

NOVATO SANITARY DISTRICT

Meeting Date: March 17, 2014

The Wastewater Operations Committee of the Novato Sanitary District will hold a meeting at 2:00 PM, Monday, March 17, 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. CONSIDER APPROVAL OF MINUTES OF THE FEBRUARY 19, 2014 MEETING

4. WASTEWATER TREATMENT FACILITIES OPERATIONS AND MAINTENANCE REPORT FOR FEBRUARY 2014:

- a. Treatment Plant Performance Report
- b. Maintenance Report
- c. Safety and training
- d. Odor control, noise, and landscaping report
- e. Brown and Caldwell (B&C) presentation on odor control

5. COLLECTION SYSTEM OPERATIONS AND MAINTENANCE REPORT FOR FEBRUARY 2014:

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

6. RECLAMATION FACILITY REPORT FOR FEBRUARY 2014

- a. Ranch Operations
- b. Irrigation Parcels
- c. Irrigation Pump Station

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.

February 19, 2014

A regular meeting of the Wastewater Operations Committee of Novato Sanitary District was held at 3:00 p.m., Wednesday, February 19, 2014, at the District Office, 500 Davidson Street, Novato.

MEMBERS PRESENT: NSD Board Members William Long and Jerry Peters.

STAFF PRESENT: Sandeep Karkal, Deputy Manager-Engineer
Steve Krautheim, Field Services Superintendent
John Bailey, Project Manager, Veolia Water
Julie Swoboda, Administrative Secretary
(*Beverly James, Manager-Engineer, was absent*)
(*Tim O'Connor, Collections System Supervisor, was absent.*)

ALSO PRESENT: John Bailey, Plant Manager, Veolia Water
Brian Exberger, Assistant Project Manager, Veolia Water
John O'Hare, Veolia Water
Bob Guinan, Novato resident
Joe Carlomagno, Novato resident

AGENDA APPROVAL: The agenda was approved as presented.

PUBLIC COMMENT: None.

APPROVAL OF MEETING MINUTES FOR JANUARY 21 AND FEBRUARY 6, 2014:
The January 21 and February 6, 2014 meeting minutes were approved as written.

WASTEWATER TREATMENT FACILITIES OPERATIONS AND MAINTENANCE REPORT FOR JANUARY 2014:

- Treatment Plant Performance Report, Maintenance Report and Safety & Training:
John Bailey, Plant Manager, Veolia Water, gave an overview of the treatment plant operations for the month of January. He stated there were no permit exceedances, violations or excursions and noted that the treatment facility and the recycled water facility continue to run very well. Mr. Bailey stated that routine rounds, readings and maintenance were performed at the Novato Treatment Facility, the Ignacio Transfer Pump Station, the Recycled Water Plant and the Sludge Lagoons. He noted that Primary Clarifier #2 was placed back in service and that Primary Clarifier #1 was taken out of service for repair and cleaning.

Mr. Bailey reported that Veolia employees have been accident free for a total of 1,338 days/61,013 hours. He stated that Jerome Meter (H₂S) readings continue to be taken within the treatment plant as well as in the Lea Drive neighborhood area. Mr. Bailey stated a meeting was held with the Lea Drive neighborhood representatives to provide

them with an update of odor control efforts. He stated that no recycled water was produced in January.

- Odor control, noise, and landscaping report: Deputy Manager-Engineer Sandeep Karkal stated that Mr. Dave McEwen of Brown and Caldwell had issued preliminary recommendations for odor control at the aeration basins and he noted that Veolia continues to implement the recommendations. He noted that an update meeting had been held with the Lea Drive neighborhood representatives on February 7th to provide details of Mr. McEwen's progress regarding odor control. He provided a preview of the February 7th meeting and explained that more details would be forthcoming in March as part of the February Wastewater Operations Committee report.0.

COLLECTION SYSTEMS OPERATION AND MAINTENANCE REPORT FOR JANUARY 2014:

The Deputy Manager-Engineer discussed the Collection Systems Monthly Report for January 2014. He reported that the Collection Systems crew cleaned a total of 64,518 feet of sewer pipeline and that the department completed 408 maintenance work orders which were generated in January. The Deputy Manager-Engineer stated that the Collections Department has worked accident free for a total of 365 days. He stated that there were no sanitary sewer overflows in the month of January.

RECLAMATION FACILITY REPORT FOR JANUARY 2014:

Field Services Superintendent Steve Krautheim presented the Reclamation Facilities report for January. He stated that the rancher continued to spray weed suppressant around sprinkler heads and that due to the rainfall received, irrigation of the sites was minimal. He discussed repairs to the irrigation system and stated that approximately 17.87 MG of recycled water was used for irrigation.

ADJOURNMENT:

There being no further business to come before the Committee, the meeting adjourned at 4:06 p.m. The next Wastewater Operations Committee meeting will be held on Monday, March 17, 2014.

Respectfully submitted,

Sandeep Karkal
Deputy Manager-Engineer

Julie Swoboda, Recording



March 13, 2014

Ms. Beverly James
Manager - Engineer
Novato Sanitary District
500 Davidson Street
Novato, CA 94545

Subject: Veolia Water Operations Report – February 2014

Dear Ms. James:

We are pleased to provide this updated activity report for February 2014.

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

Regards,

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

John Bailey
Project Manager

**MONTHLY OPERATIONS REPORT
February 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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TREATMENT PLANT PERFORMANCE SUMMARY: February 2014:

Bay Discharge – NPDES Limits

Parameter	Value		Limit	
	Ave	Max	#1	#2
Flow, MGD (monthly ave/max)	5.38	11.56	N/A	N/A
Max Peak Hour, MGD – 2/28/14, 0842 Hours	N/A	23	N/A	N/A
Influent BOD ₅ , lb/day (month ave/max)	8,838	11,980	N/A	N/A
Influent TSS, lb/day (monthly ave/max)	11,171	16,898	N/A	N/A
Effluent BOD ₅ , mg/L (monthly ave/weekly max)	10	13	30	45
Effluent TSS, mg/L (monthly ave/weekly max)	<3	5	30	45
Effluent BOD ₅ - % Removal, Minimum	96	N/A	85	N/A
Effluent TSS - % Removal, Minimum	99	N/A	85	N/A
Ammonia, mg/L – (monthly ave/daily max)	1.49	4.50	6	21
pH, su (min / max)	6.8	7.0	6.5	8.5
Enterococcus, mpn (30 day geo mean)	1.6	N/A	35	N/A
Fecal Coliform, mpn (30 day median)	4	N/A	140	N/A
Fecal Coliform, mpn (90 th percentile)	8	N/A	430	N/A
Total Coliform, mpn (5 Sample Median / Max)	30	17	240	10,000
Total Permit Exceedances (NPDES)	0			

NA – Not Applicable

Discussion of Violations / Excursions: NONE

Title 22 - Recycled Water Production and Quality (Off Line)

Description	Units	Value	Limit
Volume Produced	Million Gallons	N/A	N/A
Average Turbidity	NTU	N/A	N/A
Turbidity > 5 NTU (in 24 hour)	Minutes	N/A	N/A
Minimum CT (disinfection)	ml-min/L	N/A	N/A
Minimum Dissolved Oxygen (DO)	mg/L	N/A	N/A
Maximum Total Coliform	mpn/100 ml	N/A	N/A

Total Rainfall. – 6.77 inches

Daily Max 2/26 – 1.67 inches

OPERATIONS & MAINTENANCE STATUS / REVIEW:**Key events for the period:**

Due to the persistent dry weather pattern leading up to February we transitioned from Bay Discharge to reclamation / storage mode. The Novato Sanitary District secured permission for off season irrigation of pastures in January from the Regional Water Quality Control Board. Within the first two weeks of February we received our first significant rainfall of 2014. On Tuesday February 11th with ample stored water and the likelihood of more rainfall we transitioned back to Bay Discharge.

Novato

- Transitioned from Bay Discharge to Reclamation / Storage mode, 2/1/14
- Routine rounds, readings and maintenance
- Transitioned from Reclamation / Storage Discharge to Bay Discharge mode, 2/11/14
- Gravity Belt Thickener (GBT) Odor Fan #1 - replaced bearings/belts
- Replaced Recycled Water Plant (RWP) Backwash Pumps Breakers
- Wetwell Drain line addition – Distribution Pump RWP
- UV Generator Day Tank Repair - Floats
- Annual Main UPS Battery Check
- Headworks Gate Actuator back from repair and installed
- Replaced tires on Ops Chevy truck
- Annual oil change on PM Dodge Truck
- Replaced bearing on GBT odor fan
- Installed new belt on GBT #2
- Replaced pressure gauge on Primary Clarifier Odor Fan #2
- Replaced UPS batteries on GBT #1 & #2

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

- None

Ignacio Transfer Pump Station

- Routine rounds, readings and maintenance
- Emergency Generator Troubleshoot – overspeed shutdown alarm – repaired
- Replaced Bezel on Operator Interface (touch screen)

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

- Bio-Filter OOS

Recycled Water Plant

- Performed plant rounds and maintenance
- No recycled water production in February

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

- None

Sludge Lagoons

- Performed routine rounds and inspection
- Installed new decant discharge hose

ADMINISTRATION:

- January Electronic Self Monitoring Report submitted on February 27, 2014
- January DMR submitted on February 27, 2014

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 February 2014
- Accident Free: 6/1/10 – 2/28/14: 1,366 days / 62,290 Hours
- Personal Protective Equipment
- Spill Prevention Counter Measures and Control (SPCC) Plan – Novato
- SPCC Plan - Ignacio

ODORS:

- Jerome Meter (H2S) readings performed in neighborhood and within treatment plant.
- Update meeting held to update neighbors

MISCELLANEOUS

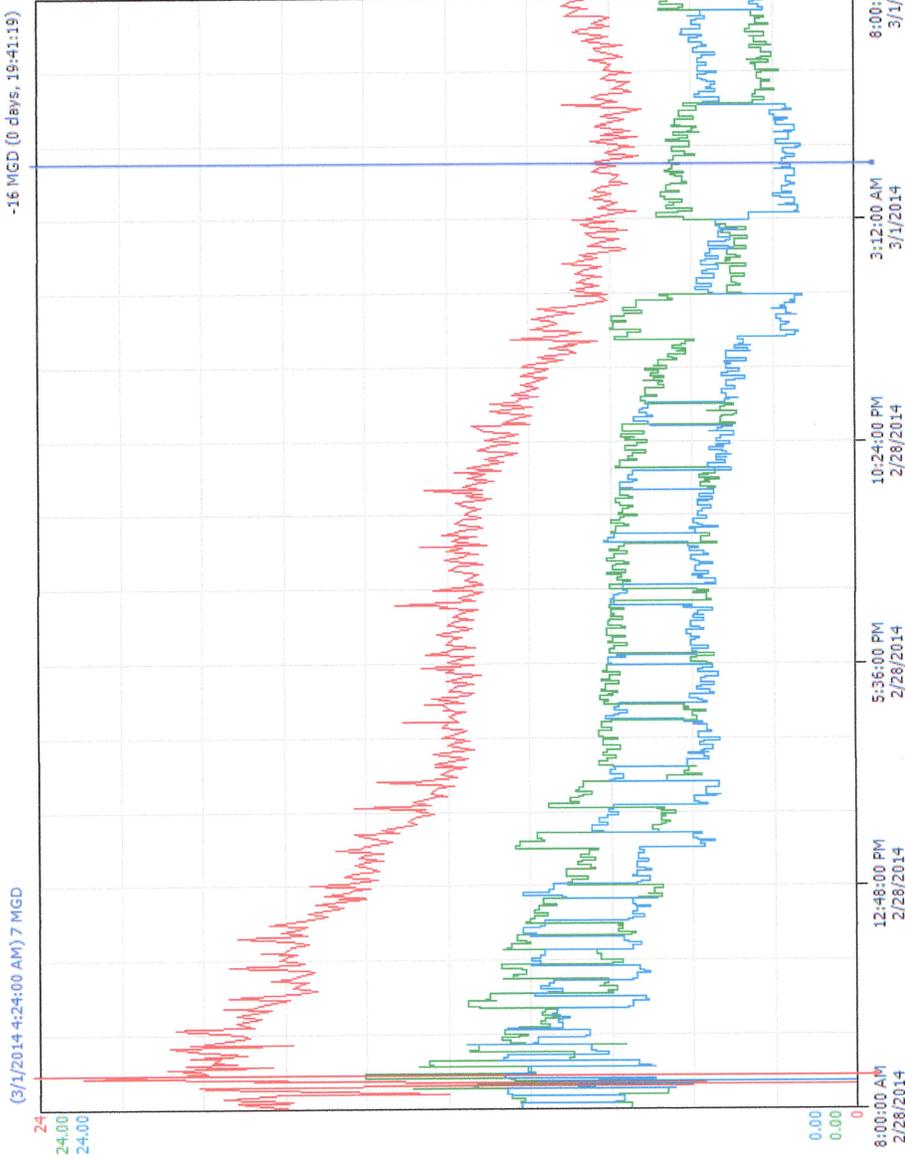
- Process Control Management Plan (PCMP) meetings held weekly.

