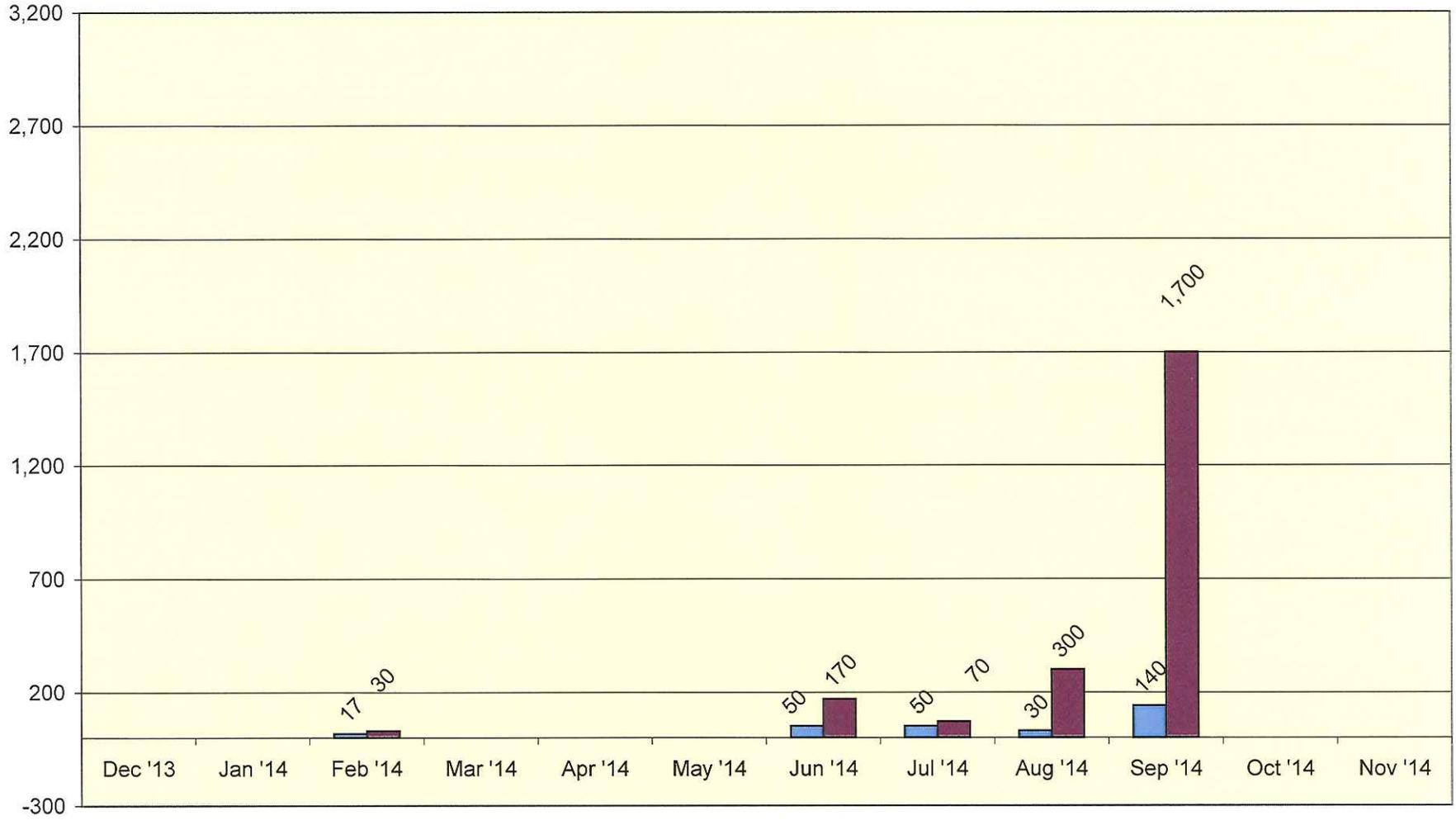
Average Maximum



# Disinfection - Total Coliform

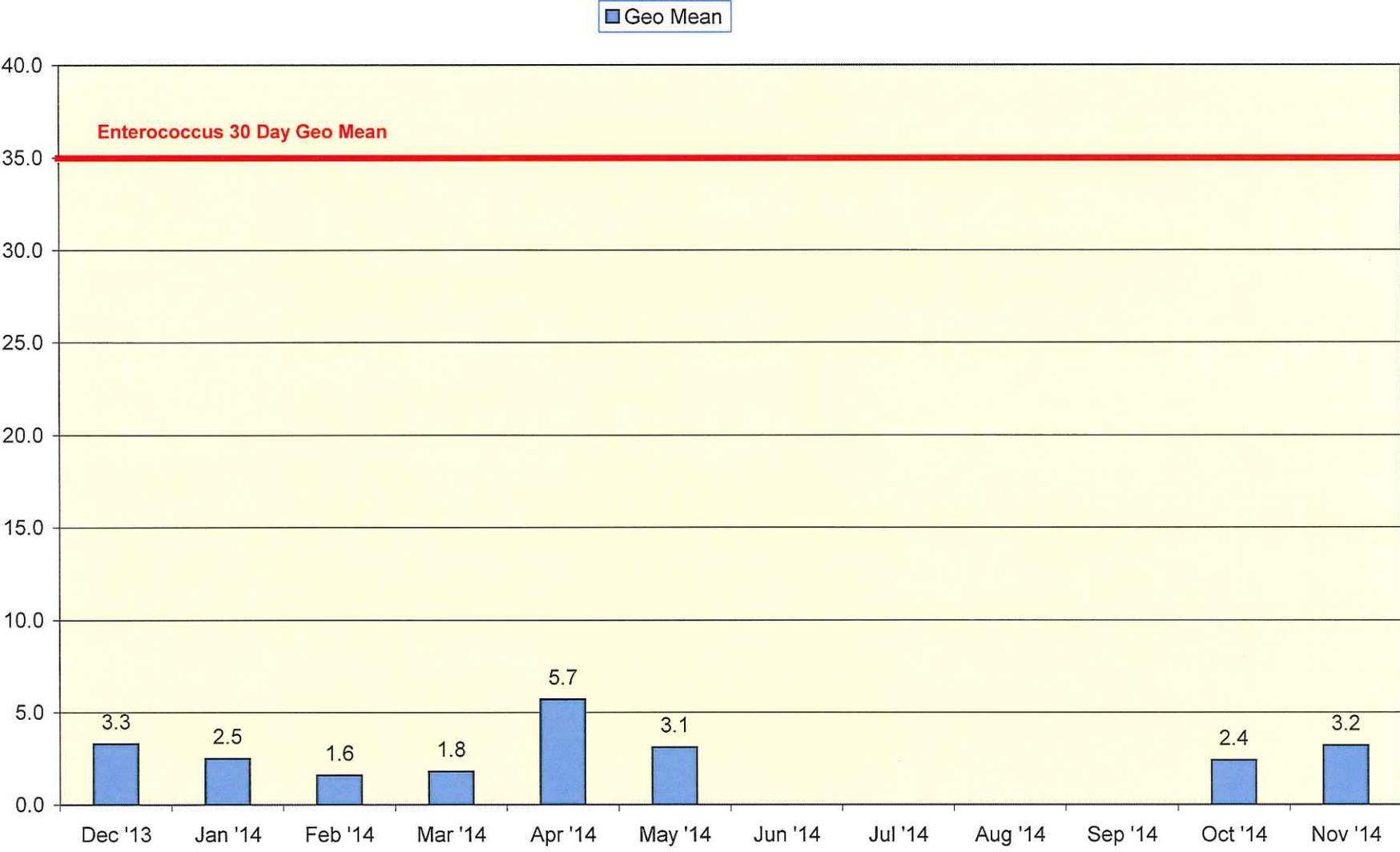
TOTAL COLIFORM LIMITS - WDR  
5 Sample Median - 240 mpn /100 ml  
Maximum - 10,000 mpn/100 ml

5 Sampl Med Monthly Max



# Disinfection - Enterococcus

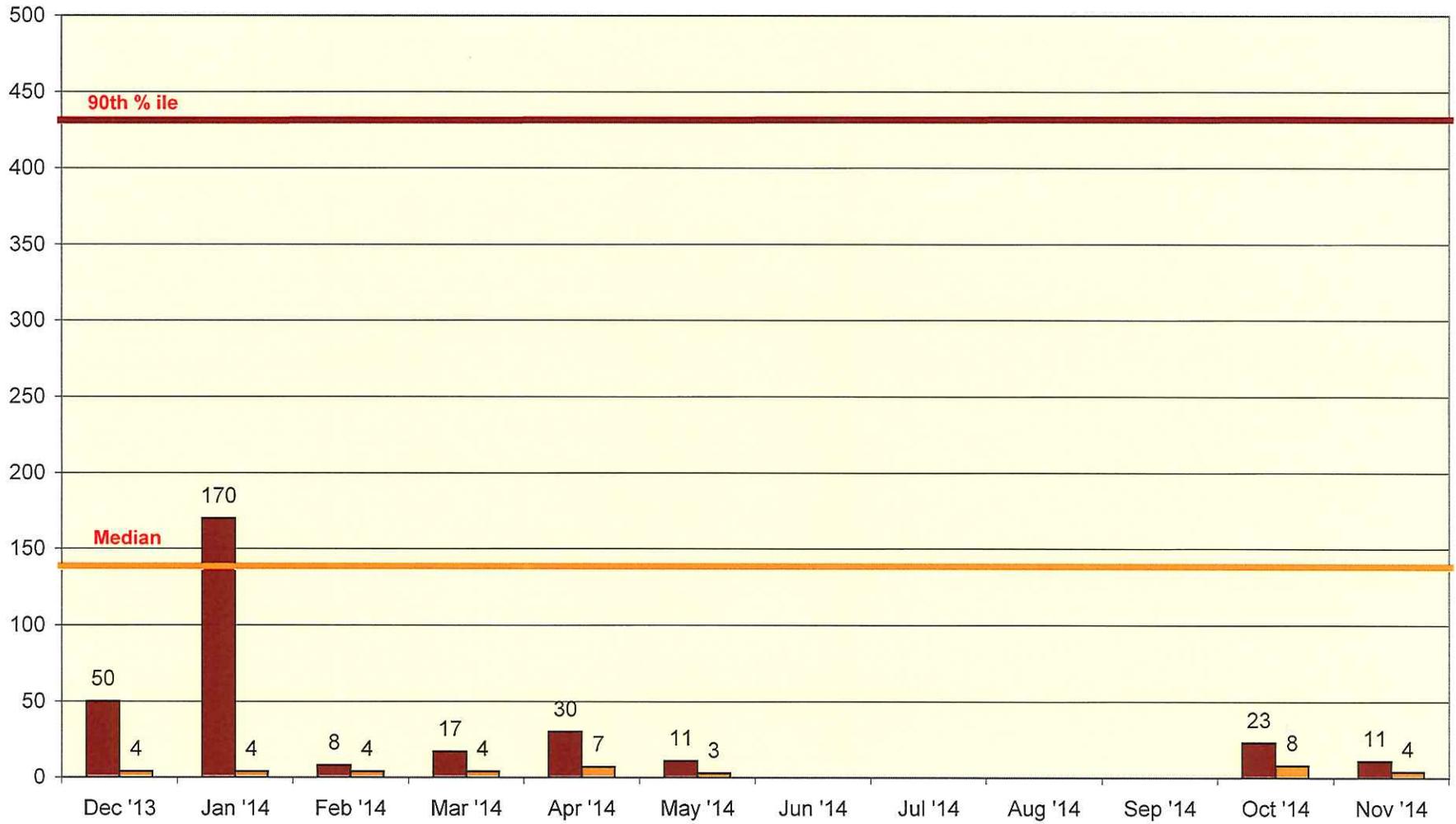
LIMITS - NPDES  
Entero 30 day geo mean 35 mpn /100ml



