

## NOVATO SANITARY DISTRICT

Meeting Date: March 16, 2015

The Wastewater Operations Committee of the Novato Sanitary District will hold a meeting at 2:00 PM, Monday, March 16, 2015, 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 MARCH 2, 2015 MEETING**

**4. WASTEWATER TREATMENT FACILITIES REPORT FOR FEBRUARY 2015:**

- a. Receive "DRAFT" 2014 Annual Operations and Maintenance Report.
- b. Treatment Plant Performance Report
- c. Maintenance Report
- d. Safety and training
- e. Odor control and landscaping report

**5. COLLECTION SYSTEM REPORT FOR FEBRUARY 2015:**

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

**6. RECLAMATION FACILITY REPORT FOR FEBRUARY 2015**

- 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.***

March 2, 2015

A regular meeting of the Wastewater Operations Committee of Novato Sanitary District was held at 2:00 p.m., Monday, March 2, 2015, at the District Office, 500 Davidson Street, Novato.

MEMBERS PRESENT: Committee Members Jerry Peters and Brant Miller.

STAFF PRESENT: Sandeep Karkal, Manager-Engineer  
Steve Krauthem, Field Services Manager  
Tim O'Connor, Collections System Superintendent  
John Bailey, Project Manager, Veolia  
Julie Swoboda, Administrative Secretary

OTHERS PRESENT: Brian Exberger, Assistant Project Manager, Veolia  
John O'Hare, Pretreatment Programs Manager, Veolia  
Liz Falejczyk, Environmental Services Supervisor, Veolia

AGENDA APPROVAL: Approved as presented.

PUBLIC COMMENT: None.

APPROVAL OF MEETING MINUTES FOR JANUARY 20, 2015: The January 20, 2015 meeting minutes were approved as presented.

WASTEWATER TREATMENT FACILITIES OPERATIONS AND MAINTENANCE REPORT FOR JANUARY 2014:

- Treatment Plant Performance Report, Maintenance Report and Safety & Training:  
Manager-Engineer Sandeep Karkal introduced Veolia Project Manager John Bailey, who provided an overview of treatment plant operations for the month of January. He noted that due to the dry weather, flows were much lower than the previous month. He stated that there were no permit exceedances, violations, or excursions in the month of January.

The Project Manager 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 January and stated that as of January 30<sup>th</sup>, Veolia employees have been accident free for a total of 1,703 days / 77,656 hours. He outlined the training Veolia employees participated in during January. He reviewed the operations and maintenance report and stated that 0.28 million gallons of recycled water were produced.

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 one odor notification and one noise complaint were received in January. He noted that

Veolia conducted a site walk/tour for the District Board of Directors at the January 26<sup>th</sup> Regular Board meeting.

- Odor control, and landscaping report: The Manager-Engineer discussed the odor related activities in January which included: a trial installation of a new odor counteractant technique that broadcasts a water based non-toxic odor neutralizer (the Aqua-Fog system) in the vicinity of the aeration basins; media in the large odor control bed between primary clarifiers #1 and #2 was topped off in November and appears to be performing satisfactorily; operations staff continued to fine-tune the air flow input to the converted anoxic zones in the aeration basins; continued addition of an oxidizing agent to the influent flow as needed with staff monitoring performance.

The Manager-Engineer commented on the landscaping activities in January and noted that the replanting of the redwood trees currently in planter boxes on the east fence line should take place before March 15<sup>th</sup>.

#### COLLECTION SYSTEMS OPERATION AND MAINTENANCE REPORT FOR JANUARY 2015:

The Collections System Superintendent gave the Collection Systems Monthly Report for January 2015. He reported that the Collection Systems crew cleaned a total of 78,863 feet of sewer pipeline and that the department completed 416 maintenance work orders which were generated in December. He noted that outside contractors also cleaned 1,349 feet of trunk sewer main line during the month. He stated that the District's CCTV van (Closed Circuit TV) televised 24 line segments for 3,998 feet of production and he outlined the areas identified as needing repairs or further evaluation. He reported on the current Collection System Projects and outlined the specialized training that the department completed.

The Collections System Superintendent stated that as of January 30, 2015, the Collections Department and the District have worked accident free for a total of 1,418 days and discussed the Collection System minor projects completed in January. He stated that staff generated two (2) Standard Operation Procedures (SOP's) in January. He stated that one sanitary sewer overflow occurred on January 31<sup>st</sup> on Pivato Ct. with an estimated volume of approximately 126 gallons. The discharge was determined to be the result of a partial root intrusion and debris in the line segment just below the discharge rodding inlet.

#### RECLAMATION FACILITY REPORT FOR JANUARY 2014:

The Field Services Manager presented the Reclamation Facilities report for January. He stated that the rancher applied weed suppressant around sprinkler heads on some parcels in the Reclamation area and noted that there were no irrigation or sludge handling activities this month. He noted that the contractor for the Drainage Pump Station Improvement project began on site work.

ADJOURNMENT: There being no further business to come before the Committee, the meeting adjourned at 2:40 p.m. The next Wastewater Operations Committee meeting will be held on Monday, March 16<sup>th</sup> at 2:00 p.m.

Respectfully submitted,

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Sandeep Karkal  
Manager-Engineer

Julie Swoboda, Recording

DRAFT

# **2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT**

**Prepared by:**

**Veolia Water Operating Services**

**Draft – March 2014**



**ANNUAL OPERATIONS REPORT**  
**2014**  
**Veolia Water West Operating Services Novato**

**SECTION**

- 1 Summary
  - a. Overview
  - b. Process Descriptions & Loading Summary
- 2 Treatment Plant Performance & Compliance Summary
3. Asset Management
4. Safety and Training
- 5 Staffing and Organization
- 6 Budget

**ATTACHMENTS**

- 1 Data and Graphs
- 2 Community Outreach Activities
- 3 Recycled Water Production Report

# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

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### Overview:

The top priorities for 2014 were to meet the goals of zero lost time accidents or OSHA recordable incidents and no environmental excursions or treatment plant violations. This is a year in and year out objective plainly stated and firmly established throughout Veolia Water. A term we apply to this end is “Zero Harm”. We are very happy and proud to report that both goals were met. 2014 represents our third consecutive year of zero effluent violations and fourth year of zero recordable accidents. We celebrate that success with and offer congratulations to the Novato Sanitary District on its vision and commitment to water quality.

Key areas of focus throughout the year include:

- Safety Training
- Regulatory Compliance
- Third Party Facility Reviews
- Reporting (internal and external)
- Records Keeping and Data Base
- No Safety Incidents (recordable, lost time, or medical)
- Participation in Company *Near Miss* Reporting Program (focused on prevention)
- Employee Education and Certification / Professional Advancement
- Community Outreach and Participation
- Utilization of Job Cal Plus (CMMS) for Maintenance Tracking and Scheduling

On December 11, 2014 we experienced the highest Peak and Daily Flows since commissioning the new plant in April 2010. Both peak flows in excess of 35 mgd (million gallons per day) as well as total daily flow of 28.04 mgd were handled with relative ease. All of the raw sewage received full secondary treatment and all effluent standards were met. Prior to the new plant upgrades only a portion of the flow would have received full secondary treatment. Raw sewage above the treatment capacity would have received either primary or in some cases no treatment prior to filtration and *blending* with fully treated effluent. Recent regulatory monitoring requirements designed to discourage *blending* would have almost certainly resulted in numerous effluent violations.

# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

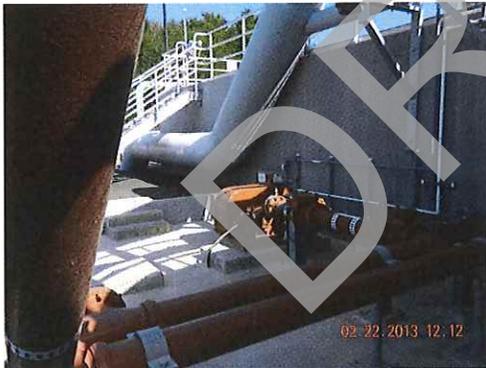
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### Plant Operations and Process Summaries:

Wastewater is collected throughout the Novato Sanitary District service area and conveyed by gravity as well as mechanical means (pump stations) to the Davidson Street site.

### Preliminary Treatment - Influent Pump Station and Headworks

When the wastewater arrives at the Treatment Plant it is pumped from the Influent Pump Station to the Headworks. The Headworks provides screening of coarse materials and removal of grit which consists of heavy matter such as sand, silt, and gravel.



Top Left – Influent Pump Station

Top Right – Parkson Aqua Guard Screen™

Bottom Left – Grit Conveyance and Pumping

Bottom Right – Screenings Washer / Compactor, Compacted Screenings Being Discharged to Dumpster

# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

### Flow and Loading Measurement

Flow at the Novato Wastewater Treatment Plant is measured using a Parshall Flume and Hydro Ranger™ ultra sonic level meter in combination. This pairing is considered very reliable and provides a high degree of accuracy. Composite samples for biochemical oxygen demand (BOD) and total suspended solids (TSS) are collected downstream of screening and grit removal. Composite samples are flow proportioned throughout the sampling period (normally 24 hours). Flow proportioning provides the most representative sample.