Veolia Support Staff On/Off Site (Various Times)

John O'Hare	Technical Support
Chris McAuliffe	District Manager
Sachin Chawala	Northern California Area Manager
Bill Thompson	Technical Direction Group Manager
Jeremiah Danielson	Environmental, Health, and Safety
Mel Demsky	Regional Director of Asset Management
Dan Brown	Asset Manager

Flow_Tot

(2/28/2014 8:42:41 AM) 23 MGD



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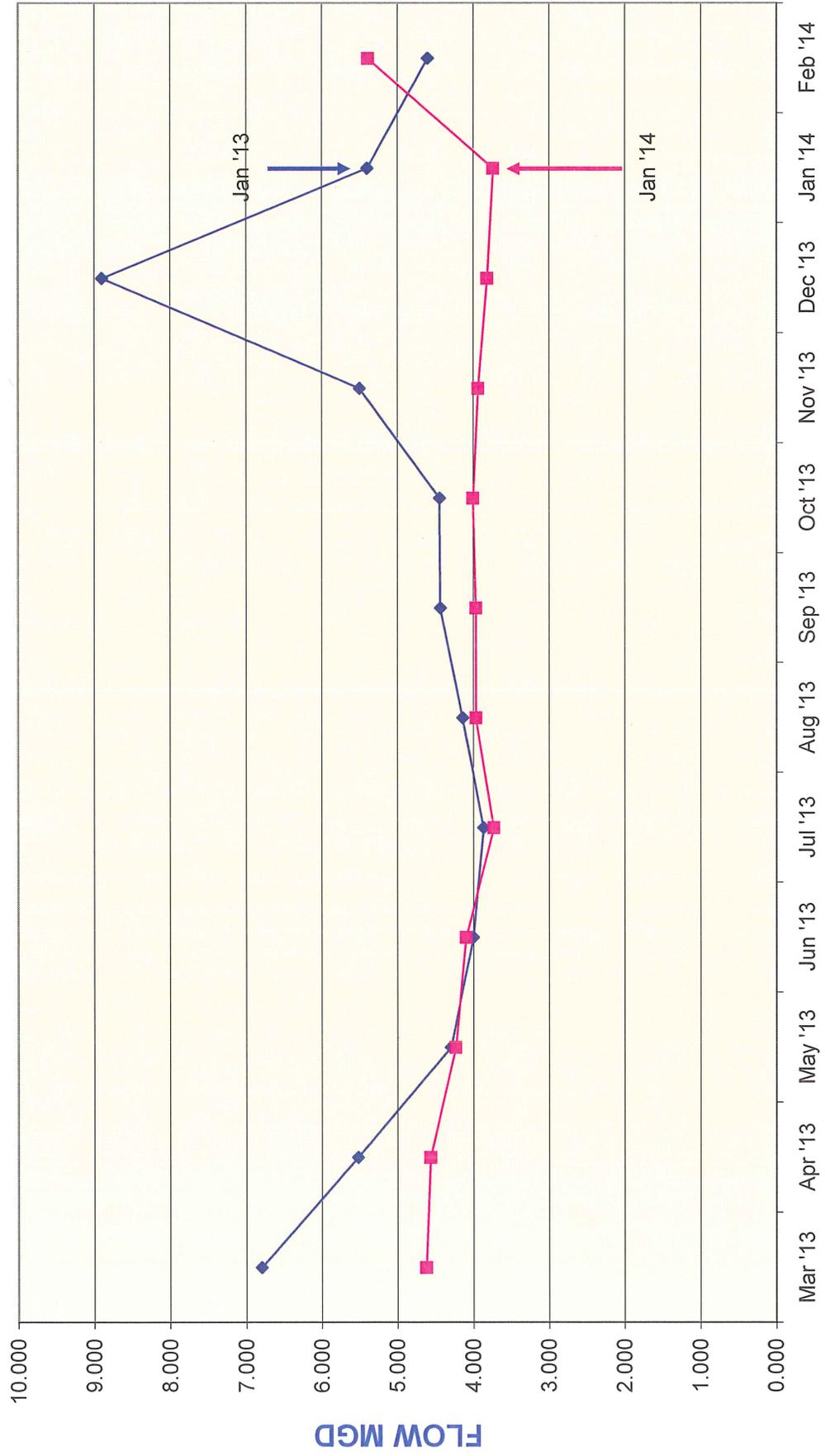
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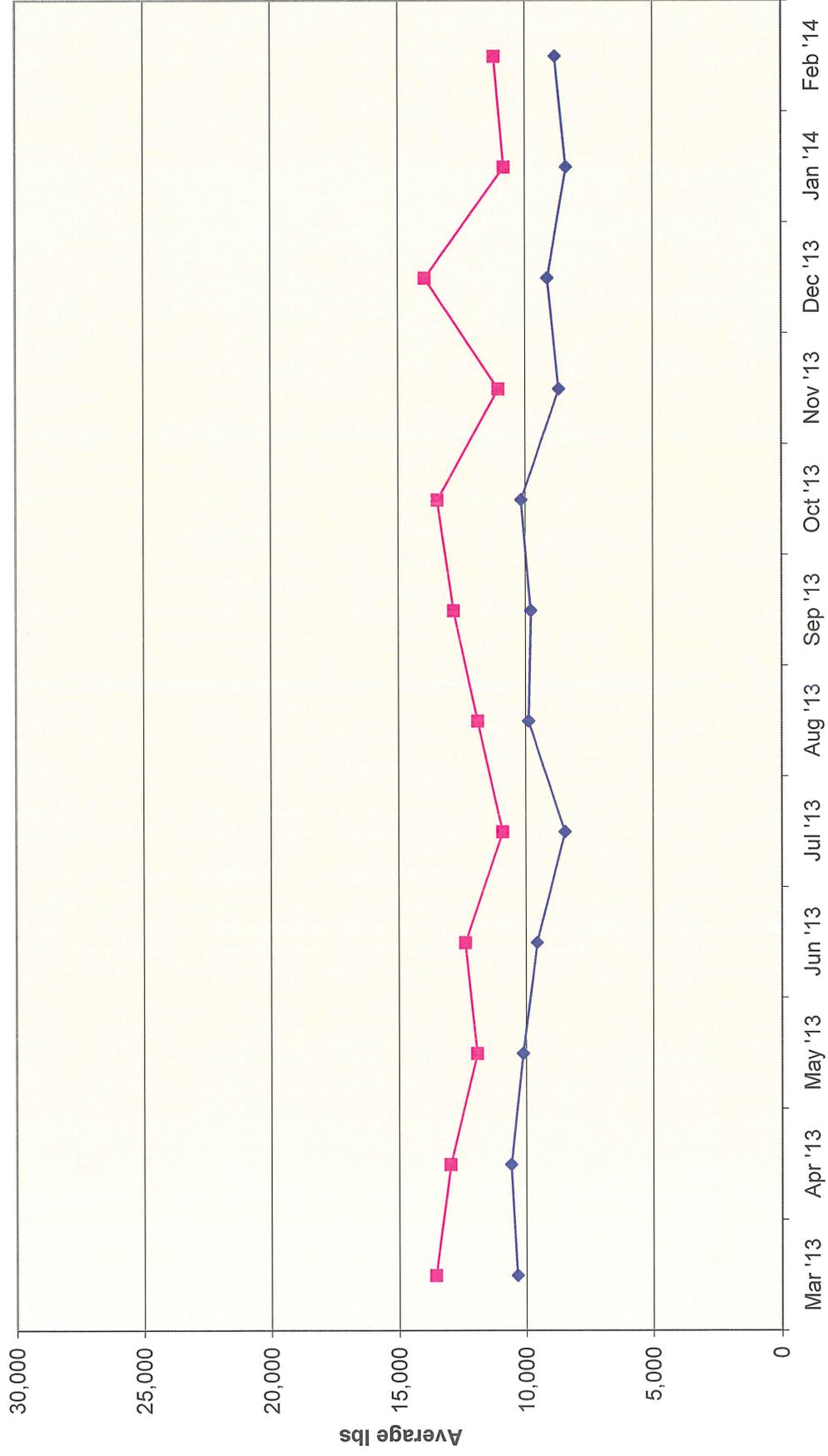
FLOW COMPARISON