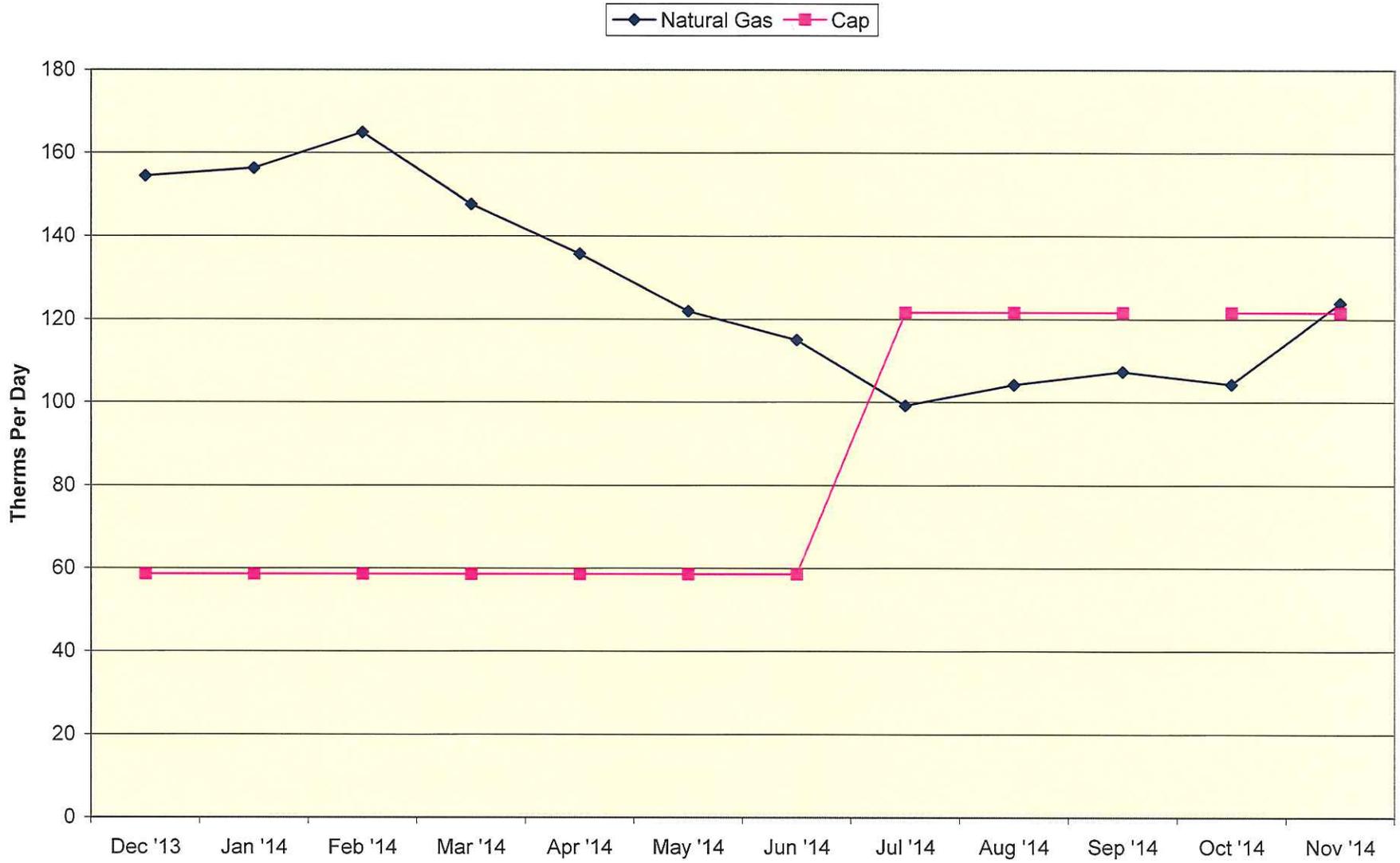
# Disinfection - Fecal Coliform

LIMITS - NPDES  
Fecal 140 mpn monthly median  
Fecal 430 mpn 90th percentile 30 day