Above Left – Hydro Ranger level meter, hourglass shaped plating over Parshall Flume  
 Above Right – Hach Model 3540 SDR Composite Sampler

### Rated Capacities

DESIGN CRITERIA			
Condition	Value	Unit	Notes
Average Dry Weather Flow	7.0	MGD	
Peak Wet Weather Flow (Max Day)	30.7	MGD	
Max Peak Wet Weather (1-3 Hour)	47.0	MGD	
Average BOD Loading	14,600	Lbs/D	
Average TSS Loading	17,600	Lbs/D	

### Actual 2014

2014 FLOWS AND LOADS SUMMARY			
Condition	Value	Unit	Notes
Average Dry Weather Flow	3.37	MGD	Jul / Aug / Sep
Peak Wet Weather Flow (Max Day)	28.04	MGD	12/11/2014
Max Peak Wet Weather (1-3 Hour)	35.00	MGD	12/11/2014, 8:15 am
Average BOD Loading	8,477	Lbs/D	
Average TSS Loading	11,608	Lbs/D	

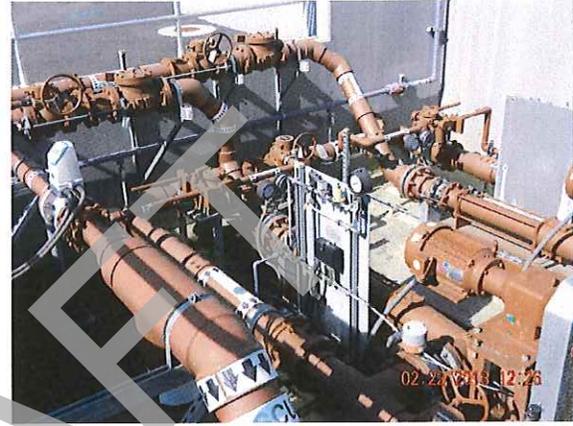
Significant Peak Wet Weather Events occurred in December.

# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

### Primary Treatment – Primary Clarifiers

Primary clarifiers typically remove approximately 60 – 70% of the solids from raw wastewater. Clarifiers are large tanks that slow the flow of water and allow the force of gravity to remove solids. Heavier solids referred to as “sludge” settles to the bottom. Lighter material such as fat, oil, grease and plastic referred to as “scum” rises to the surface. Both sludge and scum are removed from the waste stream and pumped to a digester for additional treatment.



Above Left – Primary Clarifier #2, Superstructure supports the cover.  
 Above Right – Sludge and Scum Pumping

PRIMARY CLARIFIERS			
	Value	Unit	Notes
Number	2		
Diameter	100	Ft	Each
Sidewall Depth	12	Ft	Each
Capacity (Volume)	880,770	Gallons	Each
BOD Removal	30	%	2014 Results
TSS Removal	65	%	2014 Results

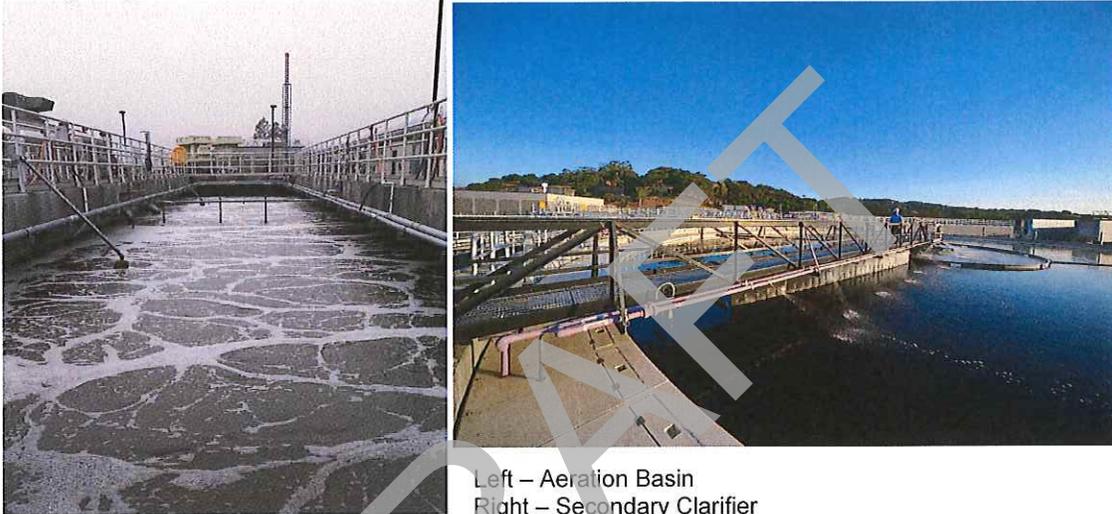
Novato’s primary clarifiers are covered to contain foul air associated with raw sewage. The foul air is removed and discharged to odor scrubbing biofilters by large fans. Like much of the wastewater process the biofilters are living processes. Various life forms including fungi, worms, and microbial populations convert odorous compounds to other gases, primarily carbon dioxide.

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

**Secondary Treatment – Aeration Basins & Secondary Clarifiers**

After screening, grit removal, and primary solids removal, all wastewater receives full secondary treatment. Large rectangular tanks with baffle walls, mechanical mixers, air diffusers, and recirculation pumps make up the aeration basins. The Novato facility was designed with both flexibility and reliability in mind. Four aeration basins, each with a capacity of more than 850,000 gallons provides complete secondary treatment under all flow conditions.

Each aeration basin has three anoxic (no dissolved oxygen) zones accounting for almost 25% of the tank volume. The anoxic zones convert nitrate and nitrite to nitrogen gas to reduce the level of total nitrogen in the effluent.



Left – Aeration Basin  
 Right – Secondary Clarifier

Solids, primarily biological cell mass, are produced during the process of removing dissolved pollutants (BOD) in the aeration basins. A combination of wastewater and bio-mass, known as mixed liquor, typically contains between 1,500 mg/L and 2,500 mg/L (0.15% to 0.25%) of solids. The aeration basins are well mixed and as a result a continuous stream of solids leaves the aeration basins. Solids are captured in the secondary clarifiers and the majority returned to the head end of the aeration basins to maintain the proper biomass concentration for treatment. Excess solids are sent to the gravity belt thickener (GBT) where they are concentrated to 4% - 6% and then pumped to a digester for additional treatment. Effluent from the secondary clarifiers is then ready for disinfection.

SECONDARY CLARIFIERS			
	Value	Unit	Notes
Number	2		
Diameter	125	Ft	Each
Sidewall Depth	16	Ft	Each
Capacity (Volume)	1.468	MG	Each

# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

### Ultra Violet (UV) Disinfection

Prior to discharge wastewater must be disinfected. Ultra violet light disrupts the DNA of pathogens and other life forms leaving them incapable of reproduction. UV unlike other methods of disinfection uses no chemicals, produces no harmful byproducts (trihalomethanes for example), and leaves no toxic residual.



Left – UV Rack Removed for Cleaning  
Below – Preparing UV Rack for Removal



### Effluent Disposal – Bay Discharge / Reclamation / Storage

There are several options for disposal of treated effluent. During wet weather the majority of Novato's effluent is discharged to San Pablo Bay. Seasonal NPDES permit restrictions combined with a responsible approach to water conservation drive effluent disposal options. Discharge to the San Pablo Bay during the months of June, July, and August is prohibited. Restrictive discharge limits during the months of May, September, and October are also considerations



**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**Performance Summary**

The following summary provides an overview of plant performance and activities for the period January 1, 2014 through December 31, 2014.

Total Volume of Water Processed	1,655 Million Gallons
Total Volume of Water Reclaimed	503 Million Gallons
Total Volume of Water Discharged	1,152 Million Gallons
Average Daily Dry Weather Flow	3.37 MGD
Maximum Daily Flow	28.04 MGD
Pounds of BOD Treated	2,951,310
Pounds of BOD Removed	2,855,315
Percent BOD Removal Efficiency	97
Pounds of TSS Treated	4,062,500
Pounds of TSS Removed	4,007,081
Percent of TSS Removal Efficiency	99
Pounds of Bio-solids Treated	1,778,600
Cubic Feet of Biogas Produced	25,821,050
Total Number of Violations / Excursions	0
NPDES (Bay Discharge)	0
WDR (Reclamation)	0

**Maintenance**

Total Number of Work Orders Issued	5,238
Total Number of Work Orders Closed	5,330
Percentage Preventive Maintenance	88%
Average Completion	5.01 Days

**Consumables / Energy**

*Electricity – kWh / Year	3,365,946
Electricity – kWh / MG	2,170
*Natural Gas – Therms / Year	45,496
Natural Gas – Therms / MG	29
Diesel Fuel – Gallons / Year	1,965
Diesel Fuel – Gallons / MGD	1.27

\*Excludes Administration Building, Recycled Water Plant, and Flare Pilot.

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**Treatment Plant  
Compliance Summary**

No treatment plant violations were experienced in 2014. The compliance summary table (below) is broken down by constituent and discharge season.

Waste Discharge Limits / Reclamation				
Parameter	Limit	Units	Analysis	Violations
BOD Monthly Average	40	mg/L	4	0
Total Coliform – 5 Sample Median	240	mpn/100 ml	51	0
Total Coliform - Maximum	10,000	mpn/100 ml	51	0
pH – High	9.0	s.u.	87	0
pH – Low	6.0	s.u.	87	0

NPDES Wet Season Limits - November – April				
Parameter	Limit	Units	Analysis	Violations
BOD Weekly	45	mg/L	25	0
BOD Monthly	30	mg/L	6	0
TSS Weekly	45	mg/L	25	0
TSS Monthly	30	mg/L	6	0
BOD Removal (minimum)	85	%	6	0
TSS Removal (minimum)	85	%	6	0
Enterococcus - 30 Day Geo Mean	35	Col/100 ml	6	0
Fecal Coliform - Median	140	mpn/100 ml	6	0
Fecal Coliform - 90 <sup>th</sup> Percentile	430	mpn/100 ml	6	0
Ammonia – Daily Maximum	21	mg/L	57	0
Ammonia - Monthly Average	6	mg/L	6	0
pH – High	8.5	s.u.	128	0
pH – Low	6.5	s.u.	128	0
Oil & Grease - Daily Maximum	15	mg/L	6	0
Oil & Grease - Monthly Average	5	mg/L	6	0