—◆— 2012 / 13 —■— 2013 / 14



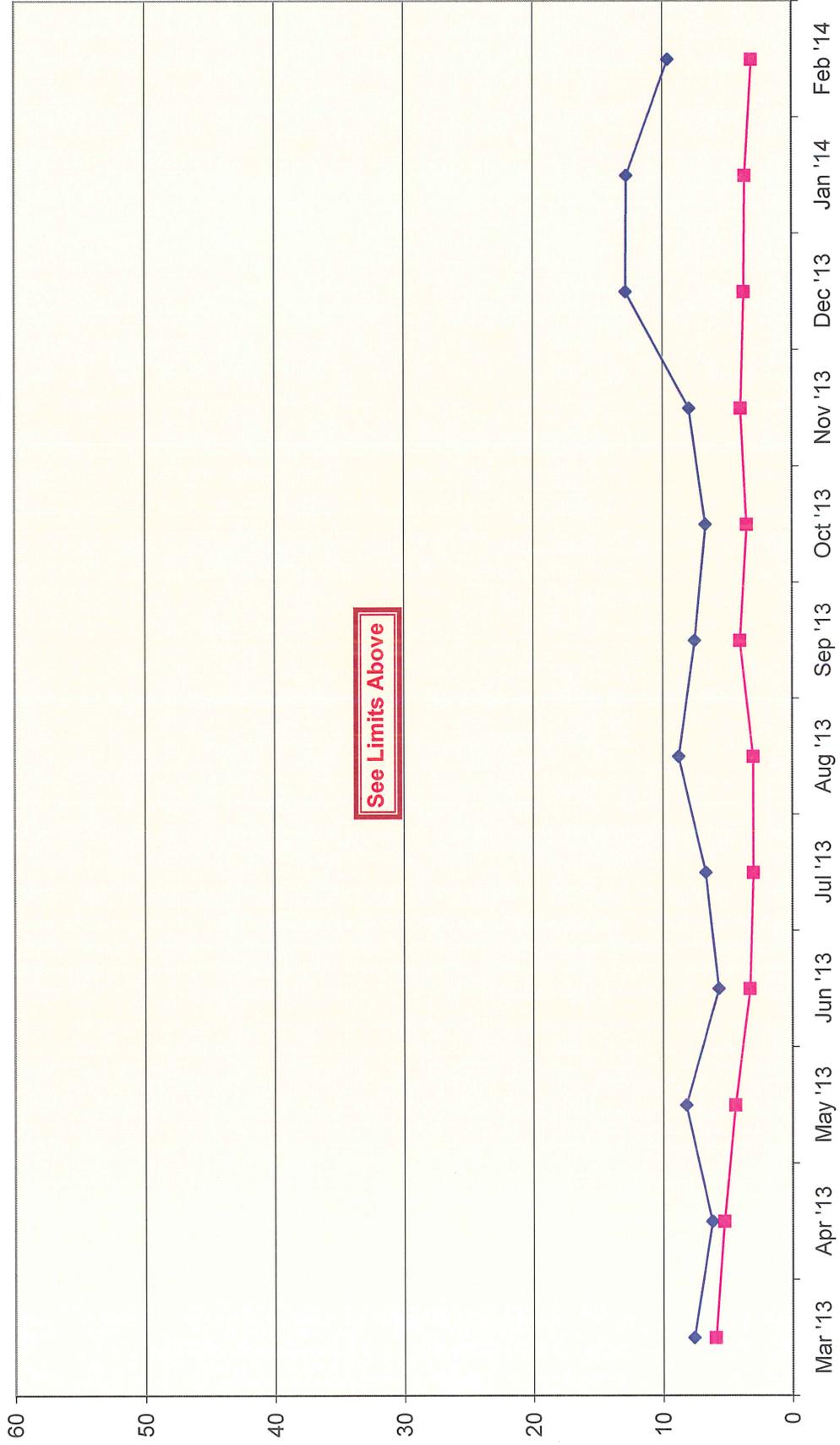
Influent Load BOD / TSS lbs

—◆— BOD lbs —■— TSS lbs



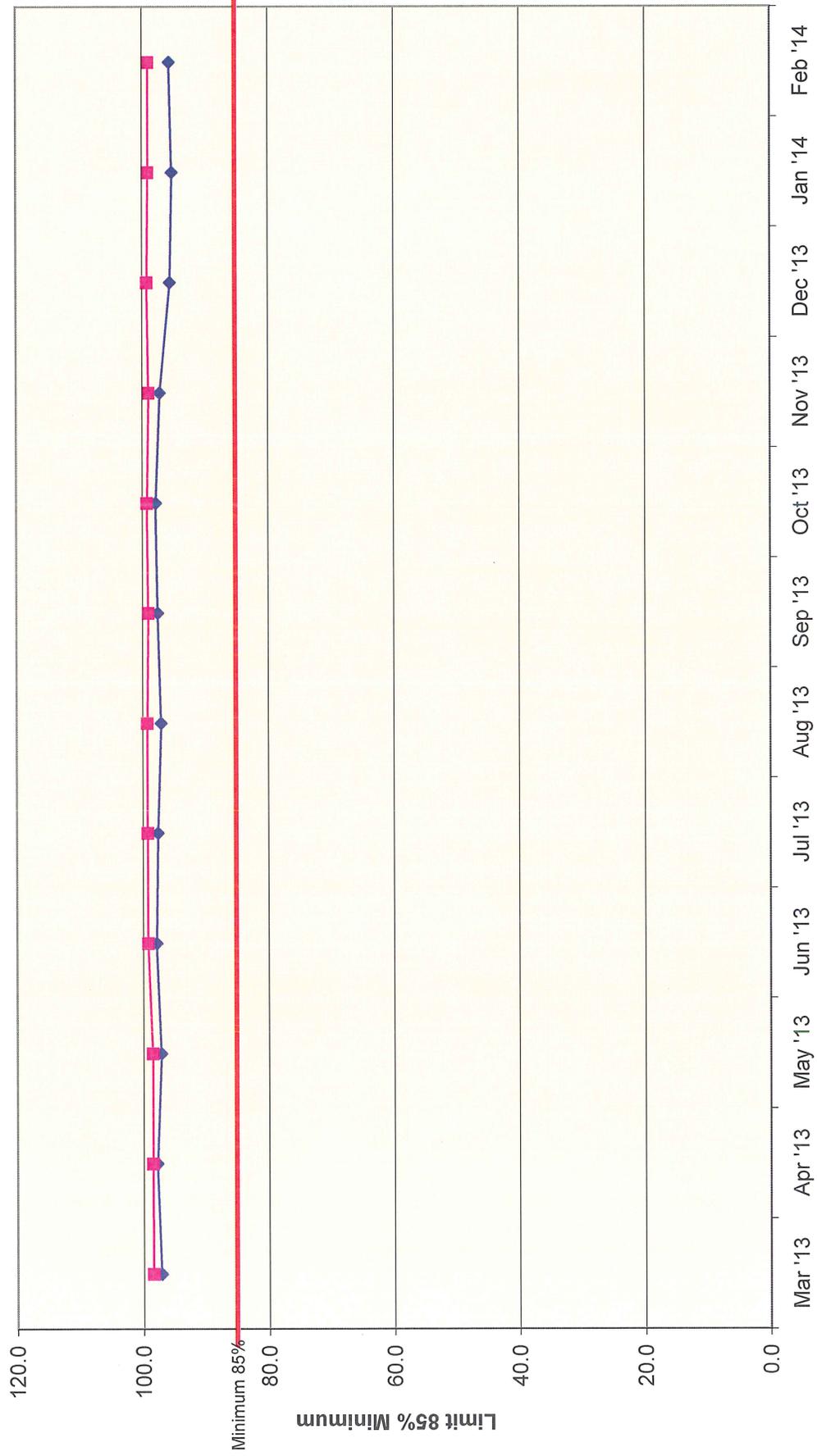
Effluent BOD / TSS Concentration

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

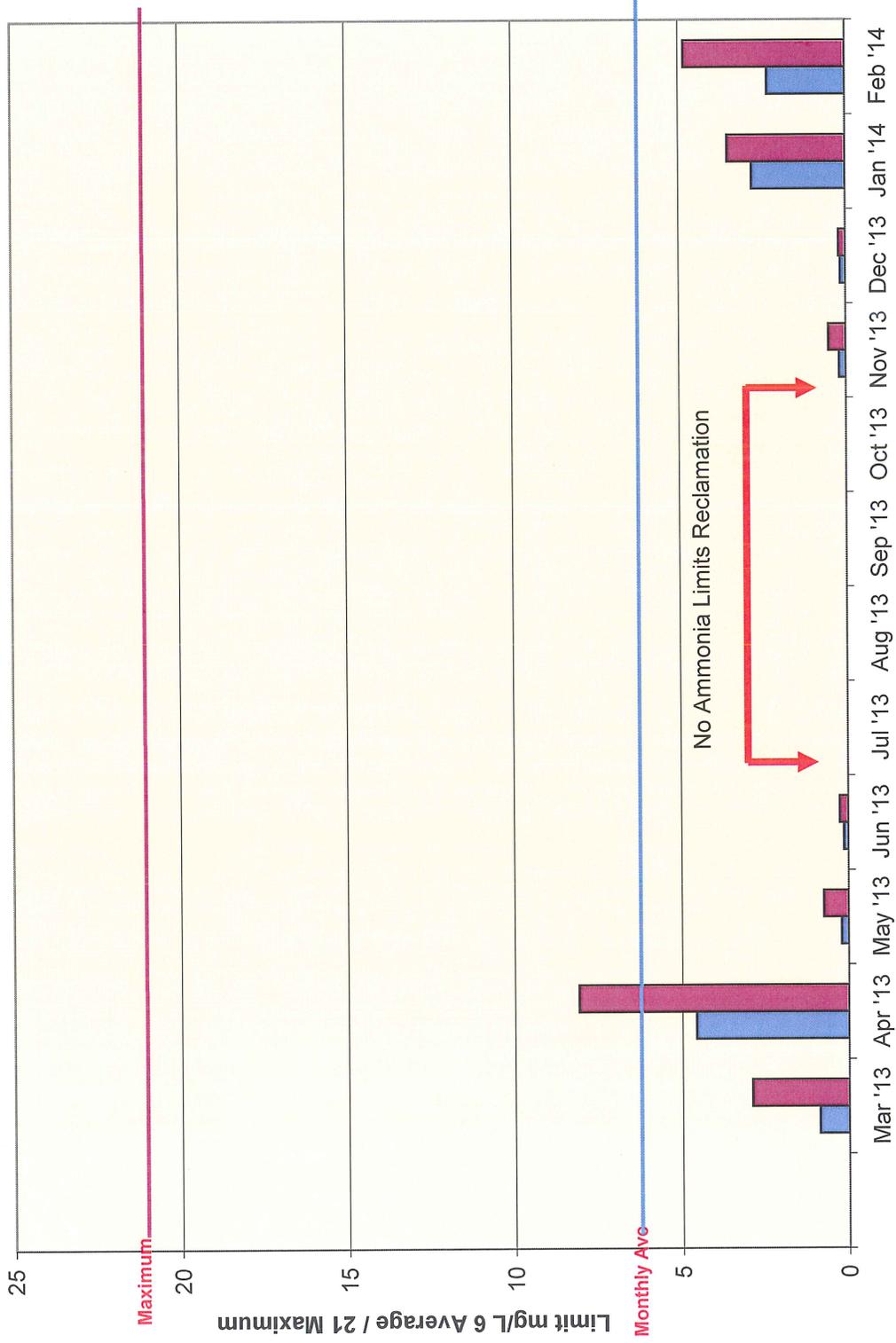


BOD / TSS Percent Removal

—◆— BOD —■— TSS



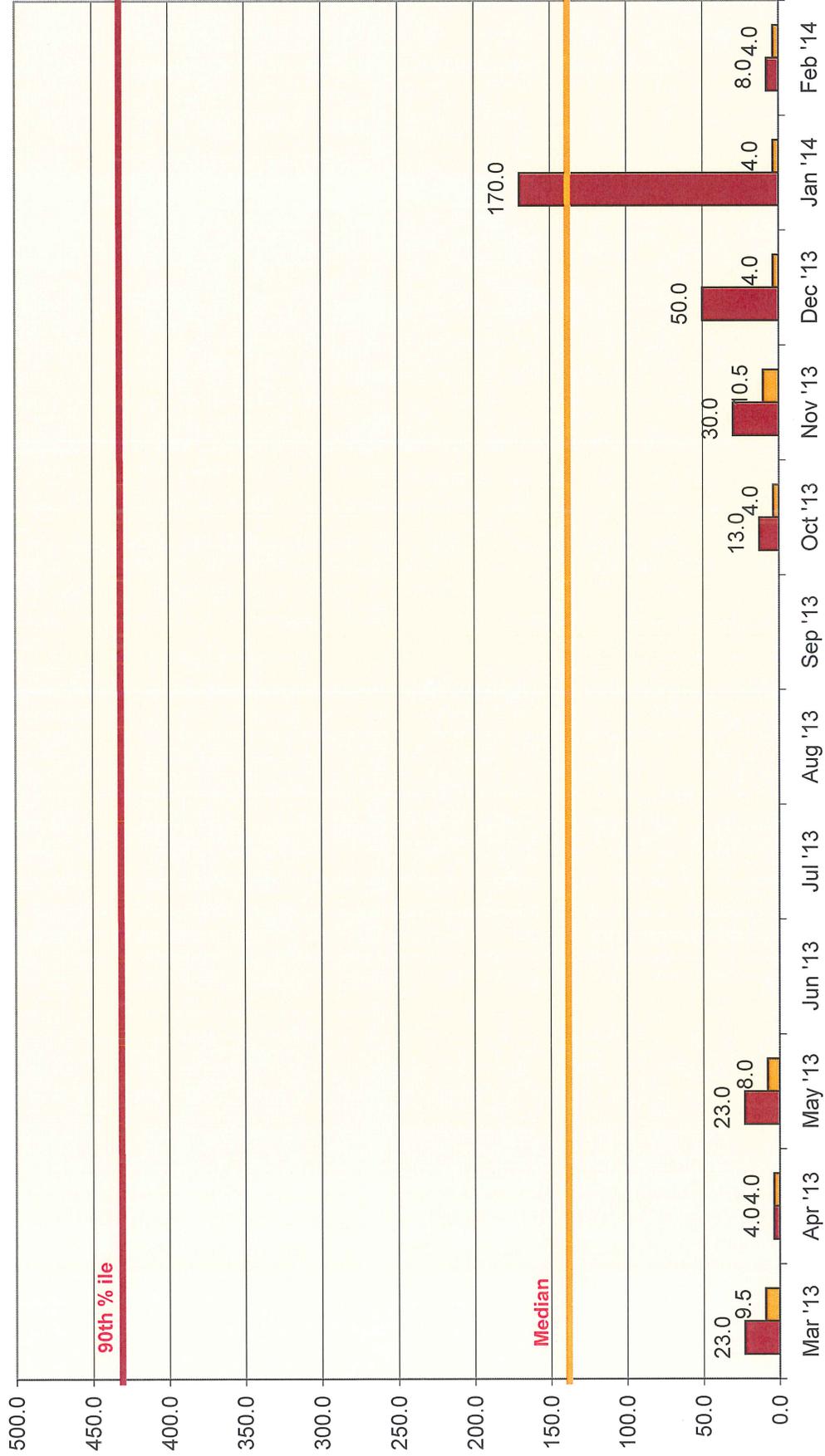
Effluent Ammonia