90th % ile 30 day med

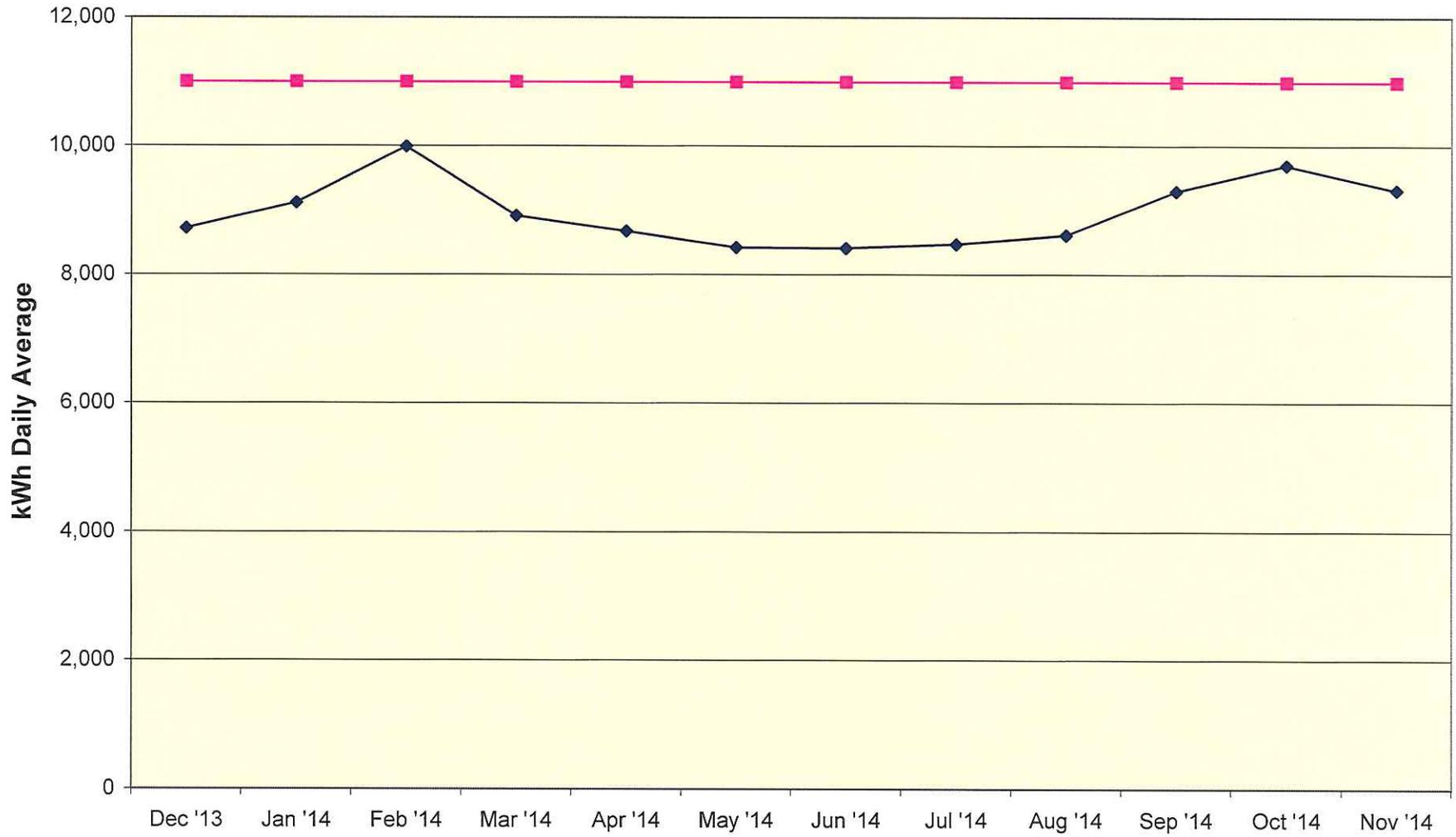


### Natural Gas Use



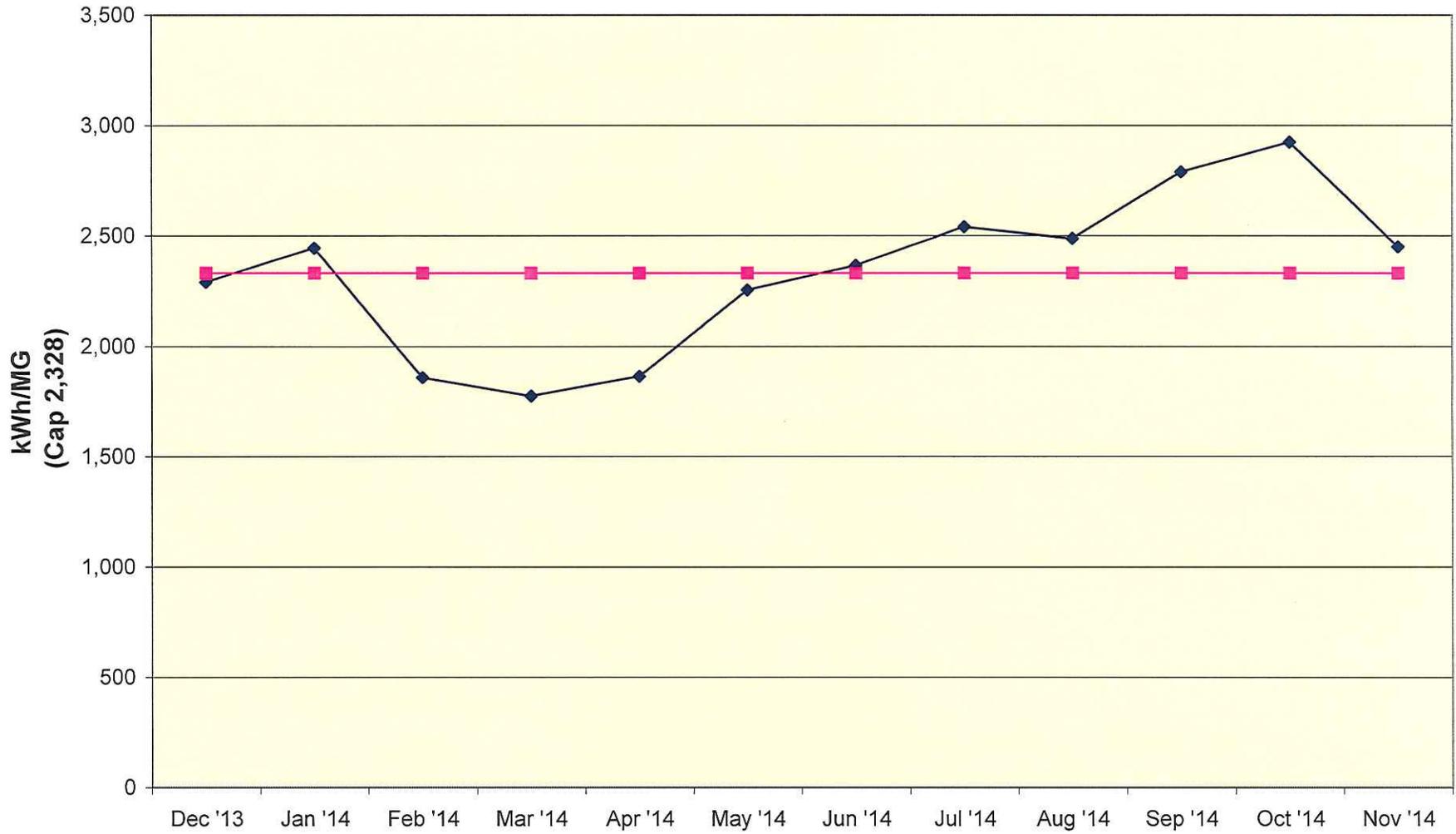
# Energy kWh

◆ kWh ■ Cap

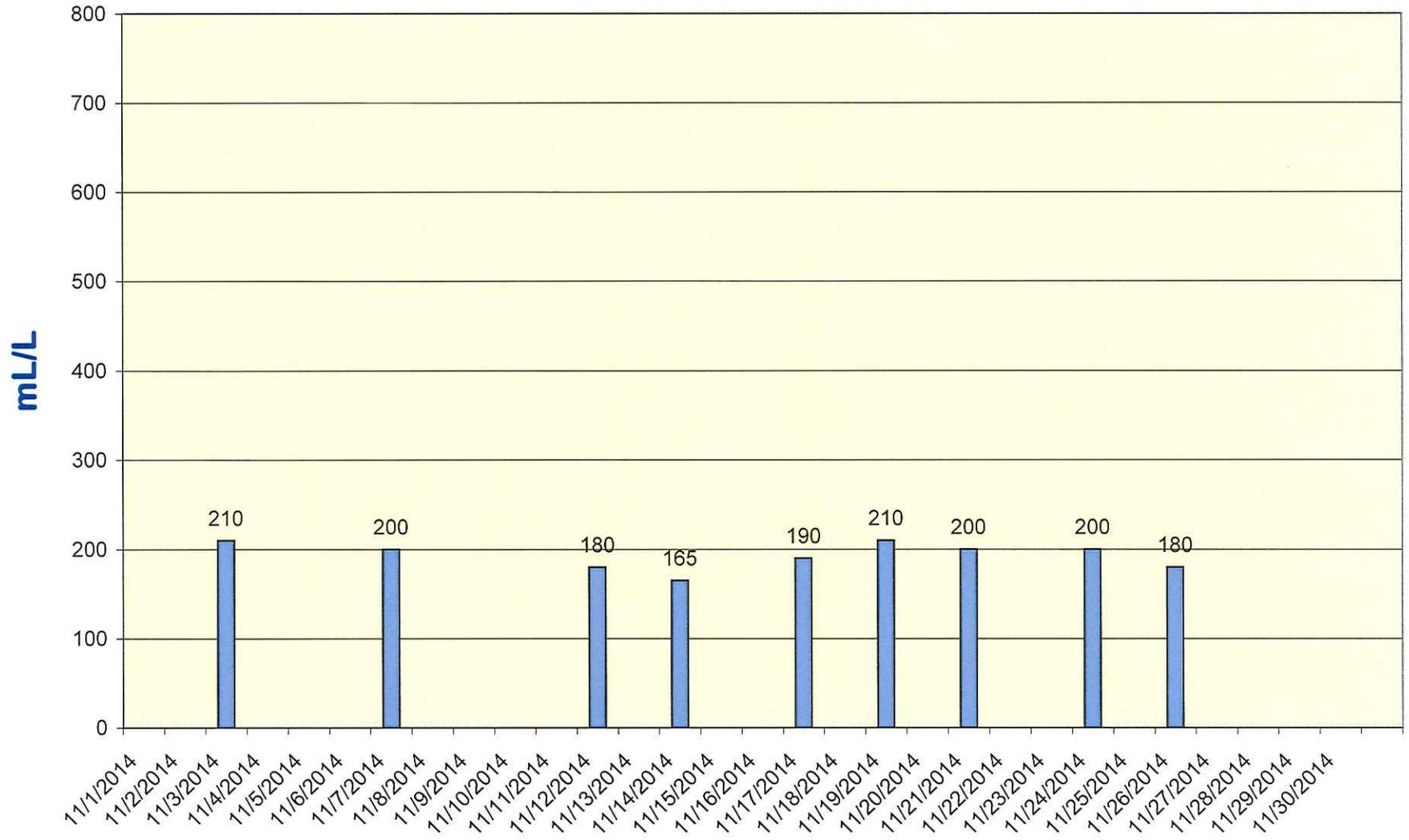


# Energy kWh/MG

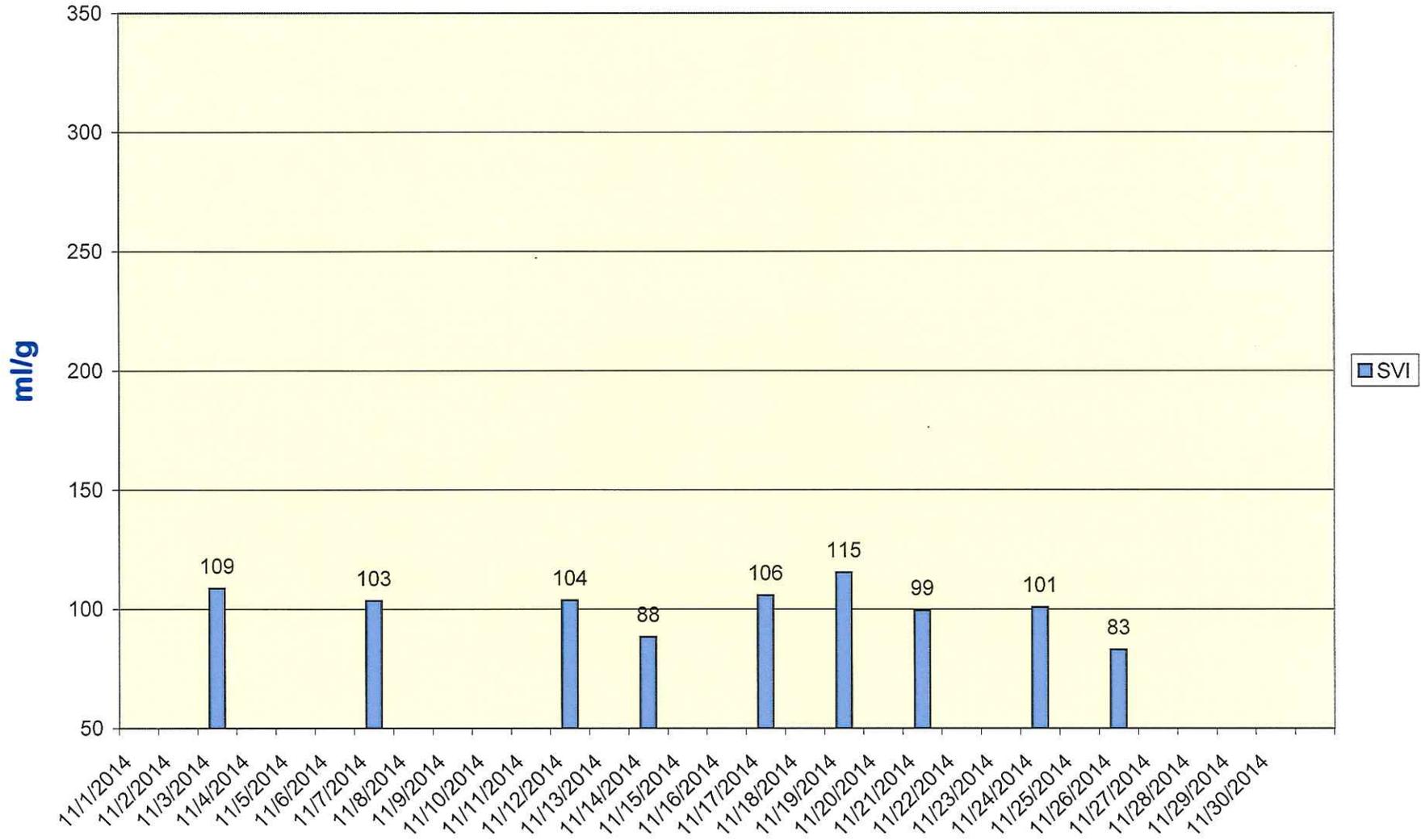
—◆— kWh/MG —■— Cap



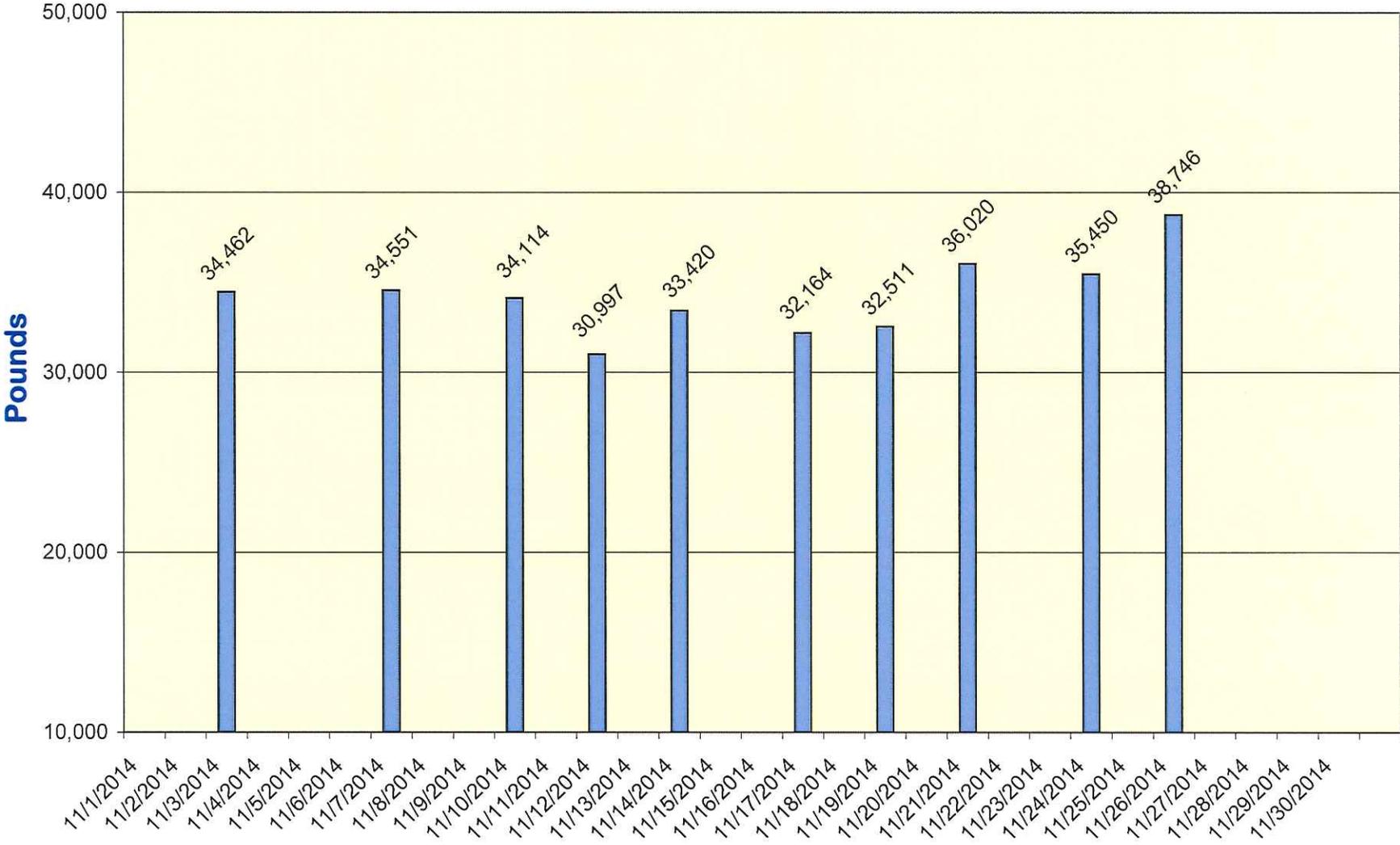
# Settleability



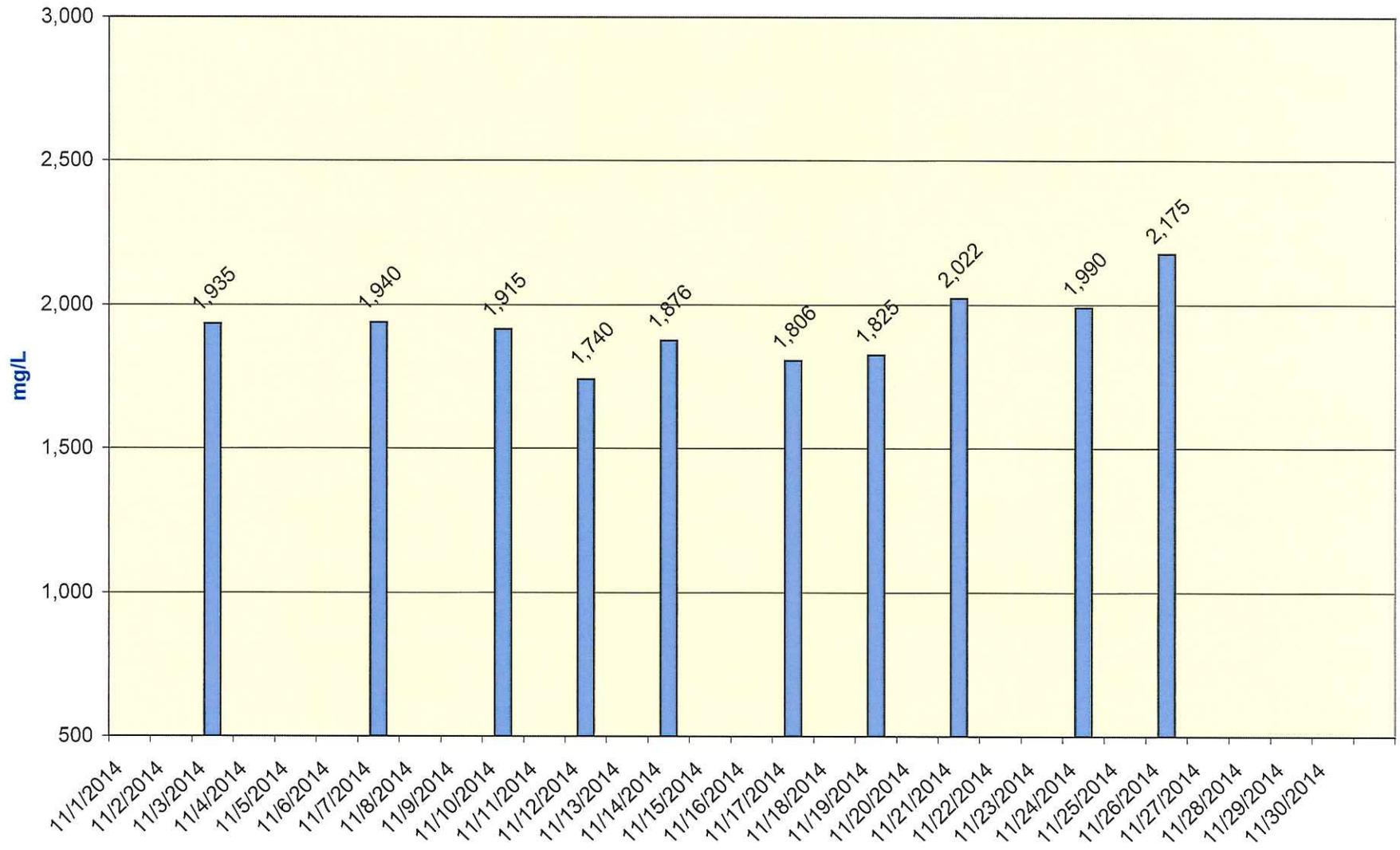
# Sludge Volume Index



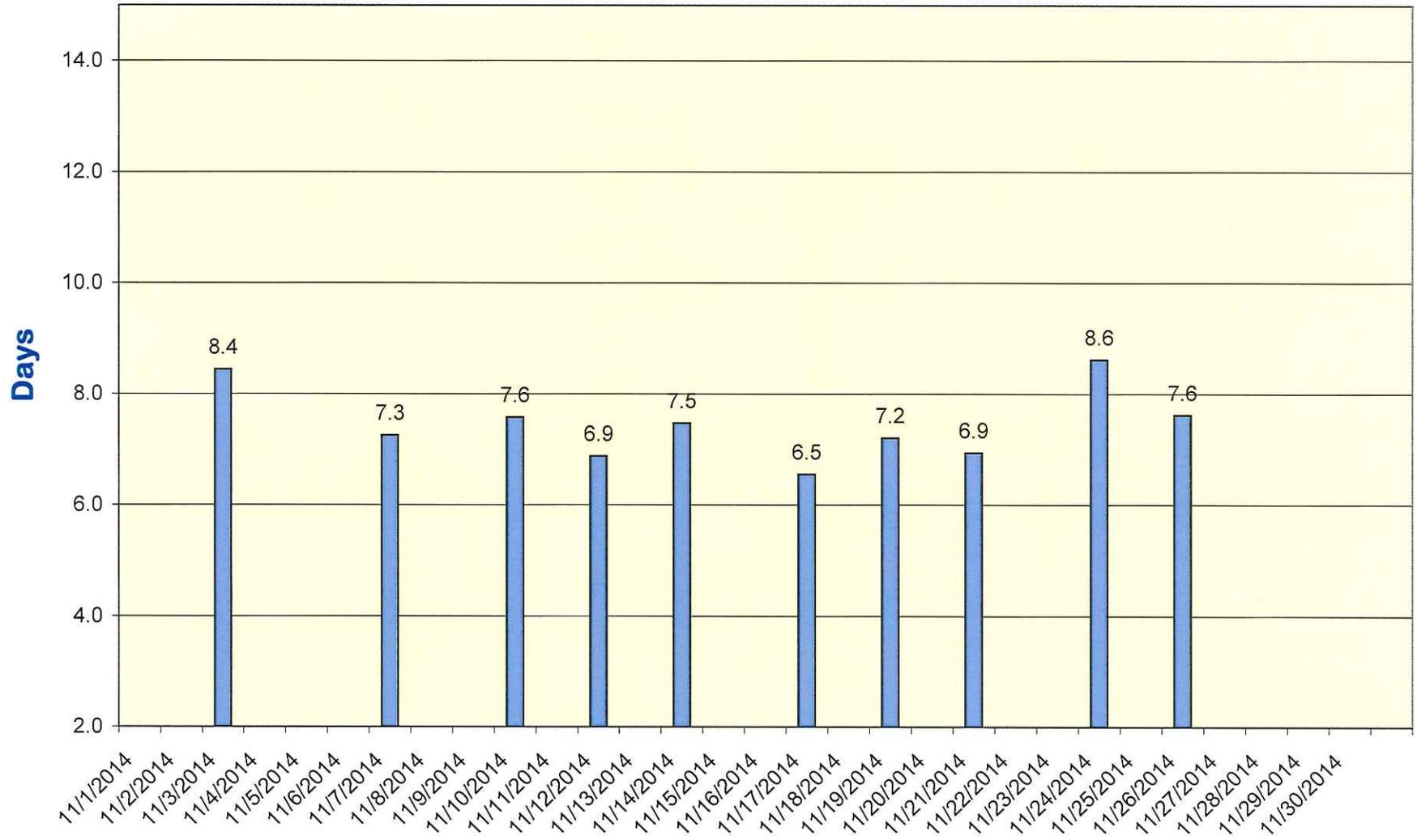
# MLSS Inventory



### MLSS Concentration



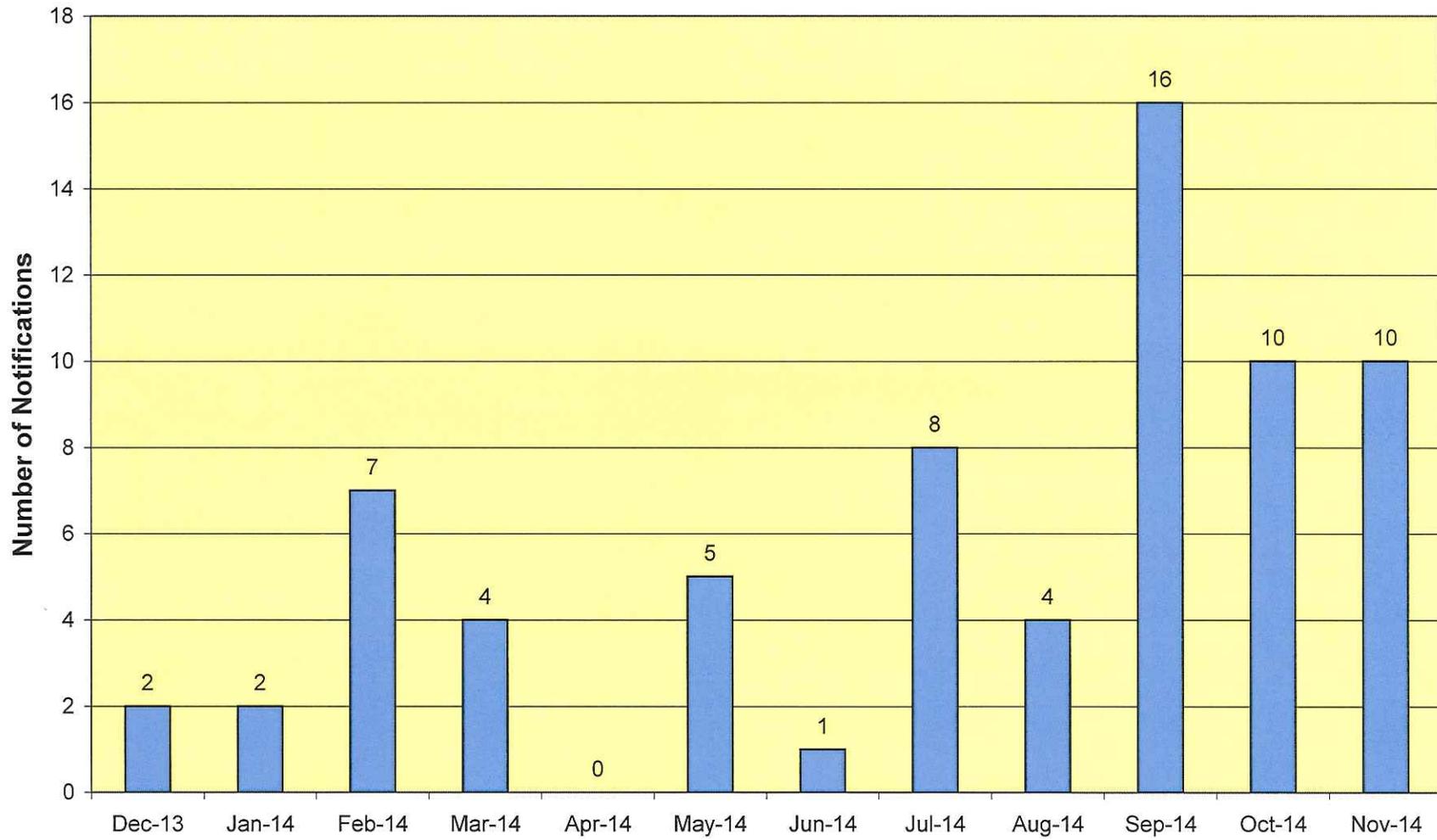
## Mean Cell Residence Time

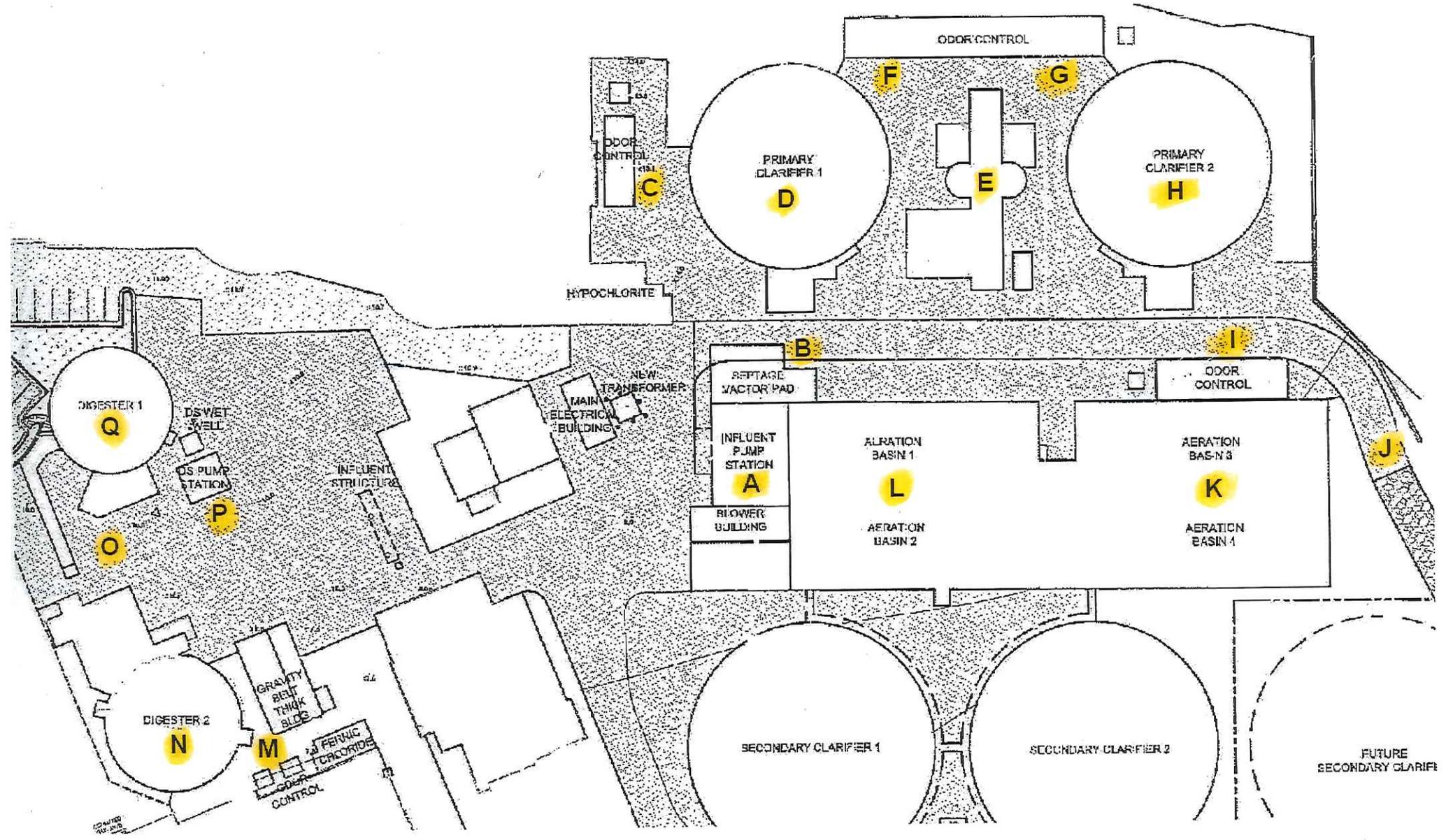


## Process Control Data

	Influent Flow	Settleability	MLSS Concentration	MLSS Inventory	F:M Ratio	MCRT	SVI
11/1/2014	3.42						
11/2/2014	3.52						
11/3/2014	3.37	210	1,935	34,462		8.4	109
11/4/2014	3.05						
11/5/2014	3.14						
11/6/2014	3.31						
11/7/2014	3.00	200	1,940	34,551	0.16	7.3	103
11/8/2014	3.14						
11/9/2014	3.20						
11/10/2014	3.32		1,915	34,114	0.20	7.6	
11/11/2014	3.75						
11/12/2014	3.60	180	1,740	30,997	0.22	6.9	104
11/13/2014	3.74						
11/14/2014	3.68	165	1,876	33,420		7.5	88
11/15/2014	3.78						
11/16/2014	3.84						
11/17/2014	3.40	190	1,806	32,164		6.5	106
11/18/2014	3.29						
11/19/2014	4.02	210	1,825	32,511		7.2	115
11/20/2014	4.78						
11/21/2014	4.20	200	2,022	36,020		6.9	99
11/22/2014	4.34						
11/23/2014	3.82						
11/24/2014	4.07	200	1,990	35,450		8.6	101
11/25/2014	3.96						
11/26/2014	3.95	180	2,175	38,746		7.6	83
11/27/2014	4.05						
11/28/2014	3.98						
11/29/2014	5.47						
11/30/2014							
Minimum	3.00	165.00	1,740.00	30,997	0.16	6.5	83
Maximum	5.47	210	2,175	38,746	0.22	8.6	115
Total	108.19	1,735	19,223	342,434	0.58	74.5	908
Average	3.73	193	1,922	34,243	0.19	7.5	101

## Complaints / Contacts Received







2963

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35°06'06.60" N 122°33'07.68" W elev 28 ft

Eye alt 980 ft

Location	Time	Wind		Temp F°	H <sup>2</sup> S PPM	Notes
		MPH	Direction			
A: Influent Pump Station						
B: Septage Dumpster						
C: Primary Clarifier #1 Odor Bed						
D: Primary Clarifier #1						
E: Headworks						
F: Primary Clarifier #2 Odor Bed West						
G: Primary Clarifier #2 Odor Bed East						
H: Primary Clarifier #2						
I: Influent Odor Bed						
J: Behind Aeration Basins						
K: Between Aeration Basins #3 & #4						
L: Between Aeration basins #1 & #2						
M: Digester Odor Bed						
N: Digester #2						
O: Flare Stack						
P: Digested Sludge Transfer Pit						
Q: Digester #1						
R: McClelland						
S: Lea 1						
T: Lea 2						
U: Lea 3						
V: Lea 4						
W: Lea 5						
Other						
Primary Clarifier #1 Headspace						
Primary Clarifier #2 Headspace						