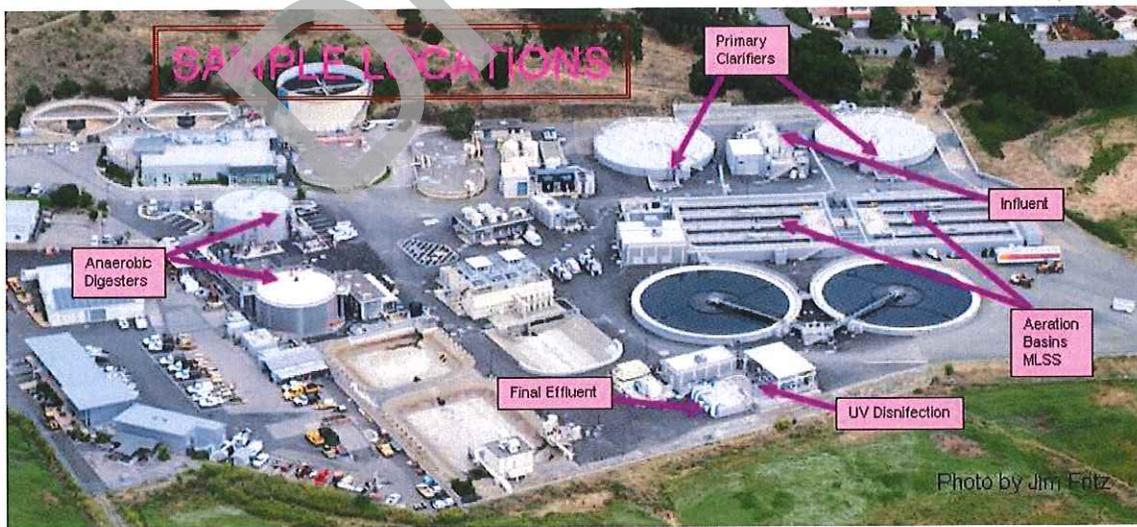
# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

### Compliance Summary (Continued)

NPDES Dry Season Limits - May, September, & October				
Parameter	Limit	Units	Analysis	Violations
BOD Weekly	30	mg/L	10	0
BOD Monthly	15	mg/L	2	0
TSS Weekly	20	mg/L	10	0
TSS Monthly	10	mg/L	2	0
BOD Removal (minimum)	85	%	2	0
TSS Removal (minimum)	85	%	2	0
Enterococcus - 30 Day Geo Mean	35	Col/100 ml	2	0
Fecal Coliform - Median	140	mpn/100 ml	2	0
Fecal Coliform - 90th Percentile	430	mpn/100 ml	2	0
Ammonia – Daily Maximum	21	mg/L	10	0
Ammonia - Monthly Average	6	mg/L	2	0
pH – High	8.5	s.u.	45	0
pH – Low	6.5	s.u.	45	0
Oil & Grease - Daily Maximum	15	mg/L	2	0
Oil & Grease - Monthly Average	5	mg/L	2	0

### Sample Locations



# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

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### Asset Management

Key components of an Asset Management Program include:

- Computerized Maintenance Management System (CMMS)
- Preventive, Predictive, and Corrective Maintenance
- Equipment Inventory
- Reliability / Criticality Assessment (Hierarchy of Equipment Priority)

#### Computerized Maintenance Management System

Veolia uses *Job Cal Plus*<sup>™</sup> (Job Plus) as the basis for scheduling and tracking maintenance and repairs at Novato. Job Plus is an off-the-shelf, non proprietary software program available from Hach Company, Loveland, Colorado. Job Plus uses the Microsoft Access<sup>™</sup> data base platform to store information. A description of Job Plus can be found at the end of this section.

#### Preventive, Predictive, and Corrective Maintenance

Preventive maintenance (PM) is a scheduled maintenance activity generally tied to equipment run time (x hours) or period schedule (weekly / quarterly). Routines such as lubrication, oil change, filter change fall into the category of PM. Predictive maintenance (PdM) is performed to determine when maintenance might be required and or to assess condition. Tasks such as vibration, temperature, and oil analysis are types of PdM. Corrective maintenance is initiated when a deficiency is found.

#### Equipment Inventory

An accurate equipment inventory is crucial to all phases of Asset Management. Equipment at the Novato facility has been entered into the Job Plus data base. The equipment inventory is a dynamic process with additions and deletions over time. An accurate equipment inventory is an essential component when planning for equipment replacement.

#### Reliability / Criticality Assessment (Hierarchy of Equipment Priority)

A Criticality Assessment was performed at the Novato facility in August 2010 and updated in June 2014. The assessment evaluates processes and equipment and rates the relative importance. The evaluation process looks at consequences and likelihood of failure. The product helps the user prioritize replacement and maintenance.

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**Maintenance Activities Under \$10,000.00\***

<b>January</b>		
	MCC Panels	Thermographic imaging
	Gravity Belt Thickener #2	Replaced belt
	Sludge/Scum Pump #1 - Primary #1	Replaced seal water line
	Sludge/Scum Pump #2 - Primary #1	Replaced seal water line & regulator
	Primary Clarifier #2	Replaced mercoid switch
	TWAS Pump #2	Replaced drive
	Novato WWTP & Ignacio PS	Thermographic testing

<b>February</b>		
	Operation Chevy Truck	Replaced 4 tires
	Ignacio	Backflow preventer repaired
	Ignacio – SCADA	Bezel replacement
	Aeration Basin #3	#3 water line repair
	GBT Odor Control Fans	Replaced bearings
	Headworks Gate #1 Actuator	Repaired actuator
	Gravity Belt Thickener #1	Replaced batteries in UPS unit
	Gravity Belt Thickener #2	Replaced batteries in UPS unit
	UV Emergency Generator Day Tank	Replaced floats

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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<b>March</b>		
	Maintenance Truck - Dodge	Replaced bench seat
	Maintenance Truck - Dodge	Replaced all 4 tires
	Digester #1	Replaced all Ferric feed lines
	GBT Polymer Pump	Replaced pump, pressure switch and tubing
	WAS Pump #2	Rebuild pump
	Ignacio Emergency Generator	Replaced filters & performed annual service
	Ignacio Grinder	Replaced drive

<b>April</b>		
	Diesel Fuel Tanks & Day Tanks	Annual fuel filtering
	Aeration Basins	Repairs to water piping
	Digested Sludge Transfer Pump #1	Replaced flush lines and hose
	Influent Gates	Gate repairs
	SCADA	Annual upgrade

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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<b>May</b>		
	Novato WWTP & Ignacio PS	Infrared Survey at Novato WWTP and Ignacio PS
	Blower Room UPS	Replaced UPS unit
	Overhead Cranes	Annual crane inspection/certification
	Flow Meters	Annual flow meter calibration
	Jerome Meter	Annual re-calibration
	Fire Extinguishers	Annual recharge of all fire extinguishers at Novato WWTP & Ignacio PS
	Primary Clarifier #1	Repaired scum arm and skimmer plate
	Emergency Generators	Annual service

<b>June</b>		
	Wet Weather effluent Pump #1	Replaced batteries
	Wet Weather Pumps	Annual service
	Blower #3	Replaced cooling fan and driver board
	Digester Sludge Sump	Pumped out sump
	Sodium Hypochlorite Pump #2	Replaced discharge line
	Sodium Hypochlorite Tank #1	Replaced drain valve and piping
	Screenings Washer Compactor	Installed new mechanical seal
	Ignacio Influent Pump #1	Retrofit - assisted in pulling and re-installation of pump
	Emergency Generator #2	Day tank repairs

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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<b>July</b>		
	Operations Truck - Dodge	Replaced water pump and fan belt
	Ignacio Gas Sensor	Replaced H2S sensor
	GBT Control Center	Replaced PLC I/O module and fuses
	Influent Channel #2	Replaced float
	Channel Grinder	Replaced drive/reducer

<b>August</b>		
	Boiler	Replaced linkage arm and replaced piping
	Wet Weather Pump #1	Replaced coolant filters and fuel line
	Emergency Generator	Annual service performed on all 4 Emergency Generators
	Grit Bin	Replaced Liner
	Primary Clarifier #1	Replaced limit switch
	UV Diesel Fuel Tank	Replaced digital tank level display
	Novato & Ignacio VFD	Annual inspections
	UV System	System overhaul

<b>September</b>		
	Old Wastewater Flow Meter Concrete Box	Installed safety railing around underground box
	Blower #3	Replaced cooling fan
	Digester Sludge Sump	Pumped out sump
	Primary Clarifier #1 Ultima X Gas Monitor	Replaced LEL sensor
	Primary Clarifier #2 Ultima X Gas Monitor	Replaced LEL sensor
	Digester Sludge Sump	Pumped out sump
	Flygt Pumps/Mixers	Annual Flygt pump/mixer inspection

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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<b>October</b>		
	Old Influent Pump Building	Repaired piping - water leak
	Above Ground Fuel Tank - old	Replace supply & return lines, prime wet weather pumps, clean probes and fuel in tank, repaired anti siphon valve
	Ignacio Channel Grinder	Re-installed rebuilt cutter stack
	TWAS Pump #2	Replaced seal water line
	Blower Room	Replaced Compressor - rooftop
	UV System	UV breakers, tighten connections, continuity testing, wiring to breakers
	Filter Screen #1	Removed grit from channel

<b>November</b>		
	Effluent Pump Station Piping	Repaired #3 water system piping
	Decant Line	Cleaned supernatant main pipe to decant pump station
	Headworks Channel #1	Replaced transducer/level sensor
	Influent Pump #5 VFD	Replaced fan
	UV Channel 2, Module 10	Replaced fan
	Wet Weather Pump #2	Replaced gasket on gear box

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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<b>December</b>		
	Trucks	Annual oil change on 4 trucks
	Dry Weather Effluent Pump #4	Replaced seal water line
	Odor Bed Moisture Control Panel	Replaced din mounted breaker and GFI receptacle in control panel
	Ignacio Influent Pump #2	Retrofit - assisted in pulling and re-installation of pump
	Ignacio - Raw Sewage Pump #2 Control Valve	Repaired actuator
	Ignacio - Force main Header Discharge Valve	Repaired actuator
	Channel #2 Mechanical Filter Screen	Replaced chain idler/tensioner