Disinfection

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

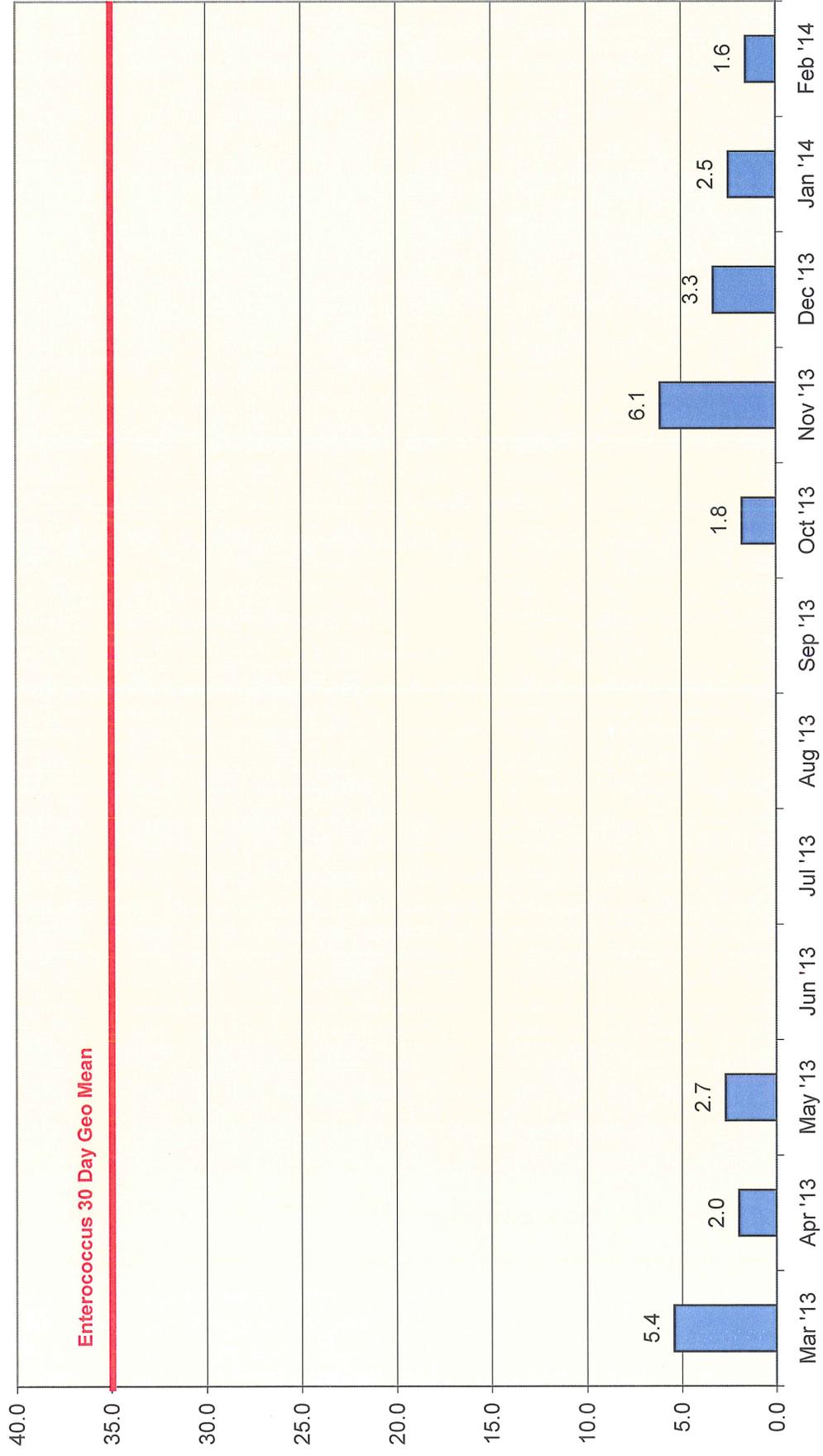
90th % ile 30 day med



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

Disinfection

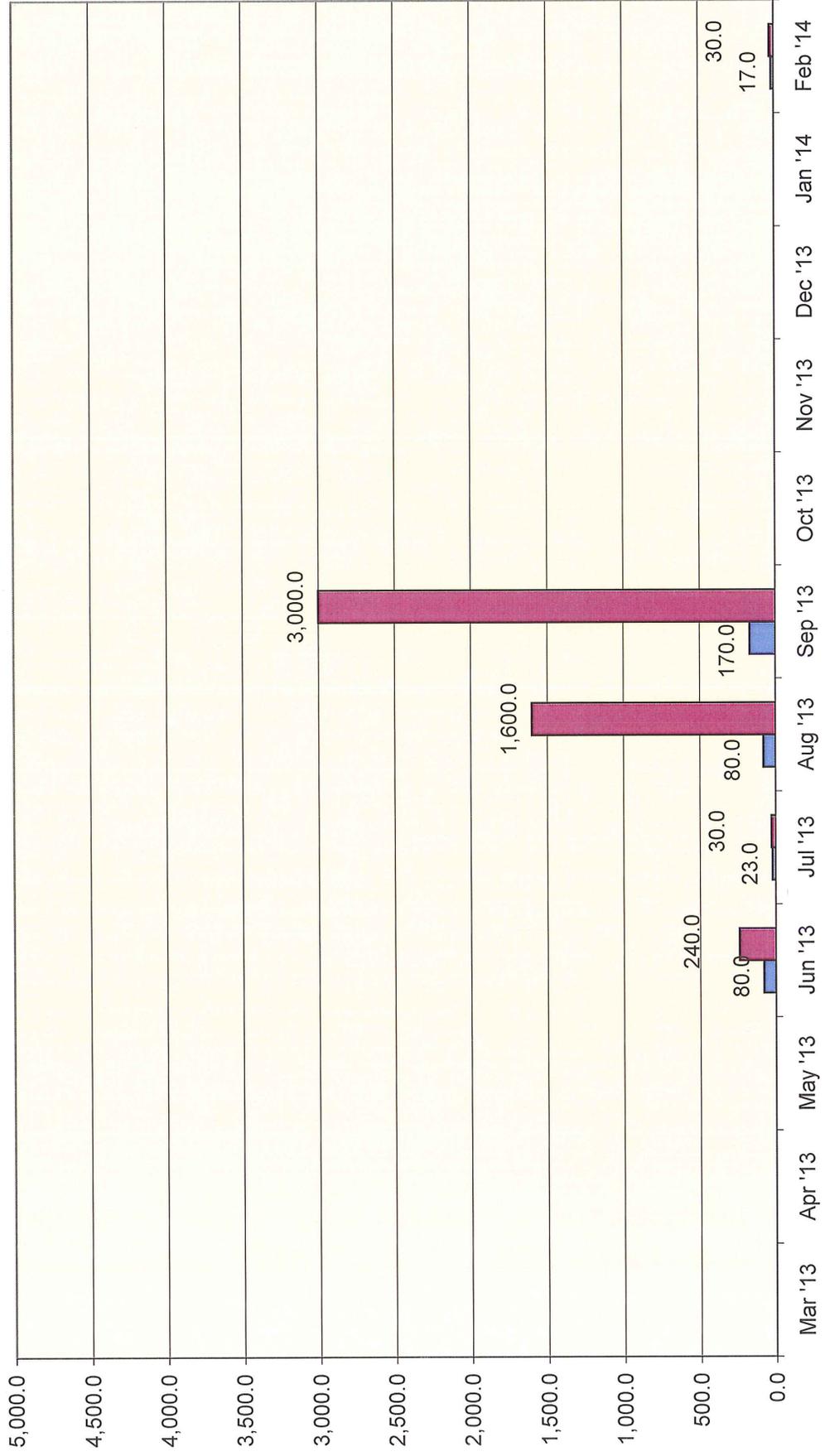
Geo Mean



Disinfection

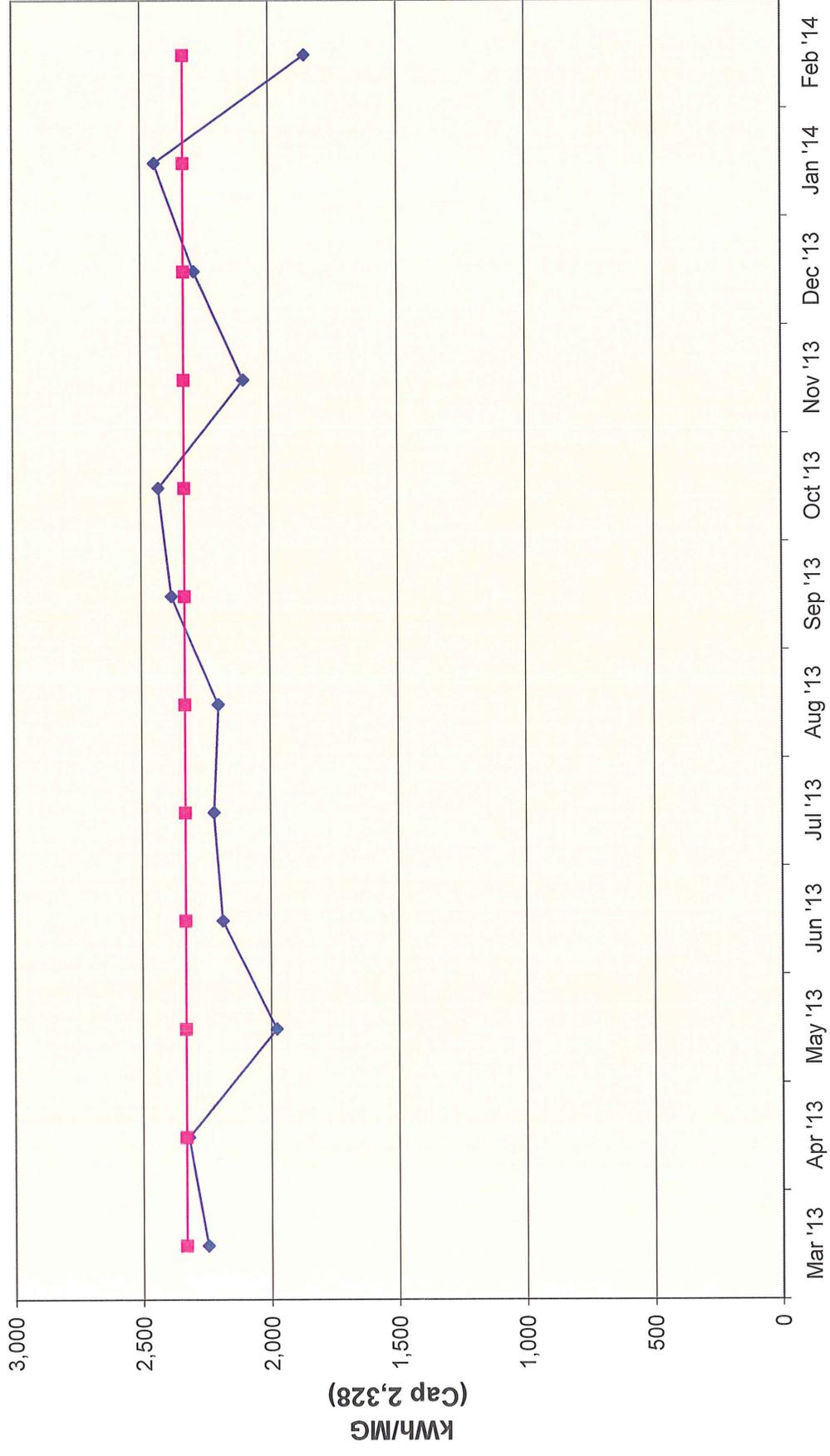
TOTAL COLIFORM LIMITS - WDR
 5 Sample Median - 240 mpn /100 ml
 Maximum - 10,000 mpn/100 ml