**These steps must be followed prior to using the Jerome meter:**

1. Zero the Jerome Meter. Press and hold the ZERO button. If a 0 appears on the screen, proceed to step 2. If an L appears on the screen, use the trim tool to turn the Zero Adjust knob clockwise until a 0 appears. If an H appears on the screen, use the trim tool to turn the Zero Adjust knob counter clockwise until a 0 appears.
2. Attach the Zero Air Filter to the Jerome Meter and press the SAMPLE button. The meter will take an air sample. The result of this sample should be below 0.003\* ppm.
3. Check this box to confirm that the Jerome Meter has been zeroed and that the result was below 0.003 ppm
4. The Jerome Meter can now be used by pressing the SAMPLE button to take H<sup>2</sup>S readings

**These steps must be followed at the end of the day when the Jerome Meter is no longer to be used:**

1. Plug the power cord into the back of the Jerome Meter. Make sure the power cord is plugged into an outlet.
2. If the small black sample tube is not already installed, install it now.
3. Press the REGEN button. The Jerome Meter will flash .H.H.H during the 10 minute regen cycle. **DO NOT INTERRUPT THIS PROCESS.** If the regen is successful, the display will read .0.0.0 when complete. If any error message is displayed, refer to page 24 - 26 of the manual.
4. Wait at least 30 minutes before zeroing and using the Jerome Meter after regen is complete.
3. Check this box to confirm that the regen has been performed.

\* Readings between 0.000 and 0.003 are considered 0.

**WORK ORDER STATISTICS**

**November 1, 2014 - November 30, 2014**

	<b>Open Work Orders Due Prior to 11/1/14</b>	<b>Open Work Orders 11/1/14 - 11/30/14</b>	<b>Total Open Work Orders</b>
Preventative	0	379	379
Corrective	0	42	42
Total	0	421	421

	<b>Closed Work Orders 11/1/14 - 11/30/14</b>
Preventative	354
Corrective	23
Total	377

<b>Total Outstanding Work Orders as of December 1, 2014</b>	<b>44</b>
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**NOVATO SANITARY DISTRICT**  
**Wastewater Operations Committee Meeting**  
**Odor Control and Landscaping Report**  
**November 2014**

**Background:**

The District continues to work on odor control and landscaping, specifically at the fence-line area next to the Lea Drive neighborhood, and at the northeast portion of the Novato Treatment Plant (NTP) site. As mentioned in prior reports, the District has already invested significant amounts beyond the substantial investment for odor control and landscaping from the original WWTP Upgrade Project. These additional costs have included operational changes, measures related to further odor control measures, noise abatement, visual screening, wind shielding, and daily monitoring.