**Maintenance Activities Over \$10,000.00\***

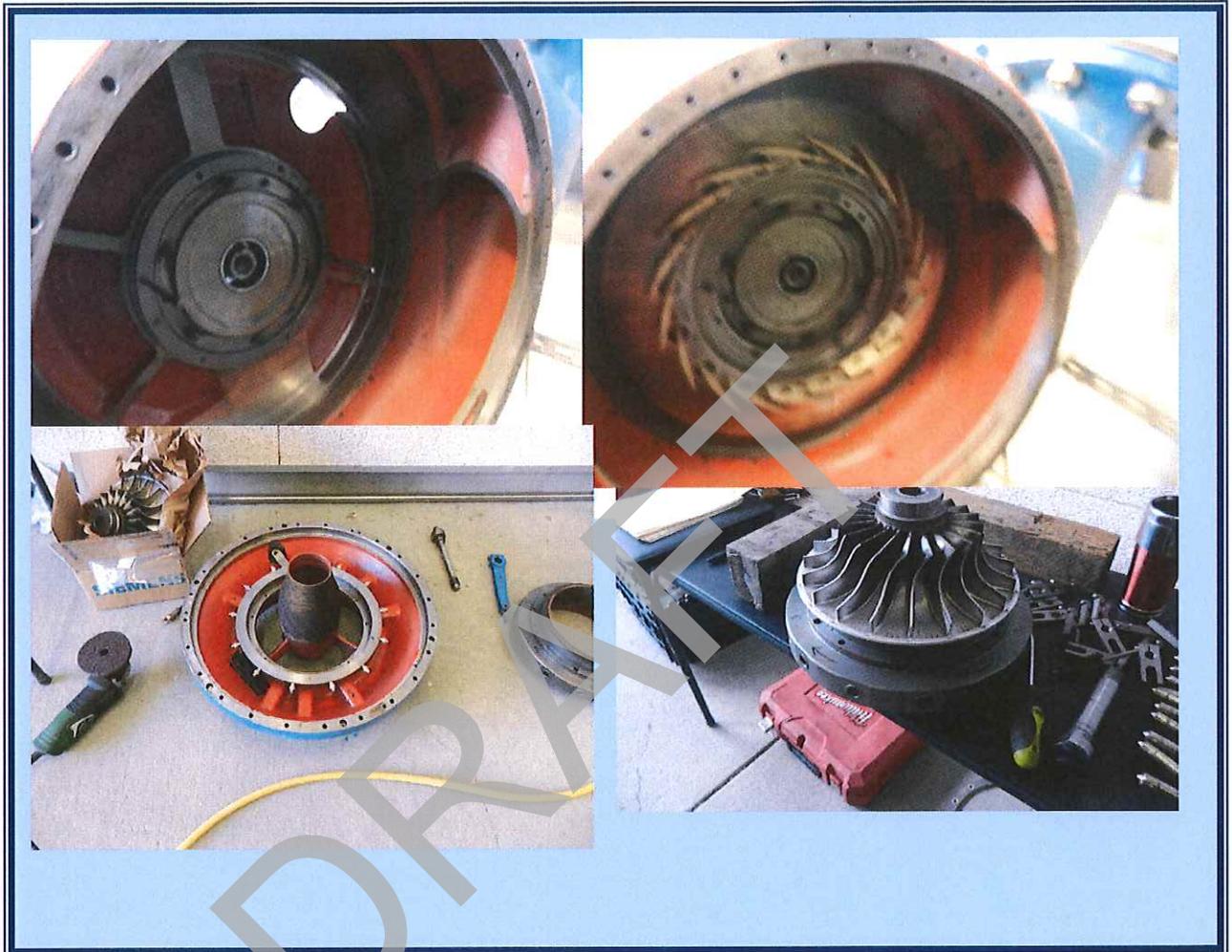
Task Description	Labor Cost	Material Cost	Outside Contractor Cost	Total Cost District	Total Cost (Preventative Maintenance)
Performed 36,000 Hour Class 1 Inspection			\$16,098.61		\$16,098.61

\* Limit Set by Section 3.0 of the Service Agreement between Veolia and NSD.

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**TURBLEX BLOWER - 36,000 HOUR LEVEL ONE INSPECTION**



Complete disassembly of Turblex Blowers (1 & 2)  
Blowers were found to be in excellent condition

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**REMOVAL AND CLEANING TELESCOPIC VALVE  
AT SLUDGE LAGOONS**



Top Left – Struvite Buildup in Telescoping Valve Receiver  
Top Right – Telescoping Valve Removed Ready for Cleaning  
Bottom Left – Buildup in Telescoping Valve  
Bottom Right – Cleaned Telescoping Valve

# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

### Safety

It's a Culture, Not a Campaign



Veolia Water North America (VWNA) recognizes the importance of an effective health and safety program to the well being of each employee, the general public, clients/facility owners, and to the overall success of our company. VWNA is committed to providing its employees a healthful and safe place of employment. To that end, VWNA will provide proper training, materials, and equipment so that work can be performed safely and in compliance with the Occupational Safety and Health Administration Regulations (OSHA) and other applicable standards. In turn, each employee is responsible to participate in a cooperative effort to maintain an effective health and safety program. Adherence to company policies and work practice guidelines is an essential part of this responsibility. By maintaining an effective program, we reduce the risk of personal injury, operational interruptions, regulatory fines, and maintain the company's reputation as a world leader in environmental management.

Our highest duty - to ensure health, safety and security for all. It is our highest duty, essential business priority, and the individual responsibility of each of us to ensure that at all time and in all of our operations, the health, safety and security of the general public, our customers, subcontractors and our fellow employees are protected. We allow for no compromise in this matter, and we strive to proactively identify potential risks and take diligent corrective and preventative actions to reduce and eliminate them. In the same spirit, we support, advise and encourage our fellow employees to maintain good personal health, as well as to develop positive practices and behaviors in that respect.

VWNA Novato has obtained a zero harm safety record from reinstatement of the Operations Contract. We have had no incidents from 6/1/10 to present. This reporting period from 1/1/14 - 12/31/14 resulting in 365 days - accident/incident free. In recognition of this achievement - staff celebrated at a luncheon with gifts of appreciation. Each employee received a cash incentive reward from the Company for 4 years no loss time incidents as a group and also as individual achievements.

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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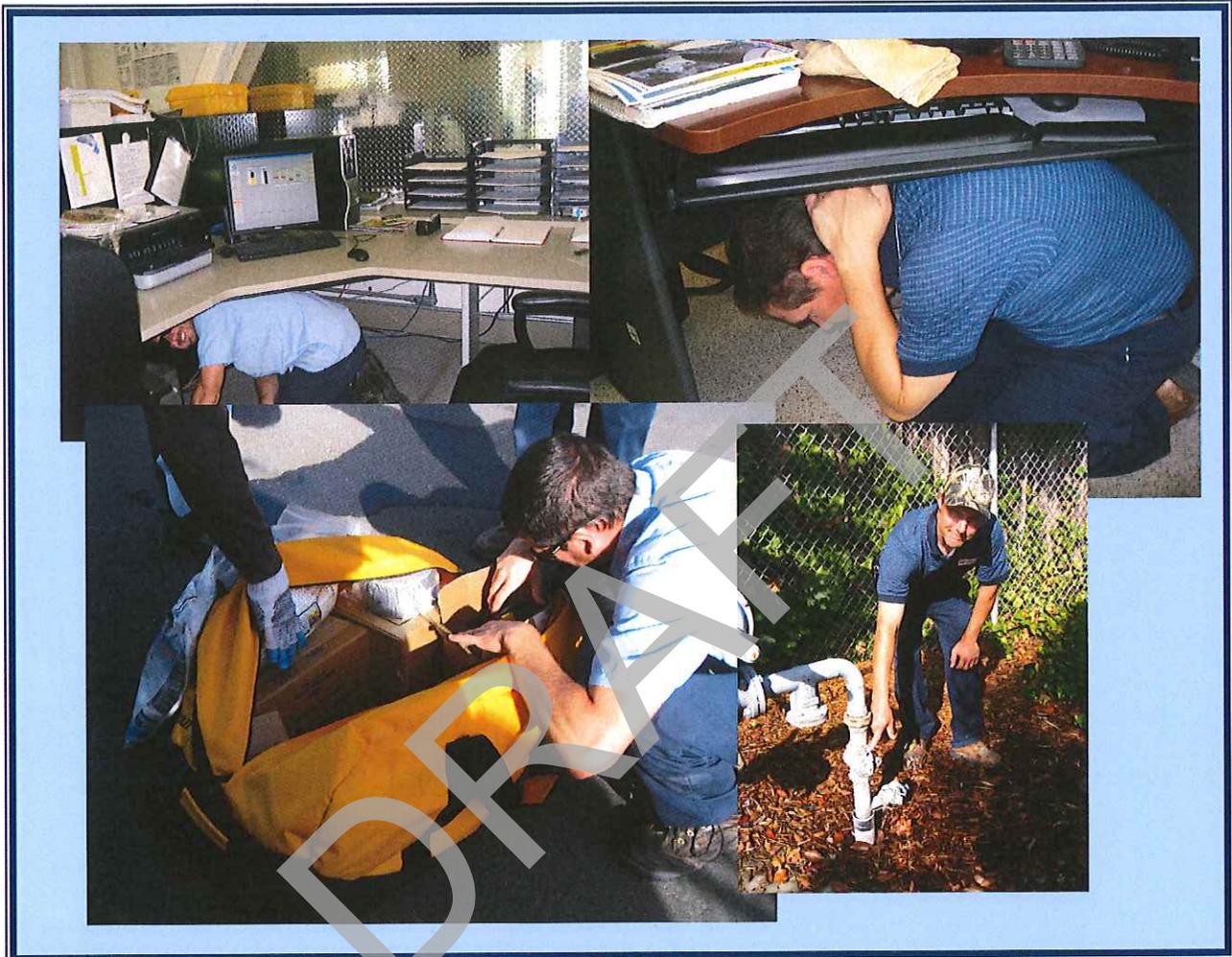
WWNA Novato provides daily safety topics - 5 minutes in length at each of our daily morning meeting. Subjects range from personal to job related safety topics.