5 Sampl Med Monthly Max



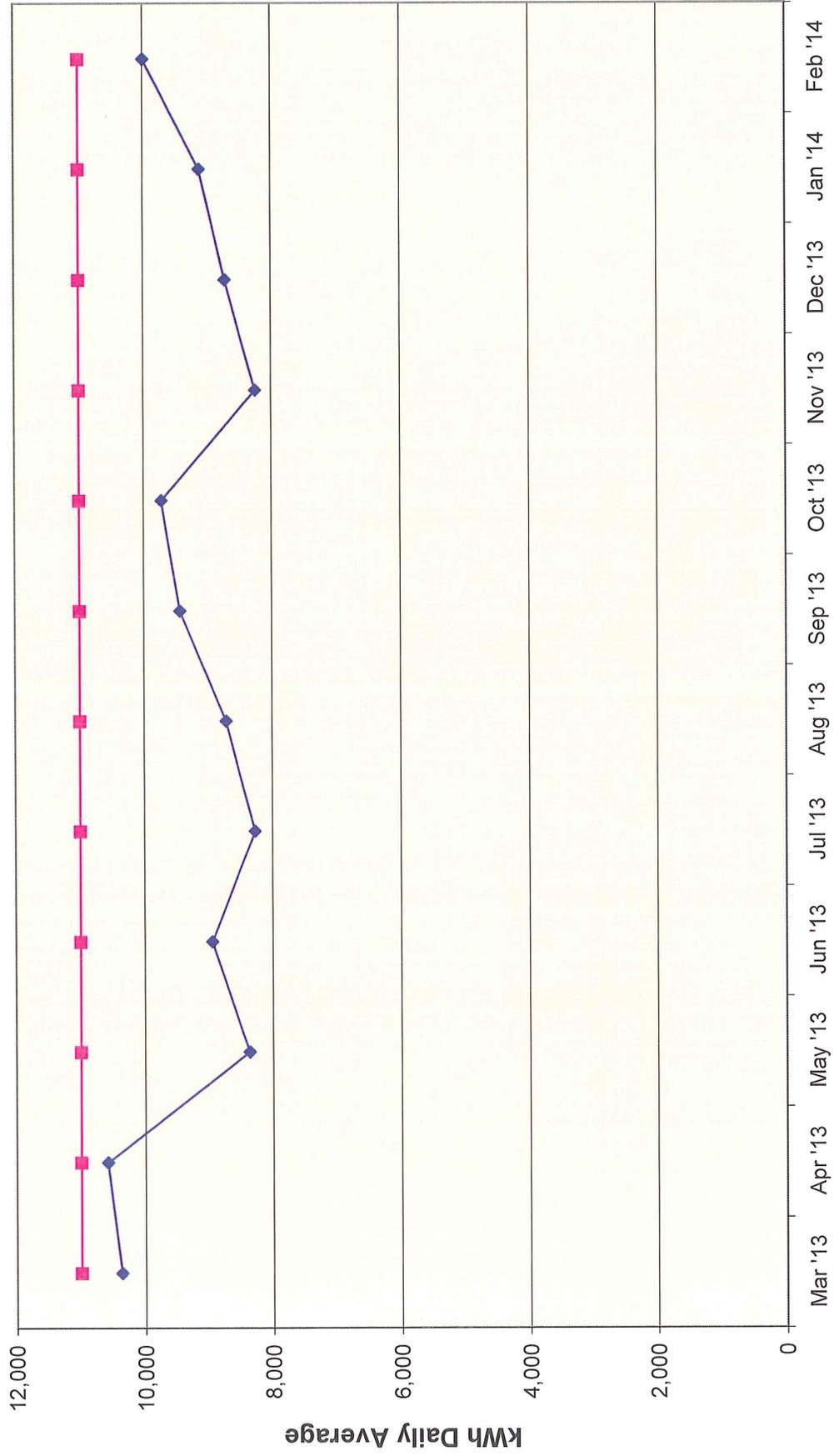
Energy kWh/MG

—◆— kW/MG —■— Cap



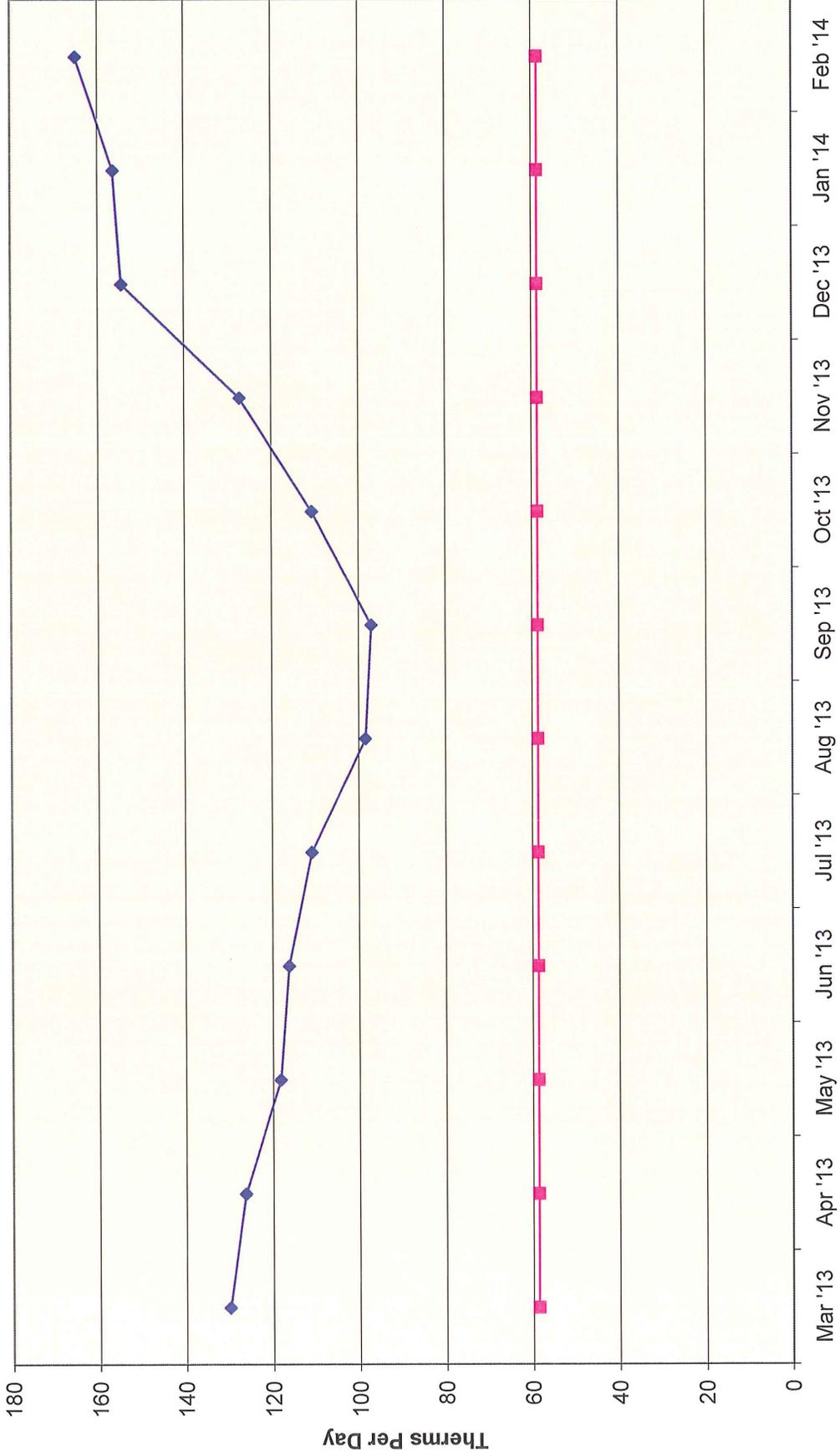
Energy kWh

—◆— kWh —■— Cap



Natural Gas Use

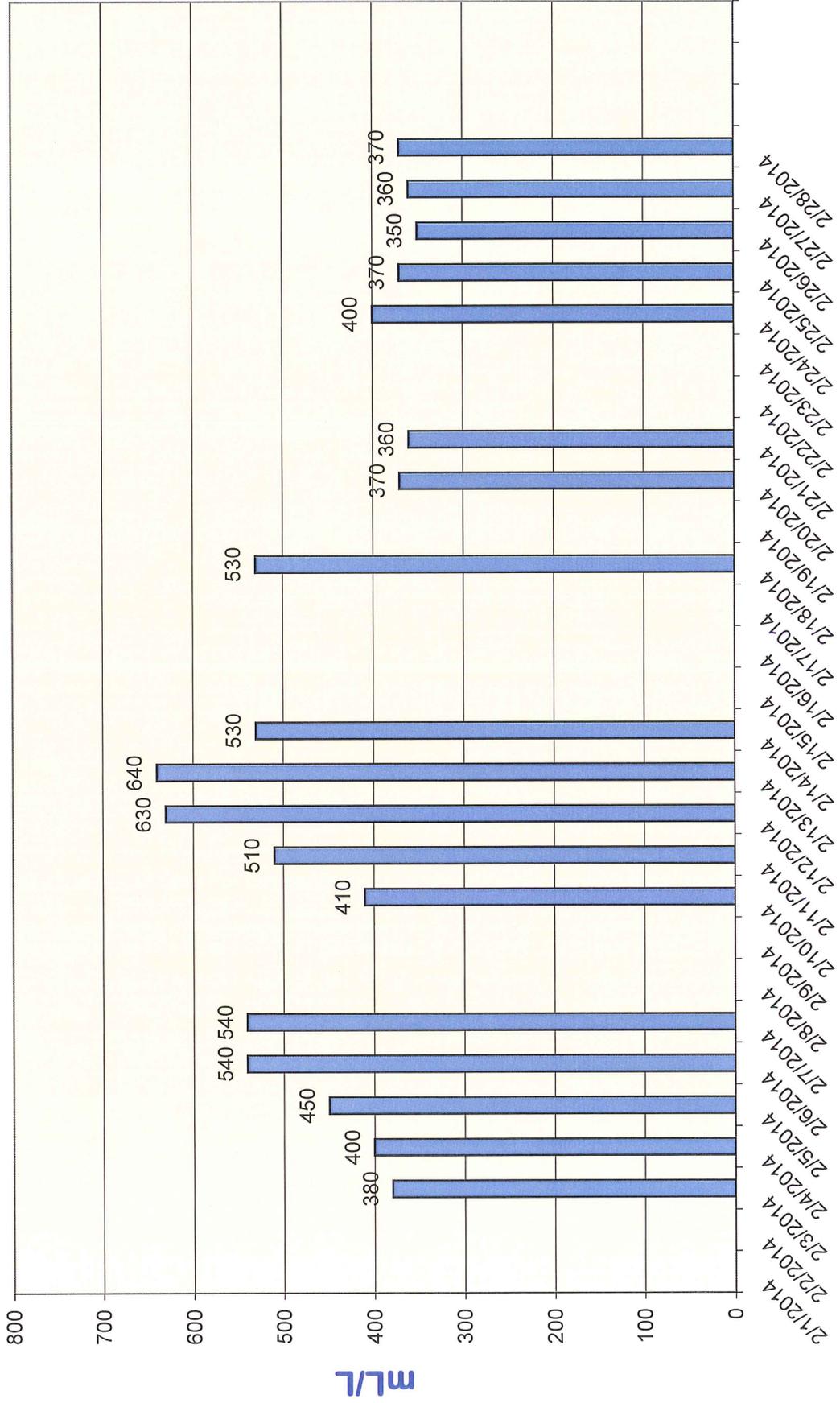
—◆— Natural Gas —■— Cap



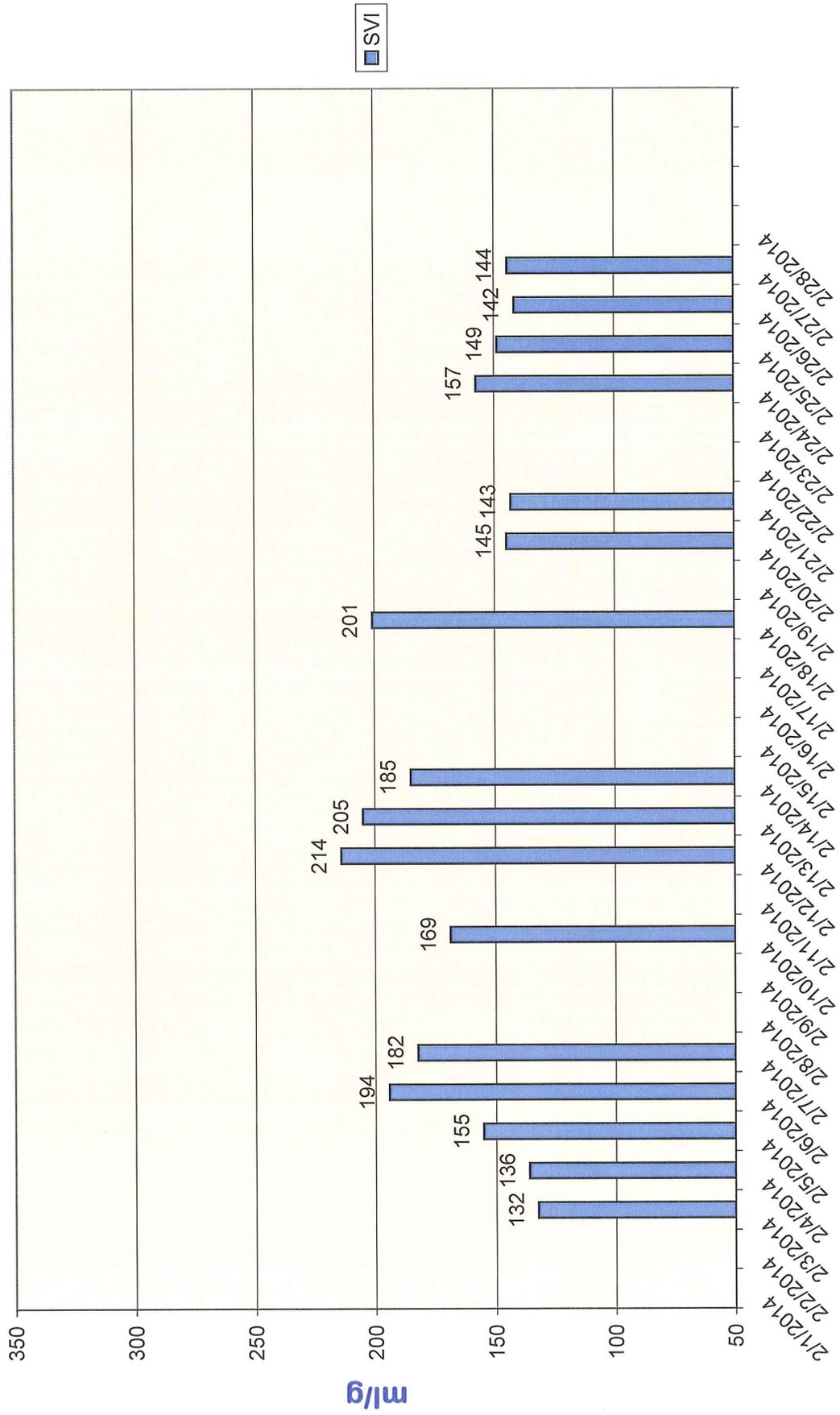
Process Control Data

	Influent Flow	Settleability	MLSS Concentration	MLSS Inventory	F:M Ratio	MCRT	SVI
2/1/2014	3.40						
2/2/2014	3.99						
2/3/2014	3.88	380	2,875	51,207		8.7	132
2/4/2014	3.78	400	2,939	52,356		8.9	136
2/5/2014	4.56	450	2,903	51,706	0.22	9.2	155
2/6/2014	5.34	540	2,783	49,568		7.9	194
2/7/2014	6.46	540	2,965	52,819		7.9	182
2/8/2014	10.29						
2/9/2014	11.43						
2/10/2014	6.26	410	2,436	65,084	0.12	10.4	169
2/11/2014	5.08	510					
2/12/2014	4.57	630	2,947	52,499	0.12	6.8	214
2/13/2014	4.36	640	3,133	55,812		6.7	205
2/14/2014	4.08	530	2,869	51,109		6.1	185
2/15/2014	4.07						
2/16/2014	3.92						
2/17/2014	3.96						
2/18/2014	4.28	530	2,648	47,163		7.3	201
2/19/2014	4.19		2,756	49,087		6.9	
2/20/2014	4.13	370	2,556	45,533		6.7	145
2/21/2014	4.06	360	2,521	44,901		6.8	143
2/22/2014	4.07						
2/23/2014	4.24						
2/24/2014	4.14	400	2,547	45,373		7.5	157
2/25/2014	3.74	370	2,495	44,447		7.1	149
2/26/2014	8.46	350	2,481	44,188		6.2	142
2/27/2014	8.27	360	2,508	44,669		6.5	144
2/28/2014	11.56	370					
Minimum	3.40	350.00	2,435.67	44,188	0.12	6.1	132
Maximum	11.56	640	3,133	65,084	0.22	10.4	214
Total	150.57	8,140	46,358	847,521	0.47	127.7	2,654
Average	5.38	452	2,727	49,854	0.16	7.5	166