**Odor control:**

As mentioned in the October report, it was found that media in the large odor control bed between primary clarifiers #1 & #2 was breaking down, and the breakdown was resulting in potential odor release from the media decomposition and/or breakthrough. Staff initially obtained quotes to replace the media in its entirety. But it was recognized that the timing (with wet weather and the holiday season coming up) may not allow timely and effective completion of the entire replacement. Therefore, staff also obtained a quote to top-off the bed in November to account for the depleted media, with the concept that complete media replacement would occur next year. The bed was topped off in November and after an initial acclimation and stabilization period, appears to be performing satisfactorily.

Based on the prior testing by Dave McEwen of Brown and Caldwell (B&C), the District's odor consultant, operations staff continues to work on tweaking the air flow input to the converted anoxic zones in the aeration basins to find the optimum operating range(s) where odor causing compounds can be oxidized.

Also, another of Mr. McEwen's odor control recommendations, i.e. adding an oxidizing agent, sodium hypochlorite, to the influent flow continues as needed. While the results are good anecdotally, staff continues to monitor performance.

**Landscaping:**

Landscaping activity was light in November, but staff continues to work with the District's landscaping contractor Cagwin and Dorward (C&D) on vegetation at the District's fence-line on Lea Drive and at the northeast corner area of the NTP. Staff completed staking areas to receive additional plantings. It is anticipated that depending on weather, all of the anticipated plantings will occur in December or early January.

\*\*\*\*\*

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
November 2014**

**General:**

The breakdown of Collection System department staff time for November 2014, in terms of equivalent full-time employee (FTE) hours utilized, works out approximately as follows:

- 1.9 FTE field workers for Sewer Maintenance (main line cleaning)
- 0.7 FTE field workers for Pump Station Maintenance
- 0.3 FTE field workers for Closed Circuit Television (CCTV) work
- 1.6 FTE field workers for time spent on data input, training, service calls, overflow response, or any other activity that does not directly relate to main line cleaning, CCTV work or pump station maintenance, and
- 2.4 FTE field workers Vacation/Sick Leave/Holiday

**Collection System Maintenance:**

Performance metrics for the department are presented in the attached graphs showing the length of line cleaned/month, footage cleaned/hour worked, overflows/month, and the CCTV footage achieved. A brief discussion is also provided below.