<b>2014 Safety Training</b>	
<b>Date</b>	<b>Topic</b>
January	Hazard Communication – GHS
February	Personal Protective Equipment
March	General Electrical Safety LOTO - Control of Hazardous Energy
April	Confined Space Training Office Safety
May	Fire Extinguisher Use
June	Bloodborne Pathogens Housekeeping Preventing Heat Stress Overexertion - Sprains and Strains
July	Fire Extinguisher Use Hot Work - Welding Cutting and Brazing
August	Overexertion
September	LOTO - Policy Review
October	First Aid/CPR/AED Certification Training Great Shakeout – Earthquake Preparedness Drill
November	Fall Protection Powered Industrial Trucks Hearing Protection
December	SPCC Plans - Novato and Ignacio

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**GREAT SHAKEOUT – ANNUAL EARTHQUAKE DRILL**  
**OCTOBER 16, 2014**



Top Left – Christian Williams, Duck Cover Hold

Top Right – Brian Exberger, Duck Cover Hold

Bottom Left – Inventory Emergency Supplies

Bottom Right – Brian Exberger Simulates Shutoff of Natural Gas

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

---

NOVEMBER 19<sup>th</sup>  
HANDS-ON REVIEW OF THE WET WEATHER SOP



**Training in November prepared staff for the heavy rains of December**

**Above Left – Operations and maintenance staff review operation of the (hydraulic) wet weather pump valves**

**Above Right – Brian Exberger reviews Wet Weather Pump SOP with O&M staff.**

**Below Left – Staff tests operation of wet weather overflow structure.**

**Below Right – Brian Exberger reviews SOP with O&M staff**

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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## **Staffing and Organization**

### **STAFFING & CERTIFICATION STATUS**

**John Bailey** – Project Manager

Grade V California Wastewater Treatment Plant Operator #4123, December 31, 2016

**Brian N. Exberger** – Assistant Project Manager / Operations Manager

Grade V California Wastewater Treatment Plant Operator #10424, June 30, 2015

**Lynda Rodefer** – Administrative Assistant/Planner/Scheduler/Safety Coordinator

**Anthony M. Silva** – Operator III

Grade V California Wastewater Treatment Plant Operator #10973, December 31, 2015

Grade II Collection System Maintenance Technician, 354, January 31, 2016

**Dean B. Heffelfinger** – Operator III

Grade III California Wastewater Treatment Plant Operator #III-27610, June 30, 2015

Grade T2 Water Treatment Operator #34890

**Christian R. Williams** – Operator IV

Grade IV California Wastewater Treatment Plant Operator #28555, June 30, 2016

**Preston Ingram** – Operator III

Grade IV California Wastewater Treatment Plant Operator #10277, June 30, 2015

**Jeffrey D. Hendricks** – Operator II

Grade II California Wastewater Treatment Plant Operator #II-28377, December 31, 2015

Grade I Plant Maintenance Technologist, 070750011, July 31, 2015

**Ralph Loveless** – Maintenance Technician/Operator II

Grade II California Wastewater Treatment Plant Operator #28638, August 13, 2016

#### **Additional Support**

**Sachin Chawla** – Area Manager

**Christopher McAuliffe** – District Manager, Grade V Wastewater Treatment Plant Operator

## 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

### Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

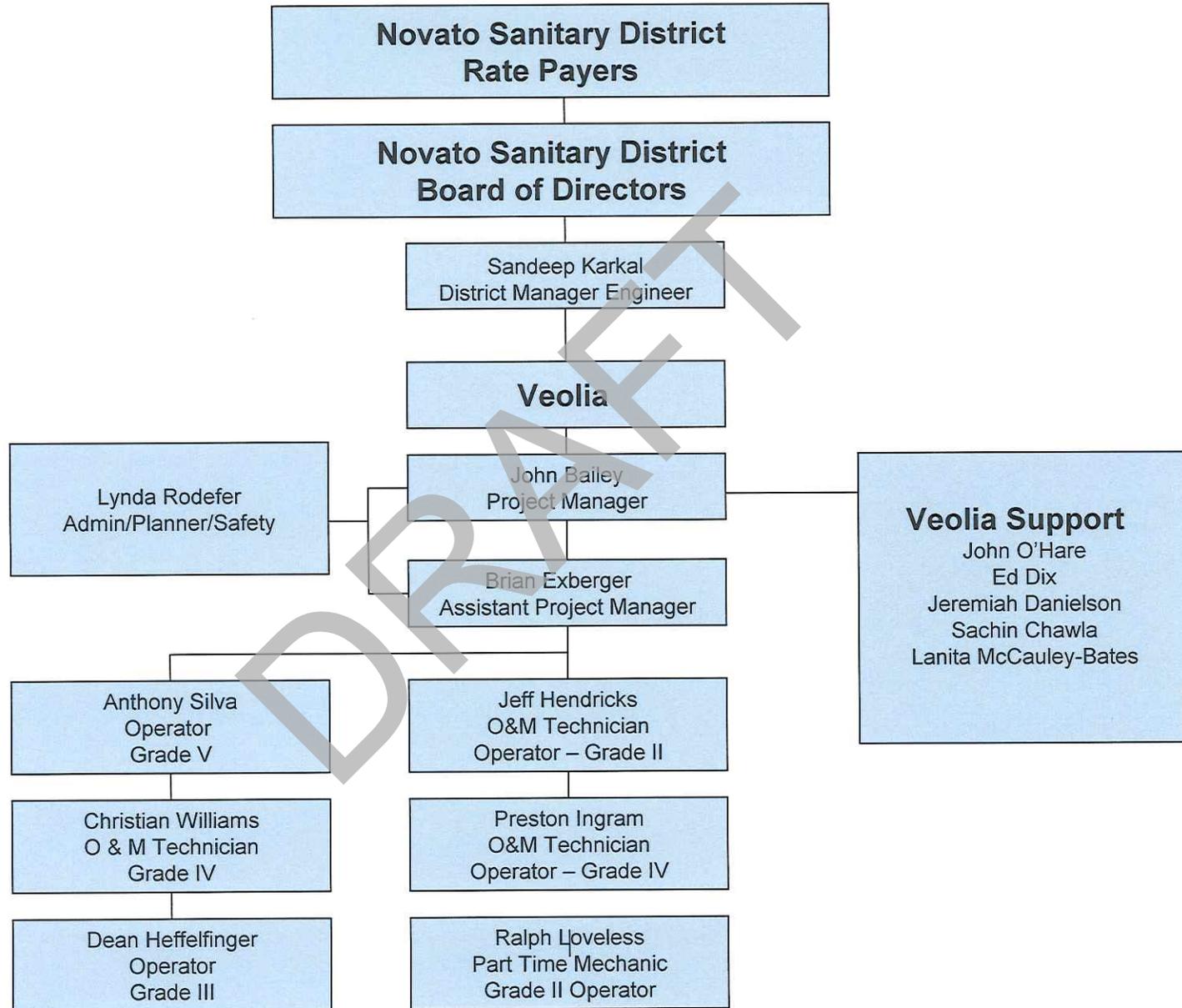
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#### **John O'Hare** – Technical Director

Grade V, Wastewater Treatment Plant Operator, California, # 10669 (2005)  
Grade IV, Wastewater Treatment Plant Operator, Association of Boards of Certification, # S40011R (2004)  
Grade IV, Collection Systems, Massachusetts, #866 (1986)  
Grade VII, Wastewater Treatment Plant Operator, Massachusetts, # 977 (1977)  
Grade I, Environmental Compliance Inspection, California, CWEA # 04074112 (2004)  
Grade I, Laboratory Analyst, California, CWEA # 05013114 (2005)  
Grade I, Plant Maintenance Technologist, California, CWEA # 05075101 (2005)  
Grade I, Collection System Maintenance, California, CWEA # 070121088 (2007)  
Grade I, Water Distribution Operator, California Department of Public Health, #34234 (2008)



Organization Chart –  
Veolia Water/Novato Sanitary District



# 2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT

## Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station

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### Budget

#### **ADJUSTMENTS OCCUR ON A “CONTRACT YEAR CYCLE”, JULY - JUNE**

The Novato Operations and Maintenance Service Agreement dated March 27, 2014 is a fixed price contract. Included in the base contract fee are operation, maintenance, and management. Exceptions to the fixed price include:

Schedule 13 – *Pass Through Costs*

Section 5.6 – Performance Bond

Schedule 8 – Cost Adjustment and Escalation Indices

Schedule 8 – Flow and Loading Adjustments

Schedule 11 – Usage Caps

- Electrical
- Natural Gas
- Diesel Fuel

Schedule 5 – Operation of Recycled Water Facility

Equipment Repair in excess of \$10,000

2014 service fee adjustment was 1.22%.