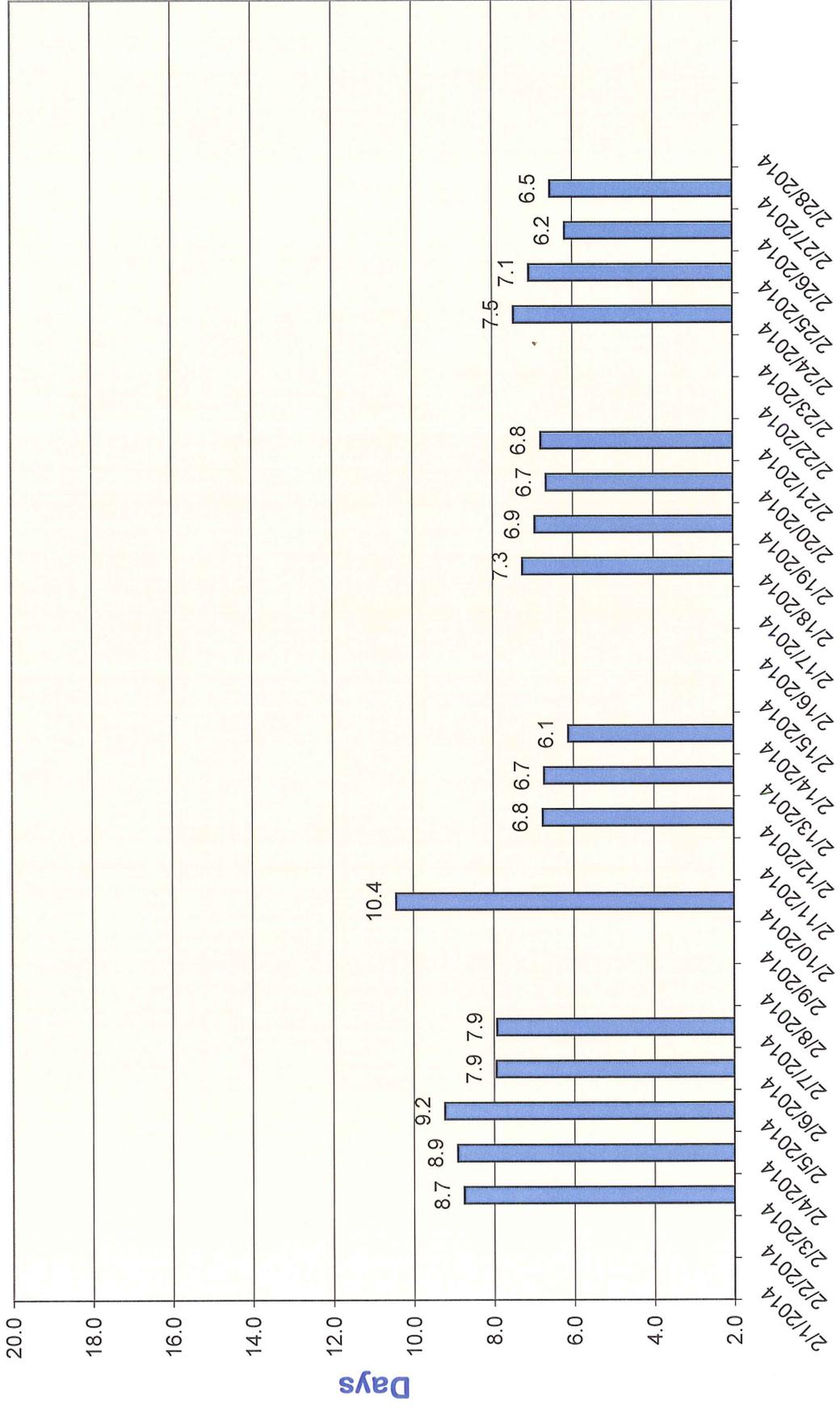
Settleability



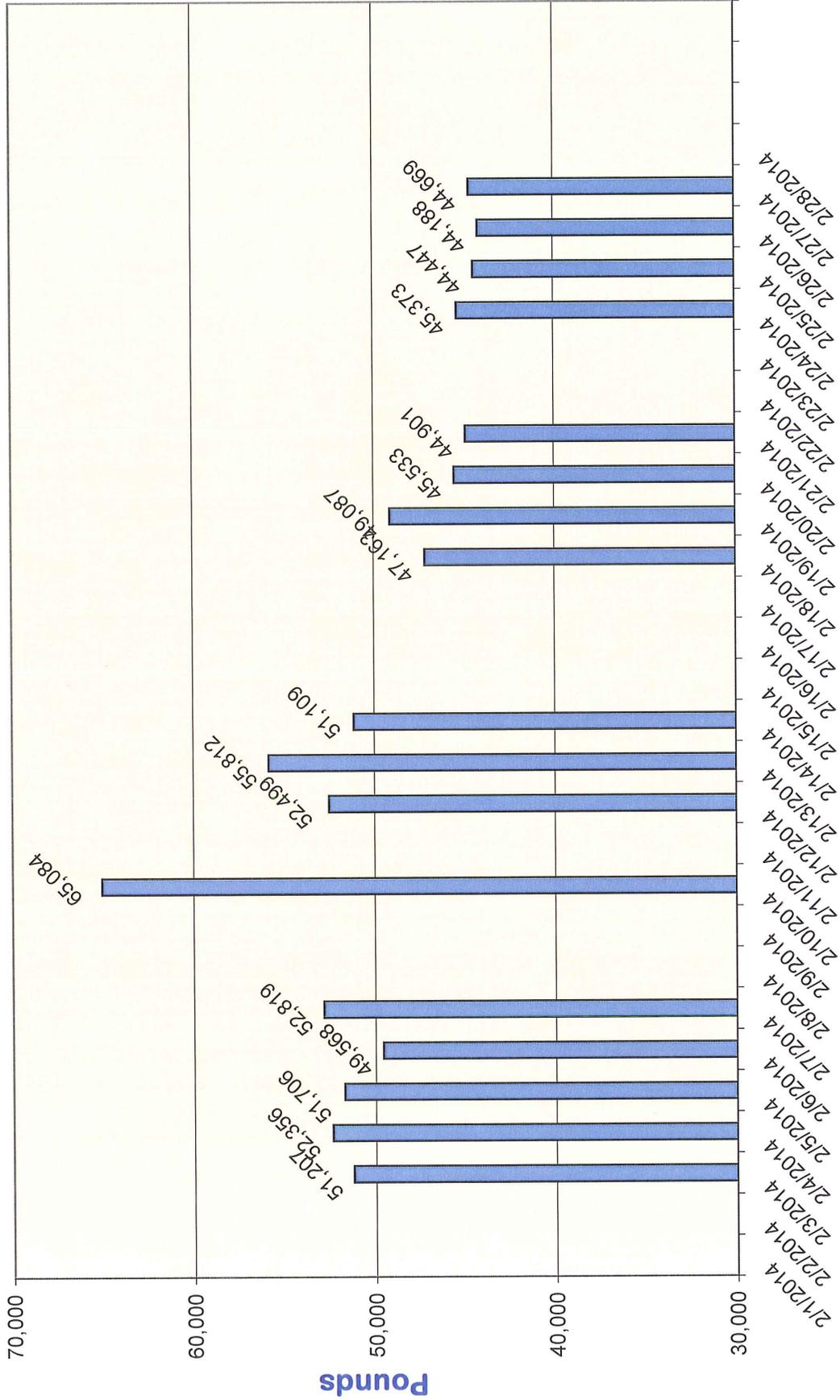
Sludge Volume Index



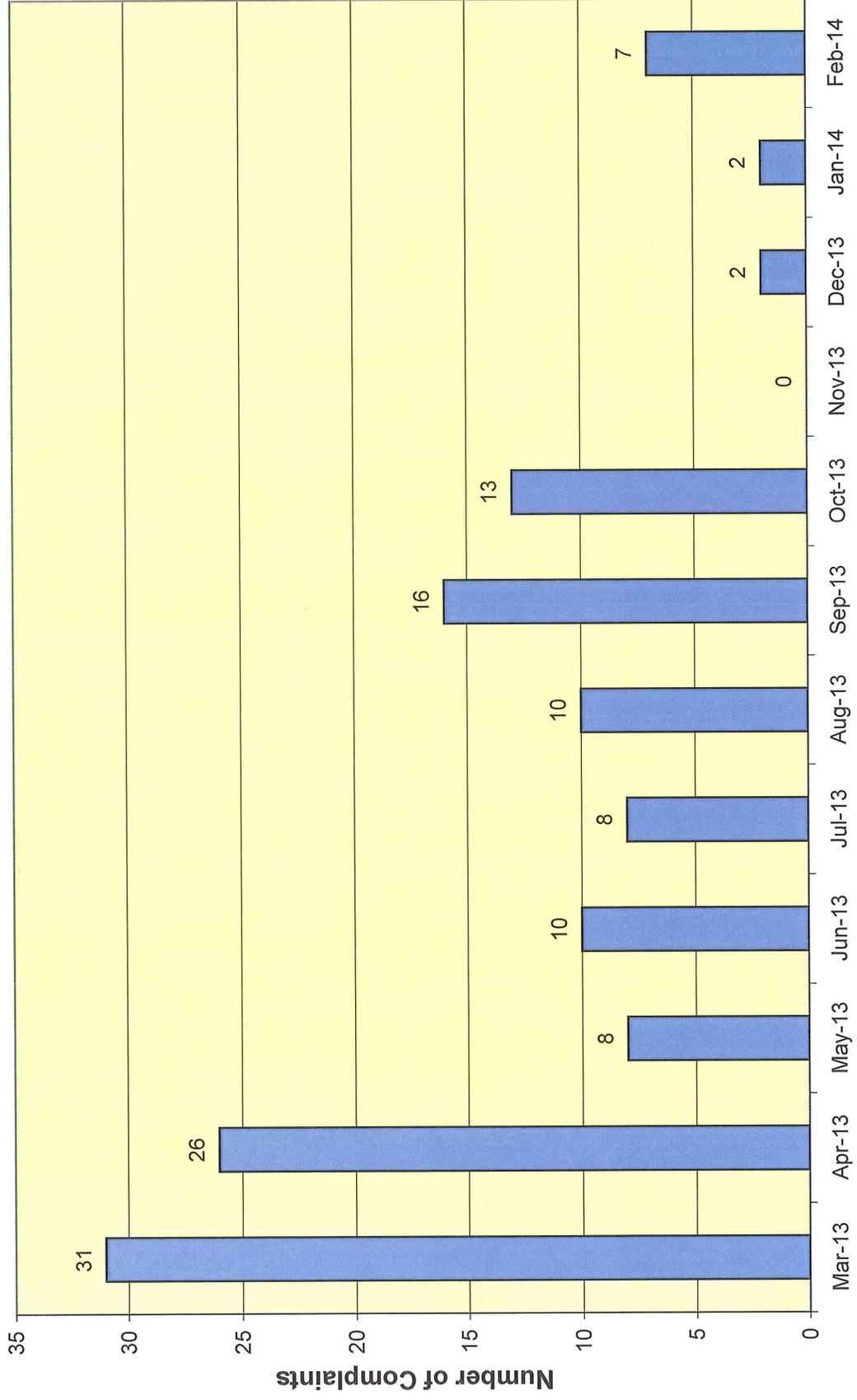
Mean Cell Residence Time



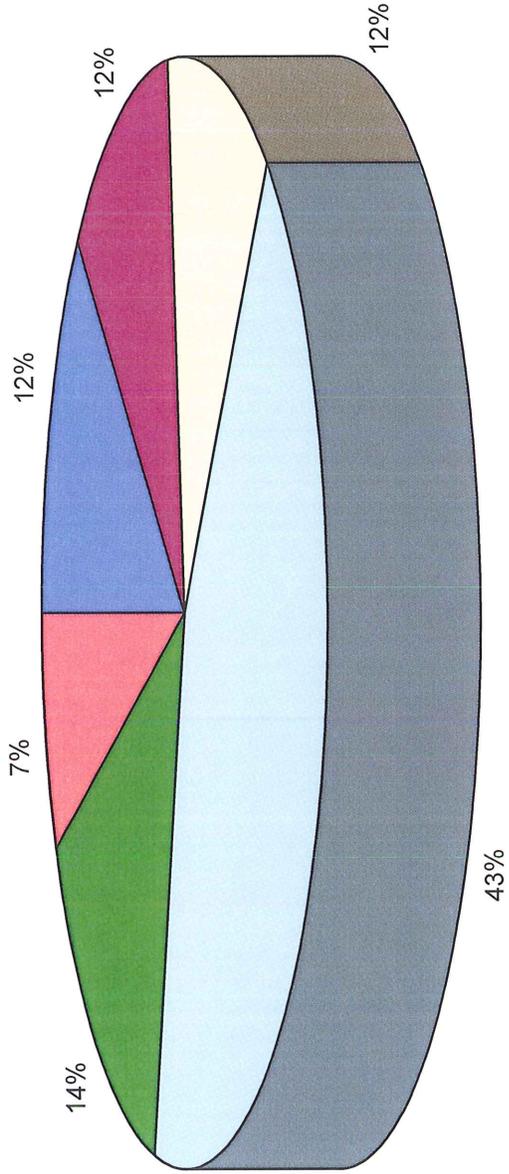
MLSS Inventory



Complaints /Contacts Received



Staffing Breakdown



- Administration
- Supervision
- Operations
- Maintenance
- Sampling / Analysis
- Repair

WORK ORDER STATISTICS

December 1, 2013 - December 31, 2013

	Open Work Orders Due Prior to 2/1/14	Open Work Orders 2/1/14 - 2/28/14	Total Open Work Orders
Preventative	3	352	355
Corrective	1	34	35
Total	4	386	390

	Closed Work Orders 2/1/14 - 2/28/14
Preventative	335
Corrective	26
Total	361

Total Outstanding Work Orders as of March 1, 2014	29
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NOVATO SANITARY DISTRICT
Wastewater Operations Committee Meeting
Odor Control, Noise, and Landscaping Report
February 2014

Summary:

Staff and the District's consultant continue to work to address issues of concern relating to odor control, noise, and landscaping, specifically from the Lea Drive neighborhood, and in the northeast corner of the Novato Treatment Plant (NTP) site.

As explained in earlier reports, and to demonstrate its commitment, the District has already expended significant amounts beyond the substantial investment for odor control, noise, and landscaping included in the original WWTP Upgrade, Contract B - Novato Treatment Plant (NTP), Project No. 72609. These additional costs have included operational changes and measures related to further odor control measures, noise abatement, visual screening, wind shielding, and daily monitoring. The District has also retained Brown and Caldwell (B&C) and their project manager, Mr. Dave McEwen, to study the issue of potential odor emissions from the aeration basins, and identify any other potential sources not previously considered or overlooked.

A summary of activities since the last Wastewater Operations Committee meeting is provided below.

Odor control:

The District's odor control consultant, Mr. Dave McEwen of Brown and Caldwell (B&C) issued some preliminary recommendations for odor control at the aeration basins. On February 7th, 2014, Mr. McEwen made a detailed presentation to neighborhood representatives Joe Carlomagno and Bob Guinan on his findings, conclusions, and recommendations. A copy of his presentation is attached to this report.

It is anticipated that implementation and further testing of Mr. McEwen's recommendations will occur more fully through March and April, and that he will issue a draft technical memorandum of his work later this spring. Currently, staff has implemented a major recommendation by Mr. McEwen, i.e. conversion of the anoxic zones B and C at the aeration basins to aerobic zones and the results appear to be promising, however, they will have to be validated through further testing.

Noise:

The low level noise concerns of some Lea Drive neighbors, from the fans for the main odor control biofilter, appears to have abated with completion of the construction of the permanent sound reducing enclosure for these fans, which had previously resided inside a temporary insulated enclosure.

Staff feels comfortable with closing out this issue as having being resolved. Therefore, future reports will not include further information on or references to noise issues.

Landscaping:

Staff continued to work with the District's landscaping contractor Cagwin and Dorward (C&D), on the landscaping installed at the District's fence-line on Lea Drive at the

NOVATO SANITARY DISTRICT
Wastewater Operations Committee Meeting
Odor Control, Noise, and Landscaping Report
February 2014

northeast corner area of the NTP. While staff studied concerns from neighborhood representatives on the issue of frost impact to some oleander bushes along the Lea Drive fence-line, from discussion with C&D it appears that the damage was of limited scope, and the oleanders will likely thrive in the future. C&D will continue to provide services on an as-needed and as-requested basis by the District to care for the landscaping in this area through the winter, and the scope of their services will be re-evaluated in the spring.

Novato Sanitary District

Odor Emissions Control Residents Meeting

February 7 | 2014



NE Portion of Plant



What makes a potential source?

- Significant odor emissions
- Sufficient emission surface area
- Minimal vertical air velocity

Aeration Basins

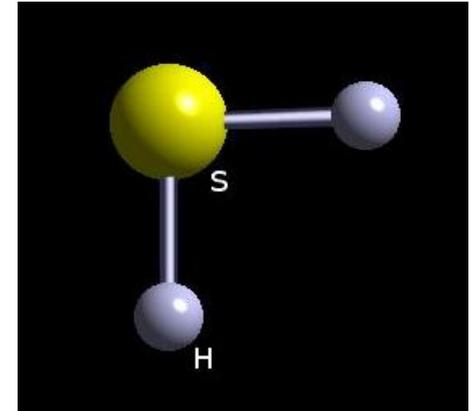


Aeration Basins – Odor Emissions Testing

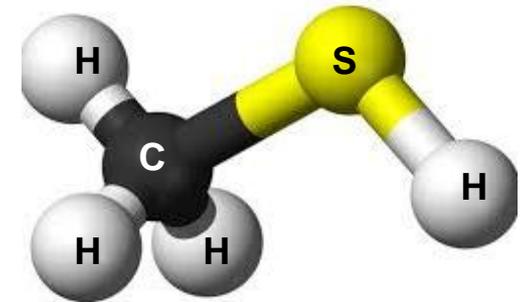


What Compounds Cause Odors?