Line Cleaning Performance:

A total of 483 work orders were generated for November by the ICOM3 Computerized Maintenance Management System (CMMS). Staff completed 383 work orders leaving 92 work orders outstanding. The 383 maintenance work orders completed in November resulted in 63,279 feet of sewer pipelines cleaned by staff. Outside contractors also cleaned 22,606 feet of trunk sewer main line during the month. Of the 93 outstanding work orders, 85 are work orders for rodding. The new rodding machine was not available because it was in the shop for warranty repairs related to minor mechanical and electrical issues. The outstanding rodding work orders will be completed in December.

CCTV Performance:

The District's CCTV van was in the field for 6 working days, inspecting 39 line segments totaling 5,636 feet. Staff also televised 1,368 feet using the Push Cam. Outside contractors televised 22,606 feet of trunk sewer main line during the month.

CCTV Findings:

- Infrastructure related: The November CCTV work identified one area that will require further evaluation by staff on Novato Blvd.
- O&M related: The November CCTV work did not identify any areas that require a change in sewer line operations.

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
November 2014**

**Collection System Projects:**

The District entered into two informal contracts under the provisions of the Uniform Public Construction Cost Accounting Act (UPCCAA): (1) Repair of an 8-inch sewer main at 14 Angelica Court, and (2) Replacement of 199 feet of 6-inch sewer main across Redwood Blvd. at Hill Road. Work is scheduled to start in early December if the weather is favorable.

**Pump Station Maintenance:**

The Collection System Department conducted 275 lift station inspections this month. 140 of the inspection visits were generated through the District's JobsCal Plus CMMS system. There are 7 outstanding work orders for the month that will be completed in December.

The main power breakers for the Vintage Oaks #1 and #2 pump stations were replaced this month.

A Collection Systems (Pump Stations) Work Order Statistics summary is attached.

**Air Relief/Vacuum Valves (ARVs):**

Staff completed maintenance inspections on 1 air relief/vacuum valve.

**Safety and Training:**

General: Collection System staff attended four safety tailgate meetings.

Specialized training:

- Justin Wall attended the Underground Locator training at CMSA.
- Dasse de longh attended an all-day Collection Workers Job Safety training in San Leandro.
- The Department attended Blood Borne Pathogen and Fall Protection training at the District Boardroom.