## NOVATO SANITARY DISTRICT - VEOLIA PLANT FLOW

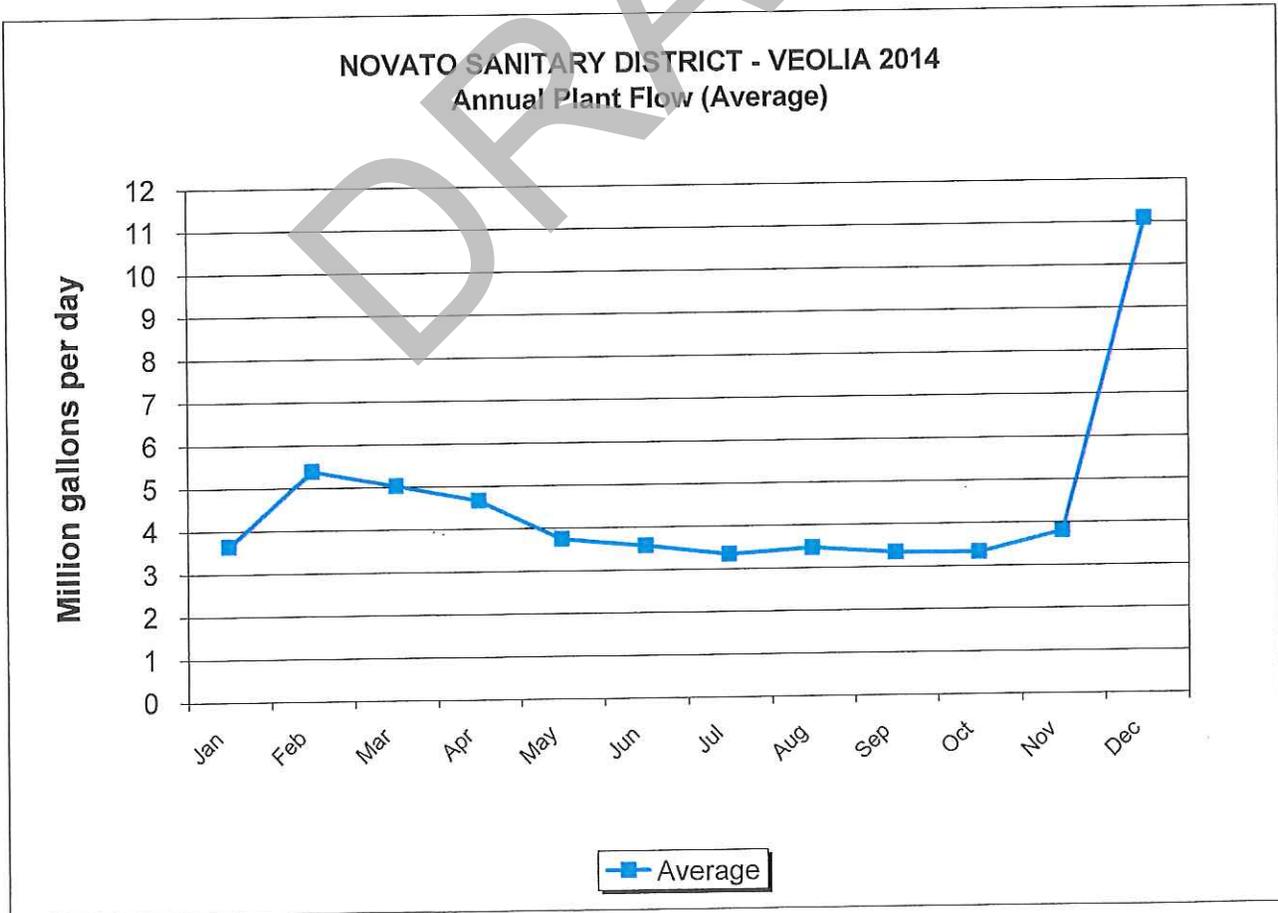
Annual Waste Characteristics & Loading Summary

(IN GALLONS TIMES 1,000,000)

YEAR: 2014

PRINT DATE: 28-Jan-2015

	Total Flow	High	Low	Average	
January	112.70	4.39	1.00	3.64	
February	150.57	11.56	3.40	5.38	
March	155.76	7.66	3.99	5.02	
April	139.61	7.87	3.61	4.65	
May	115.84	4.26	3.19	3.74	
June	106.70	4.19	3.10	3.56	
July	103.36	3.77	2.96	3.33	
August	107.29	3.78	3.06	3.46	Three month dry weather averages:
September	99.96	3.74	3.06	3.33	3.46
October	102.80	3.87	2.80	3.32	3.33
November	114.01	5.82	3.00	3.80	3.32
December	343.49	28.04	4.92	11.08	
<b>ANNUAL TOTAL</b>					1652.09
<b>ANNUAL MAX.</b>	343.49	28.04			Max. 3.46
<b>ANNUAL MIN.</b>	99.96		1.00		Min. 3.32
<b>ANNUAL AVG.</b>	137.67			4.53	Avg. Dry Weather Flow 3.37



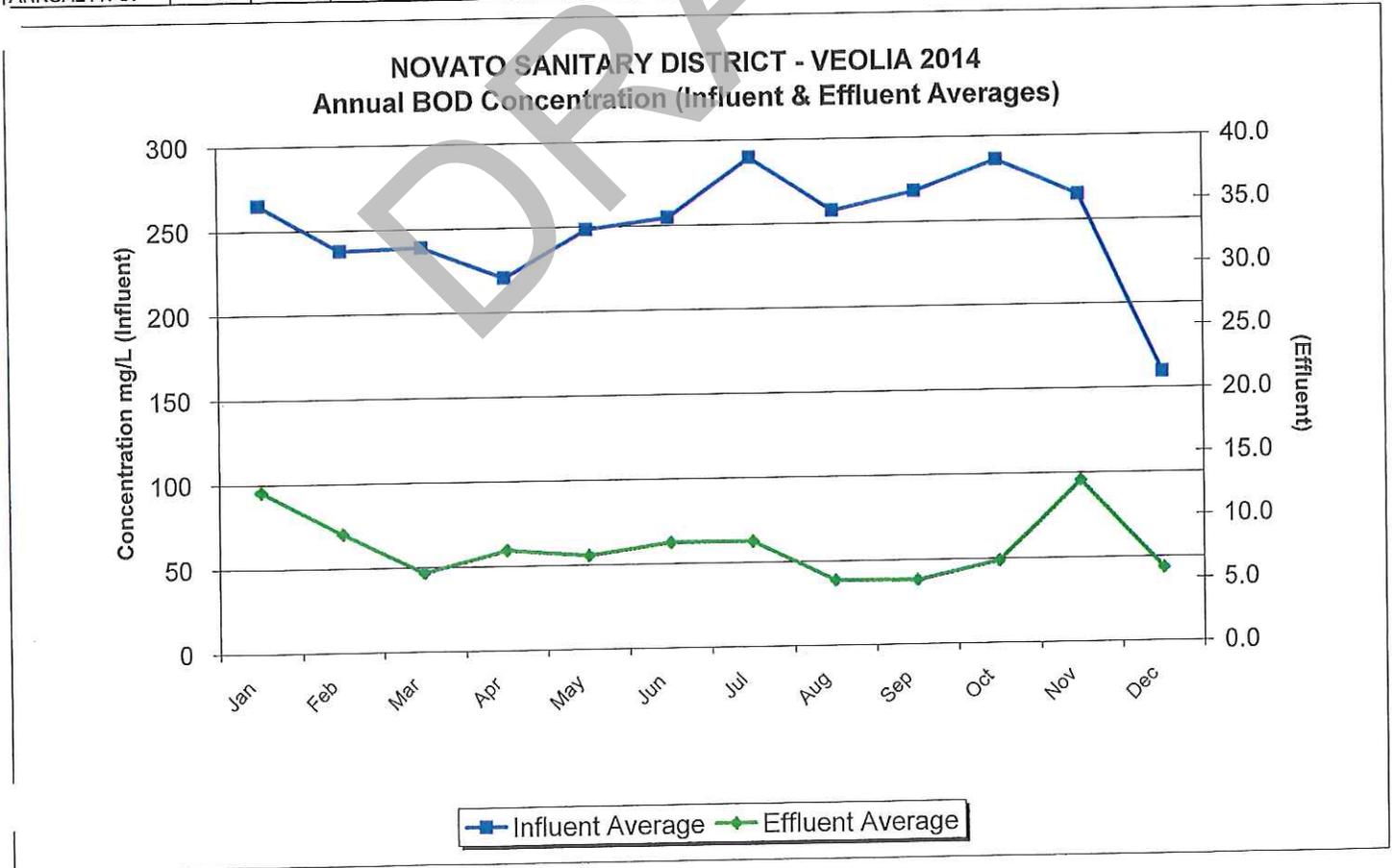
**NOVATO SANITARY DISTRICT - VEOLIA  
BOD (Influent & Effluent)**

Annual Waste Characteristics & Loading Summary

YEAR: 2014

PRINT DATE: 28-Jan-2015

	INFLUENT							EFFLUENT						
	Concentration (mg/L)			No. of Samples	Loading (kg/day)			Concentration (mg/L)			No. of Samples	Loading (kg/day)		
	High	Low	Average		High	Low	Average	High	Low	Average		High	Low	Average
January	339	229	265	11	5004	958	3546	19.0	6.0	12.8	12	291	30	176
February	322	110	238	13	5540	2606	4144	34.0	5.0	9.4	13	525	77	166
March	343	163	239	12	5388	3689	4194	12.0	5.0	6.3	12	255	79	113
April	470	143	220	15	6653	2317	3847	19.0	5.0	7.9	15	316	73	138
May	487	91	248	12	6765	1374	3495	11.0	5.0	7.4	12	159	66	105
June	299	216	255	12	4215	2912	3440	15.0	5.0	8.3	12	192	62	112
July	350	215	289	15	4684	2653	3651	19.0	5.0	8.3	15	237	61	105
August	305	227	257	12	4364	2664	3452	6.0	5.0	5.2	12	85	59	69
September	348	150	268	12	4768	2084	3382	6.0	5.0	5.1	12	71	58	64
October	343	206	286	15	4204	2901	3613	16.0	5.0	6.5	15	210	60	83
November	339	229	265	11	5639	2722	3907	19.0	6.0	12.8	12	279	90	182
December	323	54	159	15	8986	3096	5496	12.0	5.0	5.8	15	783	93	251
ANNUAL HIGH	487	229	289	15	8986	3689	5496	34.0	6.0	12.8	15	783	93	251
ANNUAL LOW	299	54	159	11	4204	958	3382	6.0	5.0	5.1	12	71	30	64
ANNUAL AVG.	356	169	249	13	5517	2498	3847	15.7	5.2	8.0	13	284	67	130