- Looking for sulfur-containing compounds
- Formed during natural degradation of compounds in wastewater treatment
- Problematic because of their low human detection threshold:
 - Hydrogen Sulfide: 0.5 parts per billion (smells like rotten eggs)
 - Methyl Mercaptan: 1 part per billion (smells like rotten cabbage)



Hydrogen Sulfide (H₂S)



Methyl Mercaptan (CH₃SH)

Odor Emissions Testing Results

Aeration Basin Gas-Phase Odor Emission Testing

Location	Hydrogen Sulfide (ppbv)	Methyl Mercaptan (ppbv)	Odor (D/T)
Anoxic Zone B	7	350	3,900
Anoxic Zone C	170	310	3,400
Aerobic Zone Tank 1	ND	ND	250
Aerobic Zone Tank 2	ND	12	720



Odor Emissions Testing Results

Aeration Basin Gas-Phase Odor Emission Testing

Location	Hydrogen Sulfide (ppbv)	Methyl Mercaptan (ppbv)	Odor (D/T)
Anoxic Zone B	7	350	3,900
Anoxic Zone C	170	310	3,400
Aerobic Zone Tank 1	ND	ND	250
Aerobic Zone Tank 2	ND	12	720

Findings:

- Anoxic zone odor emissions are higher than aerobic zone odor emissions
- There is a strong correlation between methyl mercaptan concentration and odor level

Odor Emissions Testing Results

Aeration Basin Liquid-Phase Odor Compound Testing

Location	Hydrogen Sulfide ($\mu\text{g/L}$)	Methyl Mercaptan ($\mu\text{g/L}$)
Anoxic Zone B	9	260
Anoxic Zone C	34	270
Aerobic Zone Tank 2	40	89
INPUT - Primary Effluent	1,200	130
INPUT - Return Sludge (RAS)	66	190



Odor Emissions Testing Results

Aeration Basin Liquid-Phase Odor Compound Testing

Location	Hydrogen Sulfide ($\mu\text{g/L}$)	Methyl Mercaptan ($\mu\text{g/L}$)
Anoxic Zone B	9	260
Anoxic Zone C	34	270
Aerobic Zone Tank 2	40	89
Primary Effluent	1,200	130
Return Sludge (RAS)	66	190

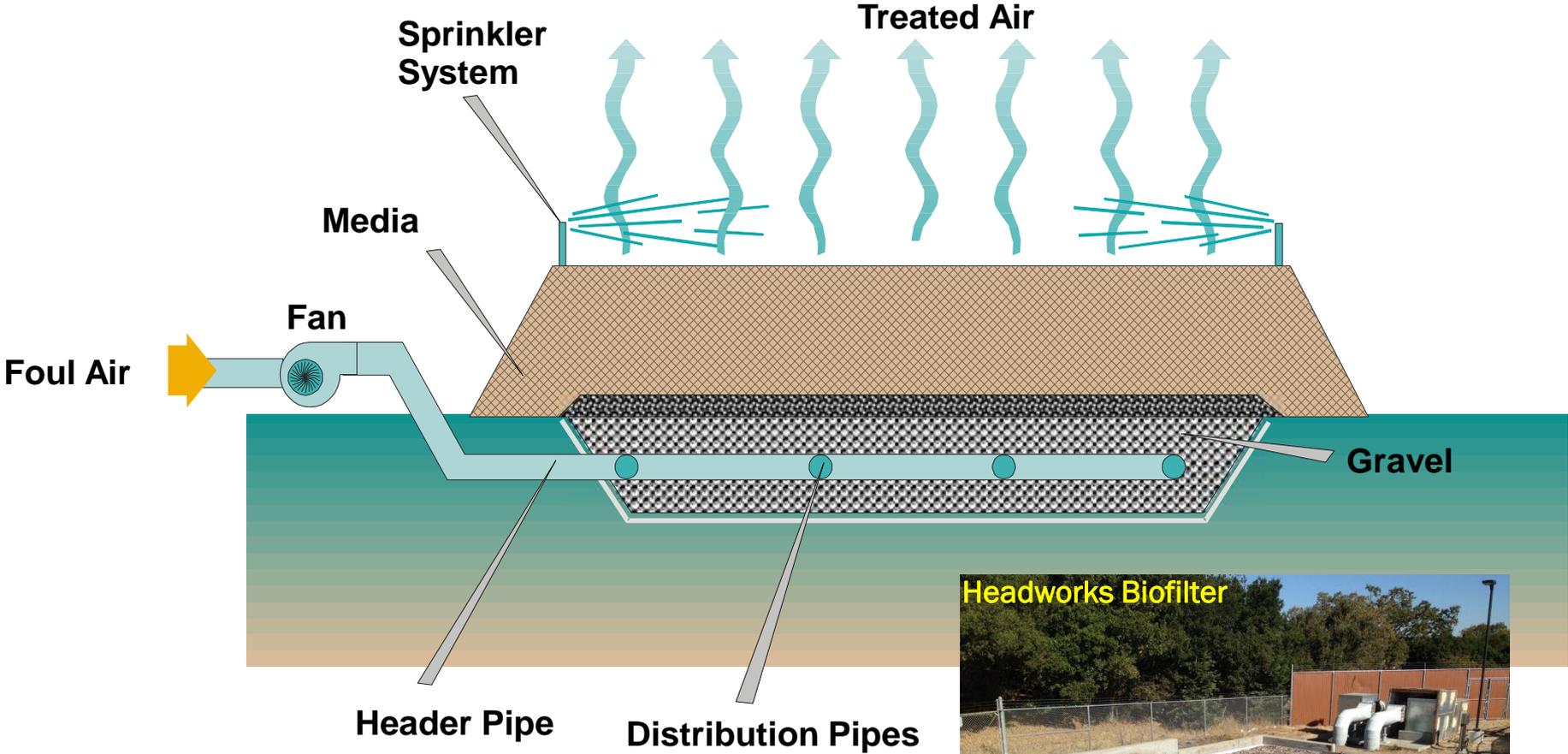
Findings:

- The amount of methyl mercaptan in the wastewater is linked to the amount emitted as a gas
- Methyl mercaptan is input into the aeration basins from upstream processes

Odor Control Plan – Aeration Basins

- Convert uncovered anoxic zones to aerobic zones (turn on air diffusers to inject oxygen):
 - Each aeration basin will operate the way the current aerated portion does
 - Odor emissions for aeration basins will be similar to current aerated portion emissions
- Oxidize the sulfur-containing compounds being emitted by the aeration basins:
- Two possible methods of oxidation:
 - Capture the gas and treat in a separate unit
 - Oxidize in the liquid

Biological Oxidation



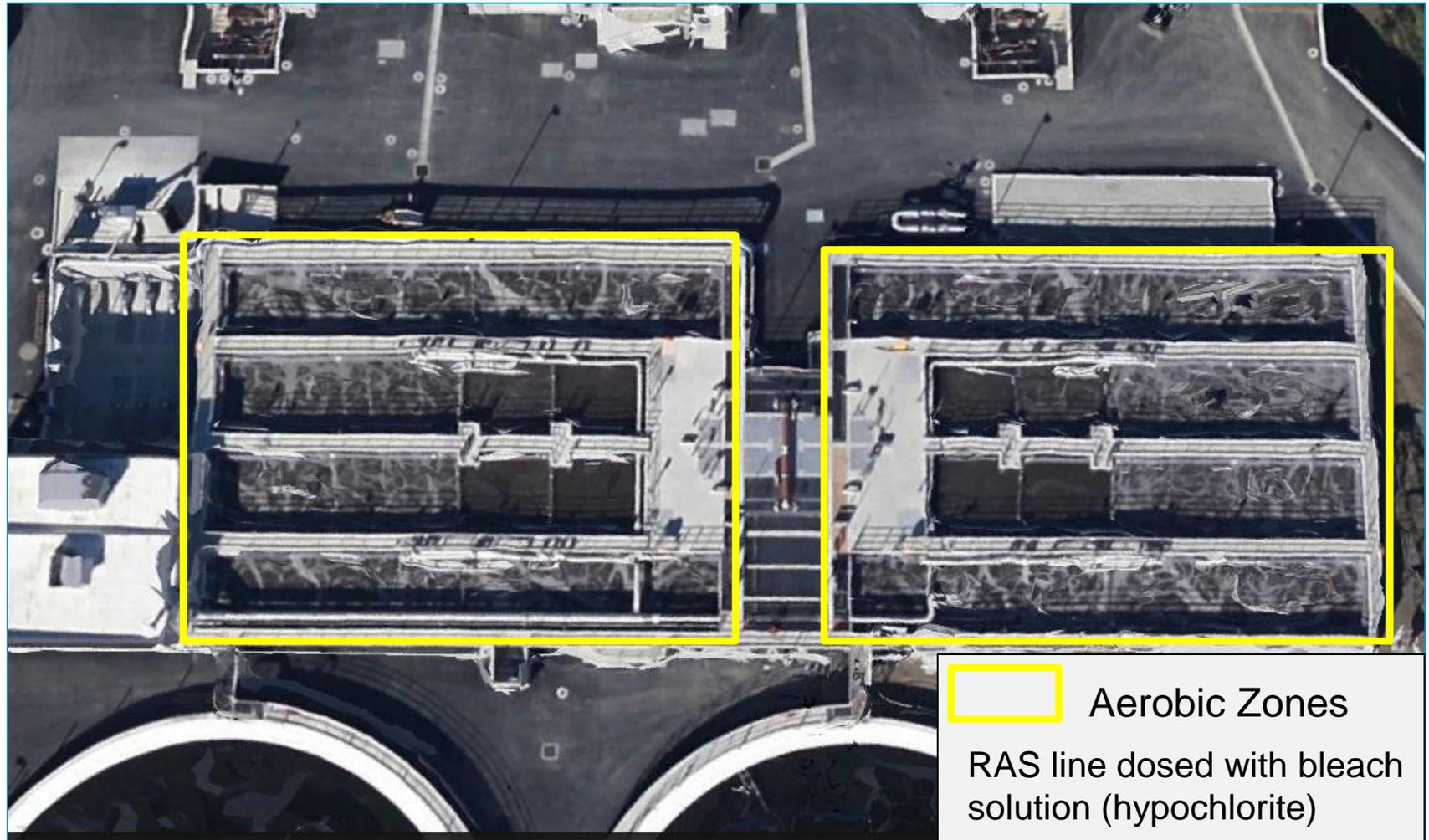
Odorous compounds are converted (oxidized) to non-odorous forms by bacteria growing on media

Chemical Oxidation

- Strong oxidants are added directly into the liquid
 - Bleach – ALREADY ON SITE
 - Peroxide
- Same reaction as gas-phase treatment:
 - Odorous compounds (hydrogen sulfide, methyl mercaptan) are converted to non-odorous forms (sulfate, sulfur)
 - Reduction in concentration in liquid means the compounds are never emitted into the air
- Recommend adding bleach to the RAS return line (into aeration basins)



Aeration Basins - Revised



Conclusions and Path Forward

- Aeration basins are a process of concern due to emissions, size, and proximity to northern fence line
- Anoxic zones within the aeration basins are more odorous than aerated zones
- Link between methyl mercaptan (an organic sulfide) emissions and odor emissions
- NSD will aerate the aeration basin process (no uncovered anoxic zones) to reduce emissions
- Remove remaining organic sulfides through oxidation
 - Preference is to treat the liquid using bleach to oxidize sulfur-containing compounds

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

General:

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

- 2.5 FTE field workers for Sewer Maintenance (main line cleaning)
- 1.1 FTE field workers for Pump Station Maintenance
- 0.8 FTE field workers for 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
- 0.9 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 76,221 feet of sewer pipelines were cleaned for the month by District staff. Staff completed 361 maintenance work orders generated by the ICOM3 CMMS system, with 21 outstanding work orders. Outside contractors cleaned 1,570 feet of District main line.

Also, staff is working with ICOM/Redzone to correct apparent discrepancies between footages listed in the ICOM3 system and those listed on District maps; therefore the footage listed in the Collection System reports is based off of footage obtained by the field crews during cleaning operations. The field crews measure line segment lengths using a measuring wheel whenever they note a line segment length discrepancy of more than 10 ft between the work order and District maps.

CCTV Performance: The District's CCTV van was in the field for a total of 9 working days and televised 104 line segments for 21,931 feet of CCTV production. A total of 0 ft of main line was inspected w the push camera, and outside contractors televised 1,570 ft. of District main.

CCTV Findings: The February CCTV work indicated five (5) significant defects in District mains televised that will require evaluation to determine if they are eligible candidates for infrastructure repair, or require a change in maintenance frequency/method.

Collection System Projects:

As part of the ongoing Collections System repair projects (Account No. 72803), five drop inlets were installed in manholes on Alameda del Prado and one manhole was raised to grade at 115 Washington Street during the month of February.

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Pump Station Maintenance:

The Collection System Department conducted 227 lift station inspections for the month with 1115 of the inspection visits generated through the JobCal Plus CMMS system*. There are 5 outstanding work orders for the month of February. The breakdown of the lift station inspections is as follows: 27 Flygt submersible pump stations, 1 time per month, 6 Gorman/Rupp dry well/wet well stations, 1 entry per month, and 4 main stations that are visited daily.