Safety performance:

There were no lost time accidents this month for a total of 1,625 accident free days.

**Standard Operating Procedures (SOPs):**

Department staff did not generate any SOPs during the month of November. Staff is currently working on updating the master SOP matrix with a goal to have it available at the next Operations Committee Meeting.

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
November 2014**

**Emergency Operating Procedures (EOPs) – Pump Stations:**

The Pump Station EOPs are complete and while they are not public documents, a compiled copy of all the EOPs is available for internal viewing.

**Sanitary Sewer Overflows (SSOs):**

The District did not have any overflows in November.

**Novato Sanitary District**  
**Collection System Monthly Report For November 2014 (as of November 30, 2014)**

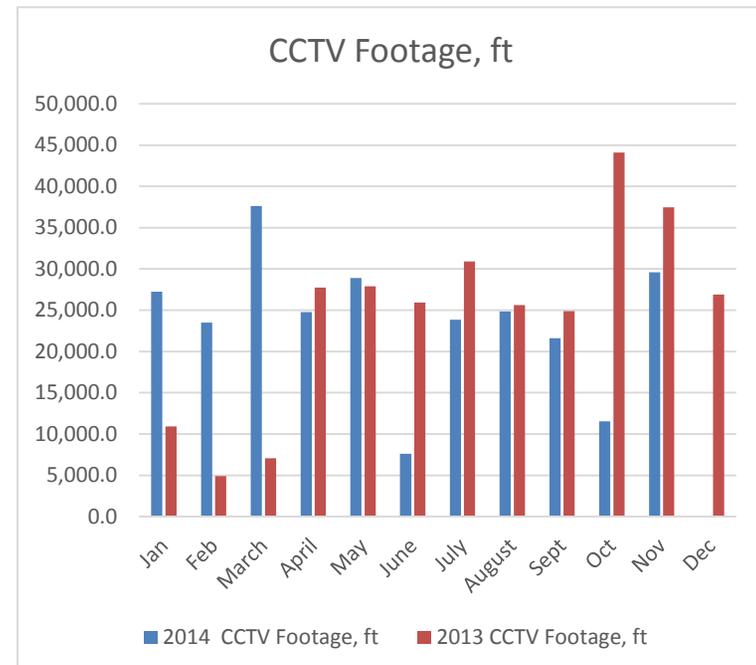
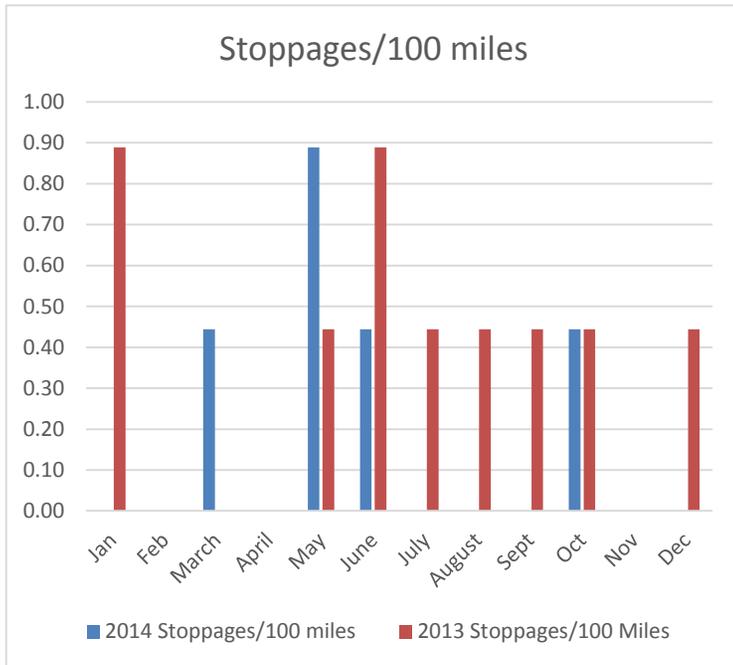
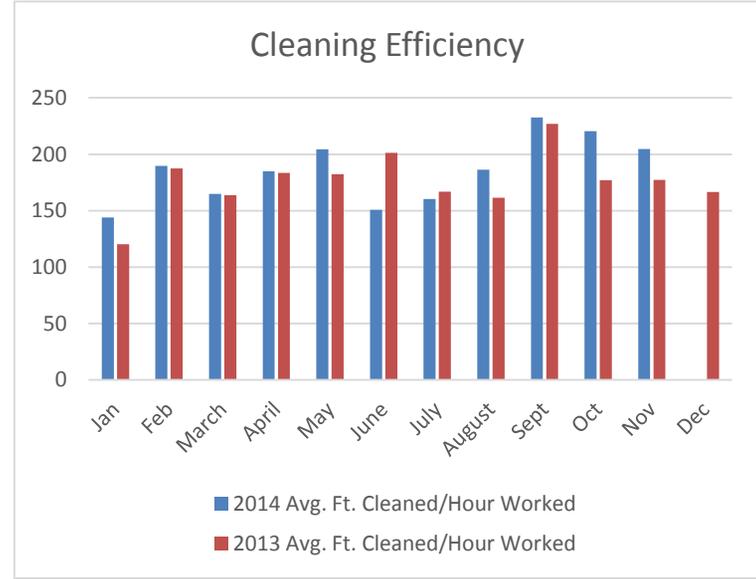
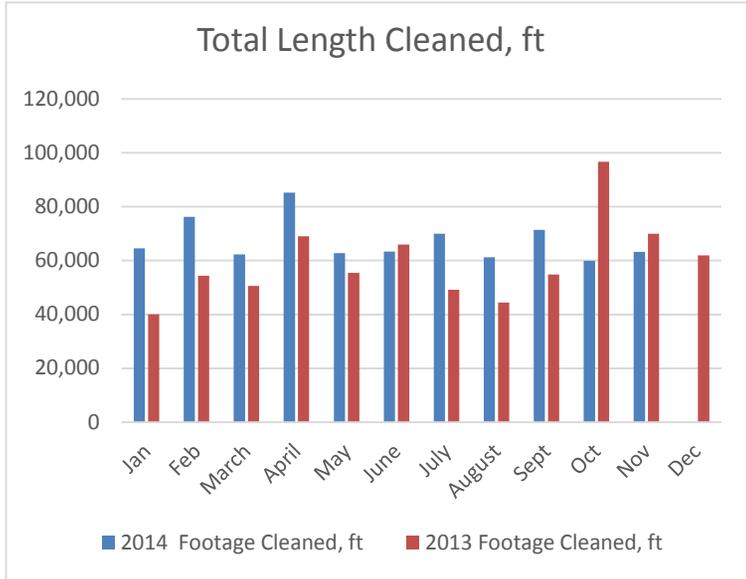
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total Year to Date	Average Year to Date
<b>A. Employee Hours Worked</b>														
Number of FTEs (main line cleaning), hrs.	2.6	2.5	2.2	2.6	1.8	2.5	2.3	2.0	1.7	1.5	1.9		NA	2.2
Number of FTEs (other)	1.7	1.6	2.1	1.8	1.7	2.1	1.9	1.8	1.7	2.1	1.6		NA	1.8
Number of FTEs (CCTV)	0.9	0.8	1.0	0.8	0.9	0.2	0.3	0.9	0.6	0.6	0.3		NA	0.7
Total, FTEs	5.2	4.9	5.3	5.1	4.4	4.8	4.6	4.7	4.0	4.2	3.8		NA	4.7
Regular Time Worked, (main line cleaning), hrs	448	402	378	461	308	420	436	329	307	272	309			
Regular Time Worked on Other, hrs (1)	294	262	350	313	297	362	358	298	303	391	258			
Regular Time Worked on CCTV (2)	158	125	172	136	164	38	63	145	110	103	48			
Total Regular time, worked, hrs	900	789	900	909	768	820	857	772	720	766	615		8,815	801
Total Vacation/Sick Leave/Holiday, hrs	285	151	101	143	220	195	198	126	294	284	389		2,386	217
Vacation/Sick Leave/Holiday, FTEs	1.6	0.9	0.6	0.8	1.3	1.2	1.1	0.8	1.7	1.6	2.4		13.9	1.3
Overtime Worked on Coll. Sys., hrs	2	8	3	15	0	3	17	1	5	7	10		71	6
Overtime Worked on Other, hrs (1)	22	17	16	31	35	26	15	17	27	17	30		252	23
Overtime Worked on CCTV (2)	0	0	0	3	0	0	4	0	0	1	0		8	1
Total Overtime, hrs	24	25	19	49	35	29	36	18	32	25	39	NA	330	30
<b>B. Productivity</b>														
<b>1. Line Cleaning</b>														
Rodder Work Orders generated	57	30	24	78	20	72	73	68	29	69	100		620	56
Rodder 3203 ft. cleaned	10,989	3,337	6,378	11,933	1,388	12,770	9,286	6,005	289	461	3,989		66,825	6,075
Rodder - outside services, ft cleaned	0	0	0	0	0	0	0	0	3,494	3,720	0		7,214	656
Flusher Work Orders generated	351	352	369	532	313	308	333	288	450	525	375		4,196	381
Truck 3205V ft. cleaned	16,187	16,552	18,158	802	13,575	9,410	17,136	3,441	16,834	205	2,262		114,562	10,415
Truck 3206V ft. cleaned	37,342	56,332	37,781	72,511	47,863	41,143	43,561	51,825	54,306	59,316	57,028		559,008	50,819
Flusher - outside services, ft. cleaned	2,301	1,570	6,492	11,155	0	0	7,216	1,717	8,585	0	22,606		61,642	
Total Footage cleaned(3)	64,518	76,221	62,317	85,246	62,826	63,323	69,983	61,271	71,429	59,982	63,279		740,395	67,309
Work Orders completed	408	361	393	580	313	348	371	292	431	382	383		4,262	387
Work Orders backlog	66	21	0	30	20	32	35	64	48	212	92		620	56
<b>2. Closed Circuit Television (CCTV)</b>														
Camera Work Orders generated	0	0	0	0	0	0	0	0	0	0	0		0	
CCTV Truck 3126T, ft. videoed	24,487	21,931	31,116	19,331	27,555	5,560	11,827	19,137	12,090	11,282	5,636		189,952	17,268
CCTV (hand cam), ft. videoed	449	0	0	5,428	1,340	2,056	4,802	3,983	946	268	1,368		20,640	
CCTV Inspection - outside services, ft. videoed	2,301	1,570	6,492	0	0	0	7,216	1,717	8,585	0	22,606		50,487	
Total CCTV footage(3)	27,237	23,501	37,608	24,759	28,895	7,616	23,845	24,837	21,621	11,550	29,610	NA	261,079	
<b>C. Sanitary Sewer Overflows (SSOs)</b>														
Minor (Category III)	0	0	0	0	2	1	0	0	0	1	0		5	NA
Major (Category II)	0	0	0	0	0	0	0	0	0	0	0		4	NA
Major (Category I)	0	0	1	0	0	0	0	0	0	0	0		0	NA
Overflow Gallons	0	0	180	0	50	235	0	0	0	5	0		1	NA
Volume Recovered	0	0	0	0	50	235	0	0	0	5	0		470	NA
Percent Recovered	NA	NA	0%	NA	100%	100%	NA	NA	NA	100%	NA	NA	290	NA
													62%	NA
<b>D. Service Calls (non-SSO related)</b>														
Service calls, normal hours, #	8	3	5	4	4	3	6	9	5	7	7		61	6
Normal hours S.C. response time, mins (avg.)	38	19	25	18	14	16	15	16	20	20	23		224	20
Service Callouts, after hours, #	0	1	1	1	1	1	3	1	0	0	0		9	1
After Hours S.C. response time, mins (avg.)	0	15	40	42	13	25	34	10	0	0	0		179	16
<b>E. Benchmarks</b>														
Average Ft. Cleaned/Hour Worked	144	190	165	185	204	151	161	186	233	221	205	NA	NA	186
Total Stoppages/100 Miles	0.0	0.0	0.4	0.0	0.9	0.4	0.0	0.0	0.0	0.4	0.0		2.2	NA
Average spill response time (mins)	0	0	18	0	39	14	0	0	0	0	0		NA	6
Callouts/100 Miles	0.0	0.4	0.4	0.4	0.4	0.4	1.3	0.4	0.0	0.0	0.0		4.0	0.4
Overtime hours/100 Miles	1	4	1	7	0	1	8	0	2	3	4		31.33	3
Overflow Gallons/100 Miles	0	0	80	0	22	104	0	0	0	2	0		209	19