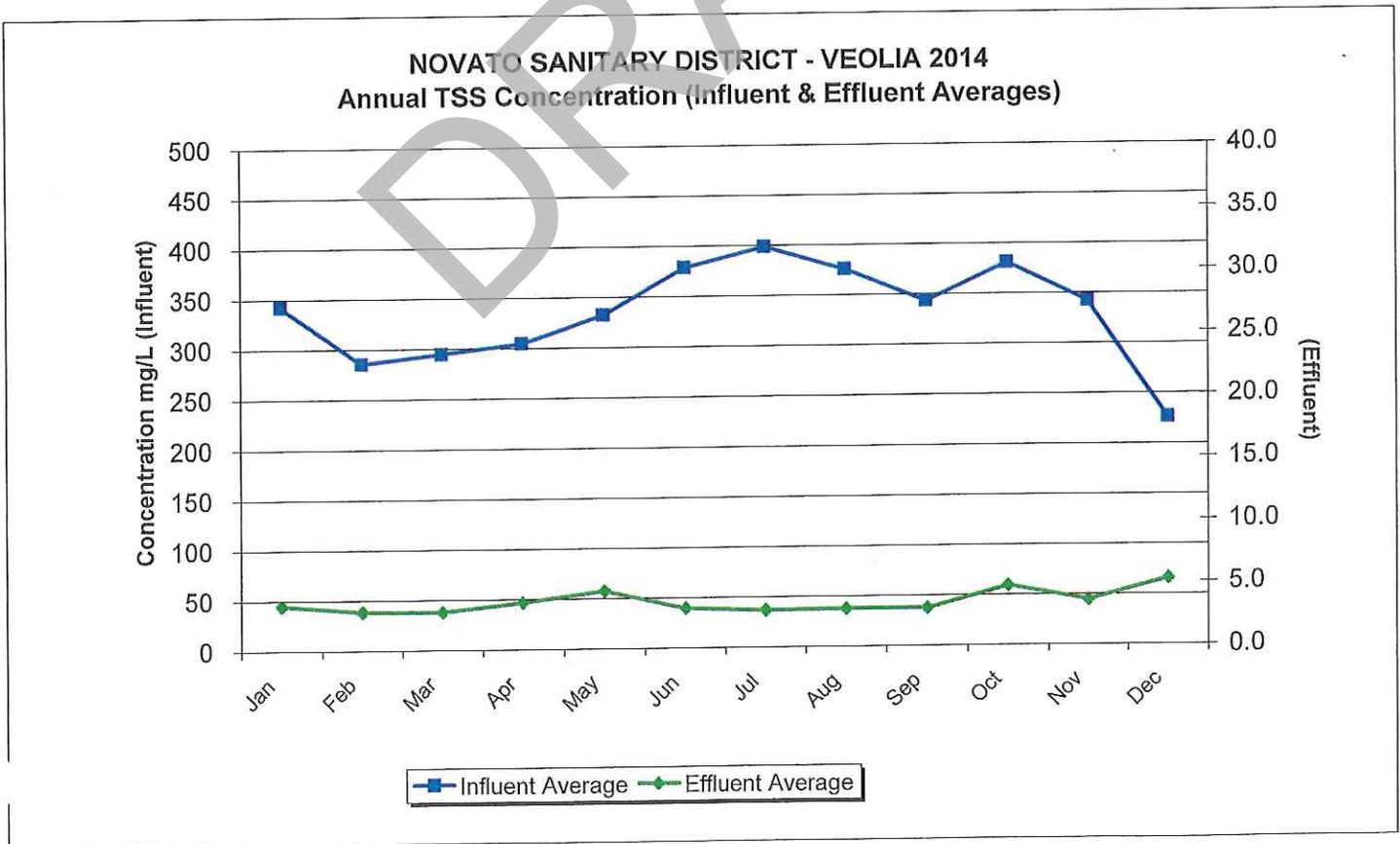
**NOVATO SANITARY DISTRICT - VEOLIA  
SUSPENDED SOLIDS (Influent & Effluent)**

Annual Waste Characteristics & Loading Summary

YEAR: 2014

PRINT DATE: 28-Jan-2015

	INFLUENT							EFFLUENT						
	Concentration (mg/L)			No. of Samples	Loading (kg/day)			Concentration (mg/L)			No. of Samples	Loading (kg/day)		
	High	Low	Average		High	Low	Average	High	Low	Average		High	Low	Average
January	476	298	342	11	6072	1177	4588	8.0	3.0	3.6	11	122	11	49
February	377	162	285	13	7669	3838	5070	4.0	3.0	3.1	13	125	42	57
March	356	224	295	12	6190	4282	5201	3.0	3.0	3.0	12	76	46	54
April	404	203	304	15	8381	4310	5388	5.0	3.0	3.7	15	149	49	69
May	464	153	332	12	6322	2183	4679	9.0	3.0	4.6	12	124	40	65
June	490	316	378	12	6195	4019	5091	4.0	3.0	3.2	12	61	35	43
July	585	128	399	15	7334	1555	5051	4.0	2.0	2.9	15	55	24	37
August	427	317	376	12	6109	3720	5039	3.0	3.0	3.0	12	43	35	40
September	414	278	344	12	5294	3495	4352	3.0	3.0	3.0	12	42	35	38
October	530	249	381	15	6379	3506	4816	14.0	2.0	4.7	15	158	24	60
November	476	298	342	11	7776	3733	5082	8.0	3.0	3.6	11	120	36	53
December	386	83	226	15	21468	4334	8859	16.0	3.0	5.3	15	1044	56	252
ANNUAL HIGH	585	317	399	15	21468	4334	8859	16.0	3.0	5.3	15	1044	56	252
ANNUAL LOW	356	83	226	11	5294	1177	4352	3.0	2.0	2.9	11	42	11	37
ANNUAL AVG.	449	226	334	13	7933	3346	5268	6.8	2.8	3.6	13	177	36	68



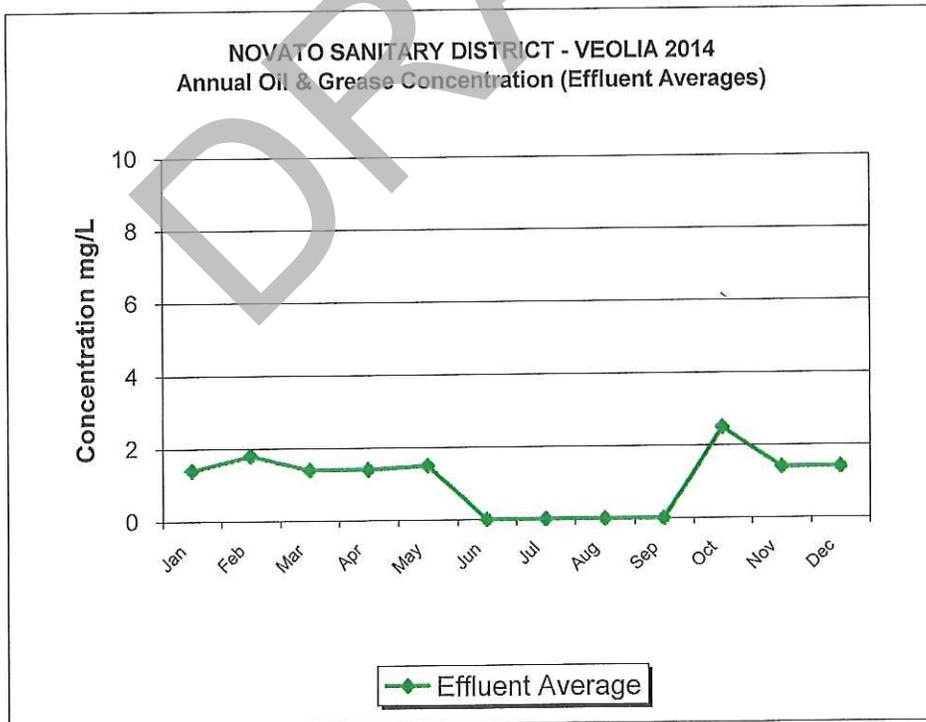
**NOVATO SANITARY DISTRICT - VEOLIA  
OIL & GREASE (Effluent)**

Annual Waste Characteristics & Loading Summary

YEAR: 2014

PRINT DATE: 27-Jan-2015

	EFFLUENT						
	Concentration (mg/L)			No. of Samples	Loading (kg/day)		
	High	Low	Average		High	Low	Average
January	1.4	1.4	1.4	1	21	21	21
February	1.8	1.8	1.8	1	29	29	29
March	1.4	1.4	1.4	1	27	27	27
April	1.4	1.4	1.4	1	29	29	29
May	1.5	1.5	1.5	1	21	21	21
June	0.0	0.0	0.0	0	0	0	0
July	0.0	0.0	0.0	0	0	0	0
August	0.0	0.0	0.0	0	0	0	0
September	0.0	0.0	0.0	0	0	0	0
October	2.5	2.5	2.5	1	30	30	30
November	1.4	1.4	1.4	1	17	17	17
December	1.4	1.4	1.4	1	64	64	64
ANNUAL HIGH	2.5	2.5	2.5	1	64	64	64
ANNUAL LOW	0.0	0.0	0.0	0	0	0	0
ANNUAL AVG.	1.1	1.1	1.1	1	20	20	20