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

***Note:** The JobCal Plus program is not only used for scheduling and tracking pump station related maintenance work orders, it is also used for ladder inspections, reclamation maintenance work orders, SCADA backup scheduling, and vehicle maintenance scheduling.

Pump Station Rehabilitation:

Currently, no pump stations under construction as part of the District's continuing multi-year Pump Station Rehabilitation Project (Capital Improvement Project Account No. 72403). The next phase, (Unit 5), includes rehabilitation/reconstruction of the Los Robles and Digital Drive pump stations and construction will likely begin in April 2014.

Safety and Training:

General: The Collection System crew attended four safety tailgate meetings.

Specialized training: Collection System staff attended CPR and 1st Aid training during the month of February.

Safety performance: There were no lost time accidents this month for a total of 393 accident-free days.

Standard Operating Procedures (SOPs):

Department staff continues to work on generating new SOPs, and working towards finalizing earlier draft SOPs. One (1) SOP and one SOP revision were issued in February. Tim O'Connor and Dale Thrasher (Safety Director) are developing a template for energy management SOPs to assist staff with pump removal procedures. Staff also continues to assist the District's consultant DFK Solutions in updating its Sewer System Overflow Emergency Response Plan (OERP).

Emergency Operating Procedures (EOPs) – Pump Stations:

Staff has also been working with DFK Solutions since summer 2013 to generate the 38 Emergency Operating Procedures (EOPs) required for all of the District pump stations. At this time, one EOP is almost complete (except for some minor edits), 11 have had a

**Novato Sanitary District
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final review and need some minor edits, and 14 more require edits before staff gives them a final review. The contractor has not yet submitted 12 EOP's for initial staff review. It is anticipated that the EOPs will be in place (along with all relevant training performed) by the end of April 2014.

Sanitary Sewer Overflows (SSOs):

For the month of February, there were no (zero) SSO's.

Novato Sanitary District
Collection System Monthly Report For February 2014 (as of February 28, 2014)

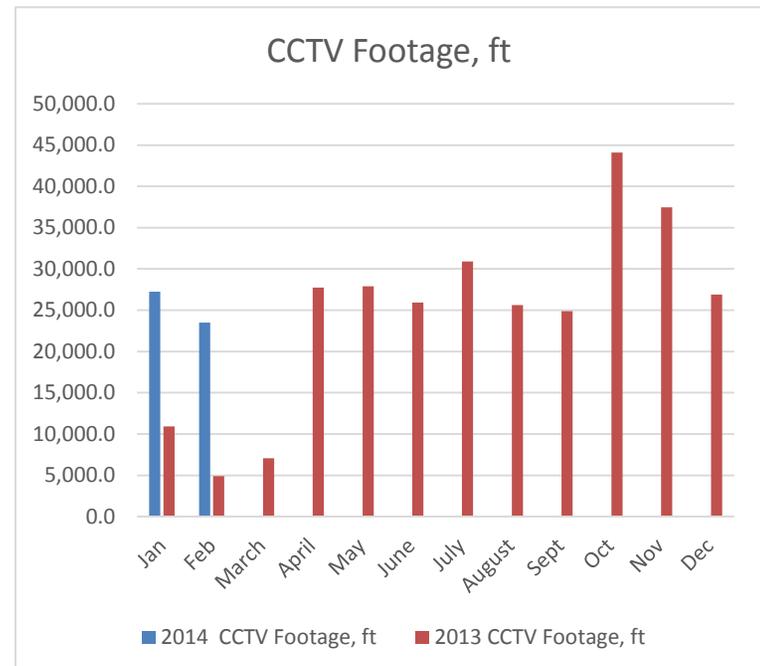
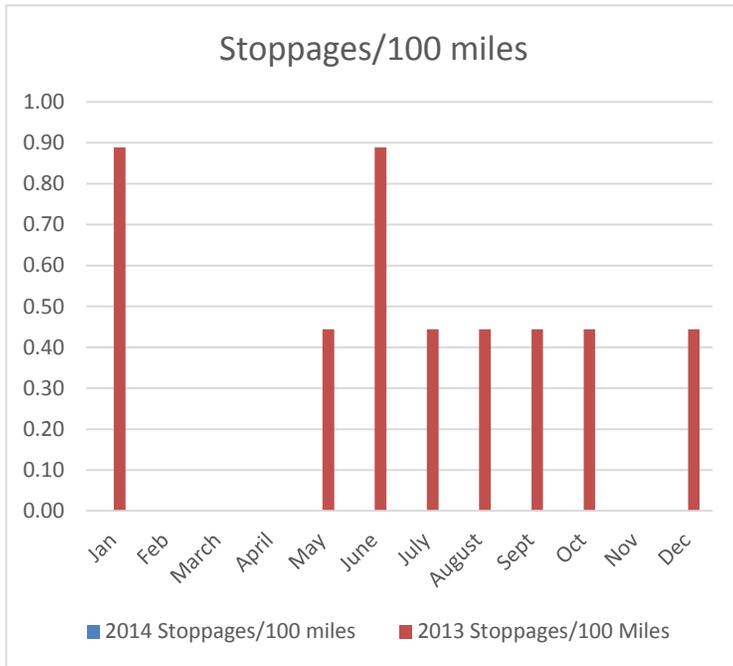
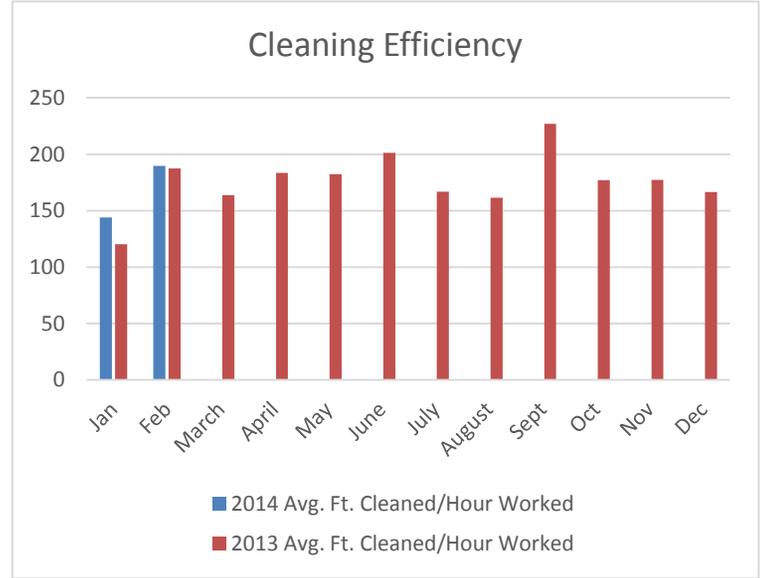
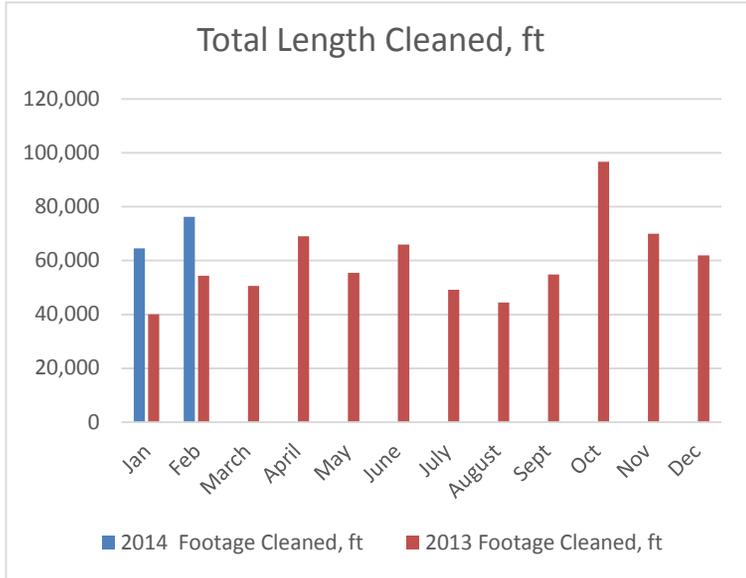
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total Year to Date	Average Year to Date
A. Employee Hours Worked														
Number of FTEs (main line cleaning), hrs.	2.6	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.4
Number of FTEs (other)	1.7	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.3
Number of FTEs (CCTV)	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.1
Total, FTEs	5.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.8
Regular Time Worked, (main line cleaning), hrs	448	402												
Regular Time Worked on Other, hrs (1)	294	262												
Regular Time Worked on CCTV (2)	158	125												
Total Regular time, worked, hrs	900	789	0	0	0	0	0	0	0	0	0	0	1,689	141
Total Vacation/Sick Leave/Holiday, hrs	285	151											436	218
Vacation/Sick Leave/Holiday, FTEs	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.2
Overtime Worked on Coll. Sys., hrs	2	8											10	5
Overtime Worked on Other, hrs (1)	22	17											39	20
Overtime Worked on CCTV (2)	0	0											0	0
Total Overtime, hrs	24	25	0	0	0	0	0	0	0	0	0	0	49	4
B. Productivity														
1. Line Cleaning														
Rodder Work Orders generated	57	30											87	44
Rodder 3203 ft. cleaned	10,989	3,337											14,326	7,163
Rodder - outside services, ft cleaned	0	0											0	0
Flusher Work Orders generated	351	352											703	352
Truck 3205V ft. cleaned	16,187	16,552											32,739	16,370
Truck 3206V ft. cleaned	37,342	56,332											93,674	46,837
Flusher - outside services, ft. cleaned	2,301	1,570											3,871	
Total Footage cleaned(3)	64,518	76,221	0	0	0	0	0	0	0	0	0	0	140,739	11,728
Work Orders completed	408	361											769	385
Work Orders backlog	66	21	0	0	0	0	0	0	0	0	0	0	87	7
2. Closed Circuit Television (CCTV)														
Camera Work Orders generated	0	0	0	0	0	0	0	0	0	0	0	0	0	
CCTV Truck 3126T, ft. videoed	24,487	21,931											46,418	23,209
CCTV (hand cam), ft. videoed	449	0	0	0	0	0	0	0	0	0	0	0	449	
CCTV Inspection - outside services, ft. videoed	2,301	1,570	0	0	0	0	0	0	0	0	0	0	3,871	
Total CCTV footage(3)	27,237	23,501	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50,738	
C. Sanitary Sewer Overflows (SSOs)														
Minor (Category III)	0	0											0	NA
Major (Category II)	0	0											0	NA
Major (Category I)	0	0											0	NA
Overflow Gallons	0	0											0	NA
Volume Recovered	0	0											0	NA
Percent Recovered	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	#DIV/0!	NA
D. Service Calls (non-SSO related)														
Service calls, normal hours, #	8	3											11	6
Normal hours S.C. response time, mins (avg.)	38	19											57	29
Service Callouts, after hours, #	0	1											1	1
After Hours S.C. response time, mins (avg.)	0	15											15	8
E. Benchmarks														
Average Ft. Cleaned/Hour Worked	144	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	167
Total Stoppages/100 Miles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA
Average spill response time (mins)	0	0											NA	0
Callouts/100 Miles	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Overtime hours/100 Miles	1	4	0	0	0	0	0	0	0	0	0	0	4.44	0
Overflow Gallons/100 Miles	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(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



**COLLECTION SYSTEM (Pump Stations)
WORK ORDER STATISTICS
February 1, 2014 - February 28, 2014**

	Open Work Orders Due Prior to 2/1/2014	Open Work Orders 2/1/2014 - 2/28/2014	Total Open Work Orders
Preventive	0	114	115
Corrective	0	1	0
Total	0	115	115

	Closed Work Orders 2/1/2014 - 2/28/2014
Preventive	110
Corrective	0
Total	110

Total Outstanding Work Orders as of 2/28/2014	5
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NOVATO SANITARY DISTRICT
Wastewater Operations Committee Meeting
Reclamation Facilities Report
February 2014

Summary:

The rancher cleared two culverts in Site 7. Approximately 66 MG of recycled water was placed in the storage ponds this month for irrigation, no irrigation was performed. The motor was removed for repair from Irrigation Pump No. 2.

Ranch Operations:

There were no scheduled rancher activities this month.

Staff identified a plugged culvert in Site 7, Parcel 2, which resulted in flooding a portion of Parcel 1 after a substantial rain event. This was reported to the rancher and was cleared to allow the ditch to drain. After a section of the ditch drained another plugged culvert was identified in Parcel 1 which was subsequently cleared to allow Parcel 1 to drain. Culverts can be plugged when cattle enter the ditches to eat water plants or drink water at the ends of the culverts.

Irrigation Parcels:

There were no irrigation parcel activities this month.

Irrigation Pump Station:

Due to the dry conditions, in January, the District was granted permission by the Regional Water Quality Control Board to irrigate the pastures to encourage newly planted seed to sprout and the pasture grass to grow. On February 1st the District began adding treated water to the Irrigation Storage Ponds to use for irrigation. However, when seasonal rains returned on February 11th, the District returned to Bay discharge. During this period of Feb 1st -11th the level of the storage ponds rose from 2.3 feet to 6.0 feet, accumulating approximately 66 MG of recycled water in the storage ponds. There was no irrigation performed this month prior to the return of seasonal rains.

As reported earlier, the motor for Irrigation Pump No. 2 was removed and taken to an outside vendor's shop for analysis and repair when the pump's main breaker and the pump station main breaker tripped for no apparent reason during testing in January. After disassembly and performance of various checks and tests the vendor reported they did not find any abnormalities within the motor. Subsequent shop tests were performed in the presence of District staff and the District's electrical consultant and the motor performed normally. Staff has arranged with the vendor to visit the Irrigation Pump Station to perform various tests and inspections to try and determine what caused the pump's main breaker to trip in addition to determining why the pump station's main breaker tripped last month. This work will be performed next month when the motor is installed on the pump and tested.

Sludge Handling & Disposal:

There were no sludge handling and disposal activities this month.