(1) This category includes time spent on: Data input, Training, Service Calls, Overflow Response, as well as any other activity that does not directly relate to main line cleaning or CCTV work.

(2) This category separates time spent on CCTV from other Collection System maintenance activities.

(3) Does not include outside services (tracked separately)

# Collection System 2013-14 Graphs



Novato Sanitary District

Pump Station Monthly Report For November 2014 (as of November 30, 2014)

	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total Year to Date	Average Year to Date
<b>Employee Hours Worked</b>	248	212	205	226	251	190	334	304	258	255	163		2,645	
Number of Employees (FTEs)	1.4	1.1	1.1	1.1	1.3	1.0	1.4	1.5	1.3	1.3	0.7			1.2
Regular Time Worked on Pump Sta	231	181	183	194	229	169	255	250	232	230	117		2,270	
Overtime Worked on Pump Sta	17	31	22	32	22	22	79	54	26	26	46		376	
After Hours Callouts	1	5	1	5	6	1	11	7	6	4	4		51	
Average Callout response time (mins)	30	26	25	33	13	22	39	27	26	28	35		304	28
<b>Work Orders</b>														
Number generated in month	124	115	147	116	130	143	150	122	153	136	140		1476	
Number closed in month	121	110	142	109	128	139	127	112	147	127	133			
Backlog	3	5	5	7	2	4	23	10	6	9	7			

**COLLECTION SYSTEM (Pump Stations)  
WORK ORDER STATISTICS  
November 1, 2014 - November 30, 2014**

	<b>Open Work Orders Due Prior to 11/1/2014</b>	<b>Open Work Orders 11/1/2014 - 11/30/2014</b>	<b>Total Open Work Orders</b>
Preventive	7	133	140
Corrective	0	0	0
<b>Total</b>	<b>7</b>	<b>133</b>	<b>140</b>

	<b>Closed Work Orders 11/1/2014 - 11/30/2014</b>
Preventive	133
Corrective	0
<b>Total</b>	<b>133</b>

<b>Total Outstanding Work Orders as of 11/30/2014</b>	<b>7</b>
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**NOVATO SANITARY DISTRICT**  
**Wastewater Operations Committee Meeting**  
**Reclamation Facilities Report**  
**November 2014**

**Summary:**

The rancher prepared to move his operation off site for the season. Pump No. 2 at Drainage Pump Station No. 7 was inspected at the repair shop and no problems were found. There were no irrigation or sludge handling activities this month

**Ranch Operations:**

The rancher prepared his herds of cattle for moving off of all three sites for the season. Herds were moved off of Sites 2 & 3, the remaining herd on Site 7 will be moved offsite in early December.

**Irrigation Parcels:**

The District entered into an Agreement with Custom Tractor Service to complete the Phase 2 rehabilitation work on Site 2 on Parcels 2, 3, 6 & 7. Work has not begun.

As reported last month, Pump No. 2 at Drainage Pump Station No. 7 was pulled by an outside vendor for inspection because it sounded rough and was shaking the pump station when running. When the pump was removed from the station the vendor inspected the pump and did not see any obvious causes for the noise or vibration so the pump was taken to their shop for further analysis.

After cleaning and disassembling the pump, no problems were found. Staff and the vendor think that some heavy debris may have entered the pump when on initial operation, and the impeller was rubbing on the debris when turning. These debris may have dropped out of the pump when it was pulled out of the water. The pump will be re-installed next month.

As part of the Drainage Pump Station Improvement Project, new screening is being installed to prevent debris from entering the area around the pump inlets to prevent this from happening in the future. In addition, staff is considering contracting with a local contractor to remove silt from around the pump station so the pump inlets are clear.

**Irrigation Pump Station:**

There was no irrigation activity this month.

**Sludge Handling & Disposal:**

There was no sludge handling activity this month.

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**NOVATO SANITARY DISTRICT**  
**Reclamation Facility - Monthly Statistics for Calendar Year 2014, as of October 2014**

	January	February	March	April	May	June	July	August	September	October	November	December	Total Year to Date	Annualized Monthly Average
<b>Irrigation Pump Station</b>														
Plant flow to ponds (MG)	0	59.39	0	0	0	90.36	103.36	89.67	89.11	0	0		431.89	35.99
Irrigation (MG)	17.87	0	7.0	0	15.57	65.36	63.45	88.19	37.77	59.7	0		354.91	29.58
Irrigation Pump 1 Hours	29.3	0	13.5	0	27.5	107.8	106.8	127.4	77.2	158.7	0		648.2	54.02
Irrigation Pump 2 Hours	0	0	2.9	0	35.3	106.6	103.8	126.7	84.4	561.1	0		1020.8	85.07
Irrigation Pump 3 Hours	31.4	0	14.4	0	25.9	133.1	103.2	120.3	0.3	0	0		428.6	35.72
Washdown Water Pump Hours	0	0	0	0	0	0	0	0	0	0	0		0	0.00
Wildlife Feed Pump Hours	0	0	0	0	352.9	747.6	212.4	0	0	0	0		1312.9	109.41
Water Circulated through Wildlife Pond (MG)	0	0	0	0	22.23	47.10	13.38	0	0	0	0	0	82.7127	6.89
Strainer No. 1 Hours	-	-	0.9	0	10.9	44.1	37.2	43.5	23.6	36.8	0		197	16.42
Strainer No. 2 Hours	-	-	1	0	10.8	43.9	38.2	47.7	20.9	37.3	0		199.8	16.65
Pond 1 Gauge @ Beginning of Month	3.3	2.4	6.1	5.2	5.2	3.9	4.4	5.3	4.2	7	3.2			
Pond 1 Gauge @ End of Month	2.4	6.1	5.2	5.2	3.9	4.4	5.3	4.2	7	3.2	3.2			
Pond 1 Gallons Stored @ End of Month(MG)	15.2	45.8	37.6	37.6	27.2	31.2	38.4	29.6	53	21.6	21.6			
Pond 2 Gauge @ Beginning of Month	3.3	2.2	6.1	5.2	5.2	4	4.4	5.4	4.3	7	3.3			
Pond 2 Gauge @ End of Month	2.2	6.1	5.2	5.2	4	4.4	5.4	4.3	7	3.3	3.3			
Pond 2 Gallons Stored @ End of Month(MG)	17	58	49	49	36	40	51	39	68	28.6	28.6			
Total Irrigation Water Stored	32.2	103.8	86.6	86.6	63.2	71.2	89.4	68.6	121	50.2	50.2	0		
<b>Drainage Pump Station No. 3</b>														
Drainage Pump No. 1 Hours	0	0	0	0	0	0	0	0	16.9	0	38.2			
Drainage Pump No. 2 Hours	0	0	14	0	0	0	0	0	0	2.9	0.4			
Drainage Pump No. 3 Hours	0.7	134.5	0	31.1	0.8	0	0	0	0	0	5.6			
Total Gallons Stormwater Pumped (MG)	0.21	40.35	4.2	9.33	0.24	0	0	0	5.07	0.87	13.26	0	73.53	6.13
<b>Drainage Pump Station No. 7</b>														
Drainage Pump No. 1 Hours	0	24.2	13.2	3.9	0	0	0	0	0.6	4	1.4			
Drainage Pump No. 2 Hours	0	106.6	48.8	9.5	0	0	0	0	0.4	0.1	0			
Drainage Pump No. 3 Hours	0	1.7	0.9	0	0	0	0	0	0.3	1.1	38.6			
Total Gallons Stormwater Pumped (MG)	0	59.63	28.31	6.03	0	0	0	0	0.585	2.34	18	0	114.885	9.57