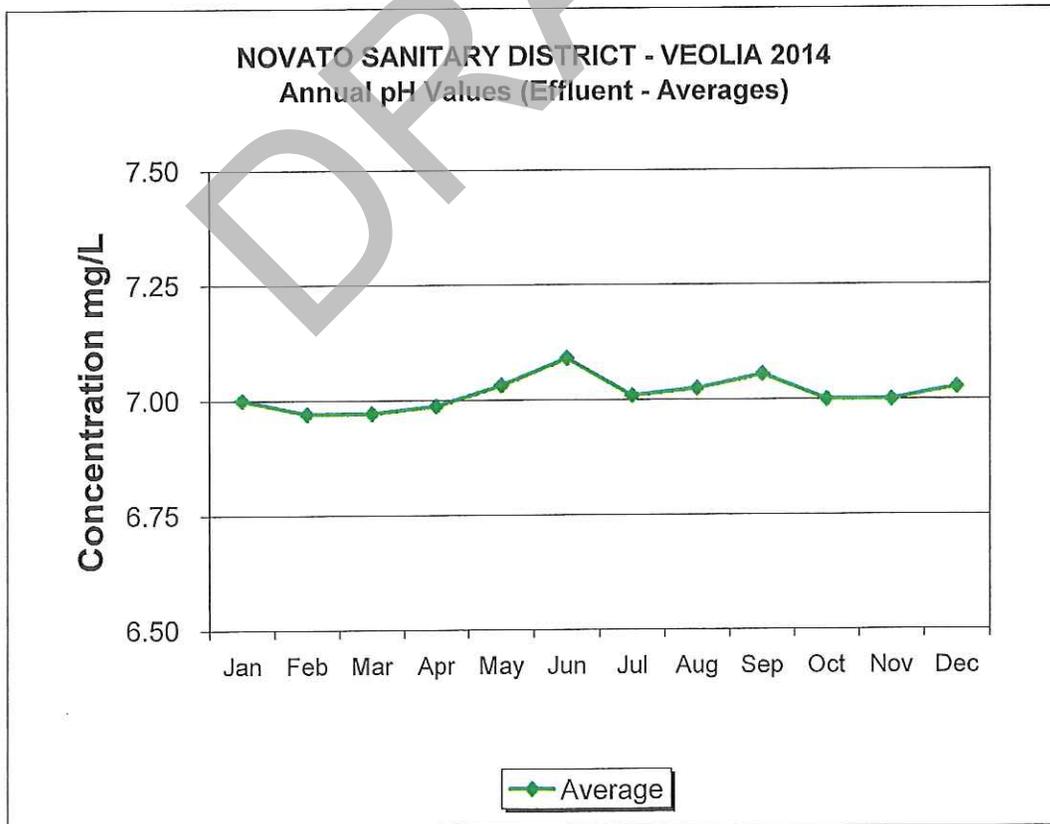
**NOVATO SANITARY DISTRICT - VEOLIA  
pH (Effluent)**

Annual Waste Characteristics & Loading Summary

YEAR: 2014

PRINT DATE: 27-Jan-2015

	High	Low	Average	Number of Samples			
January	7.1	6.9	7.0	22			
February	7.0	6.8	7.0	20			
March	7.0	6.9	7.0	21			
April	7.1	6.8	7.0	22			
May	7.2	6.9	7.0	22			
June	7.4	6.9	7.1	21			
July	7.1	6.9	7.0	23			
August	7.3	6.9	7.0	21			
September	7.2	7.0	7.1	22			
October	7.1	6.9	7.0	23			
November	7.1	6.9	7.0	21			
December	7.1	6.9	7.0	23			
				Number of Samples Total = 261			
ANNUAL MAX.	7.40	7.00	7.09	1st Qtr.	63	2nd Qtr.	65
ANNUAL MIN.	7.00	6.80	6.97	3rd Qtr.	66	4th Qtr.	67
ANNUAL AVG.	7.14	6.89	7.01				



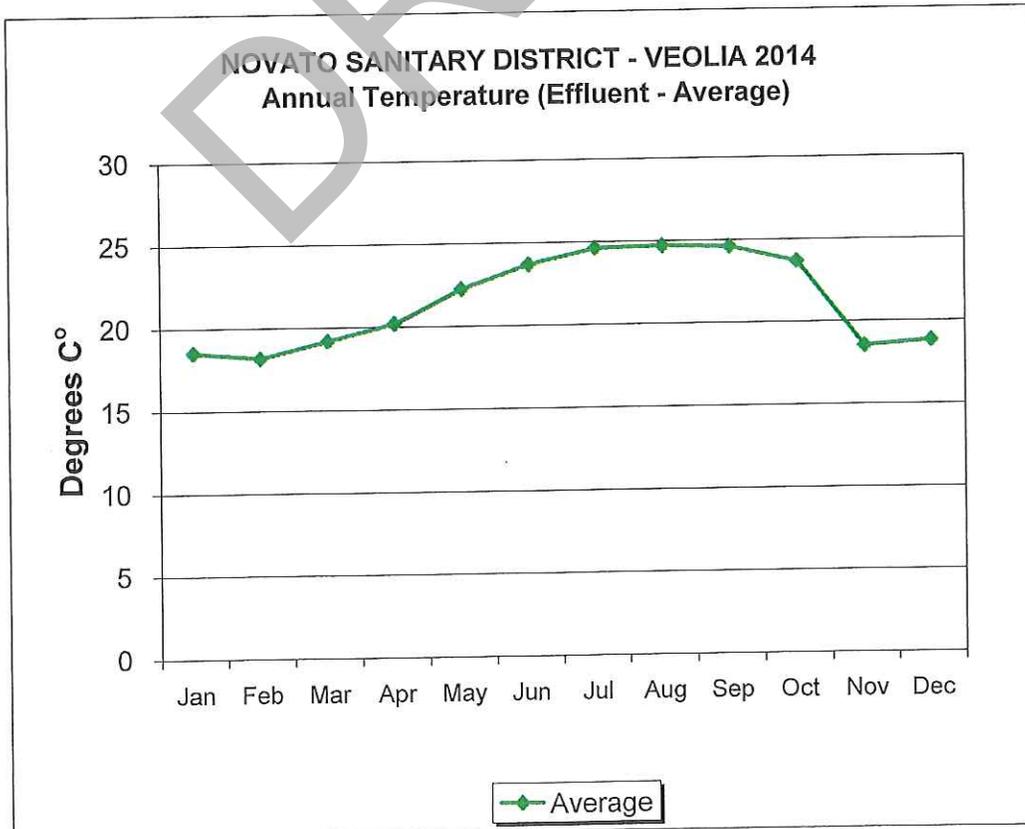
**NOVATO SANITARY DISTRICT - VEOLIA  
TEMPERATURE (Effluent)**

Annual Waste Characteristics & Loading Summary

YEAR: 2014

PRINT DATE: 27-Jan-2015

	High	Low	Average	Number of Samples	
January	19.4	17.9	18.5	22.0	
February	19.2	17.1	18.2	20.0	
March	20.4	18.0	19.2	21.0	
April	21.9	18.3	20.2	22.0	
May	23.6	20.9	22.2	22.0	
June	25.1	22.8	23.7	21.0	
July	25.7	23.7	24.6	23.0	
August	25.6	24.4	24.7	21.0	
September	25.4	23.9	24.6	22.0	
October	25.0	21.7	23.7	23.0	
November	19.4	17.9	18.5	21.0	
December	21.1	17.5	18.8	23.0	
				Number of Samples Total = 261	
ANNUAL MAX.	25.7	24.4	24.7	1st Qtr. 63	2nd Qtr. 65
ANNUAL MIN.	19.2	17.1	18.2	3rd Qtr. 66	4th Qtr. 67
ANNUAL AVG.	22.7	20.3	21.4		



## **2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**

### **Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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#### **Community Outreach Activities 2014:**

Veolia is proud to be a member of the Novato community and we are committed to support of local activities. The following are events and organizations supported by Veolia in 2014.

School Fuel – Tour of Novato

Novato Festival of Art, Wine & Music

Member Rotary Club Novato Sunrise (RCNS)

2014 American Crown Circus/Circus Osorio (RCNS)

Member – Novato Chamber of Commerce

Margaret Todd Senior Center Monthly Birthday Celebrations

Senior Pharmaceutical Collection

Senior Craft Fair

Senior Health Fair

Senior Health and Fitness Day

Senior Center Christmas Tree Donation

Rotary Club of Ignacio – Novato Bike and Hike

Chamber of Commerce Annual Golf Tournament

North Bay Leadership Council - Algebra Academy

North Bay Science Fair

Paint The Town Red – “Novato Birthday Bash”

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**NORTH BAY SCIENCE FAIR**  
**NOVEMBER 1, 2014**



VEOLIA STAFF – Brian Exberger, John O'Hare, Lynda Rodefer, and John Bailey participated in the North Bay Science and Discovery Fair. The Veolia display highlighted water science, microbiology, and the inner workings of a wastewater treatment plant.

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

**SCHOOL FUEL – TOUR OF NOVATO**  
**May 3, 2014**



Top Left – Lynda Farmery prepares for a big day of sand art  
Fun was had by all!

**2014 ANNUAL OPERATIONS AND MAINTENANCE REPORT**  
**Novato Wastewater Treatment Plant and Ignacio Transfer Pump Station**

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**TITLE 22 - RECYCLED WATER  
PRODUCTION REPORT FOR 2014**

Novato Sanitary District 2014 Recycled Water Production Data								
	Water Delivered (Million Gal)	Effluent Turbidity (NTU)		Effluent CT Value (mg min/L)		Effluent Coliform (mpn/100 ml)		Notes
Criteria	1.7 mgd	<2		>450		<2.2		
		Max	Ave	Min	Ave	Max	Ave	
January	0.00	No Production in January						
February	0.00	No Production in February						
March	0.00	No Production in March						
April	1.97	1.7	1.5	>450	>450	<2	<2	
May	16.25	1.9	1.2	>450	>450	<2	<2	
June	16.34	1.8	1.3	>450	>450	<2	<2	
July	13.55	1.9	1.6	>450	>450	<2	<2	
August	17.62	1.7	1.8	>450	>450	<2	<2	
September	10.87	1.9	1.5	>450	>450	<2	<2	
October	5.54	1.8	1.2	>450	>450	<2	<2	
November	1.34	1.6	1.3	>450	>450	<2	<2	
December	0.78	1.4	1.4	>450	>450	<2	<2	
TOTAL	84.26							

DRAFT



March 11, 2015

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

**Subject: Veolia Water Operations Report – February 2015**

Dear Mr. Karkal:

I am pleased to provide the Monthly Operation Report for February 2015.

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". The signature is stylized and cursive.

John Bailey  
Project Manager, Veolia



**MONTHLY OPERATIONS REPORT  
February 2015**

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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• Recycled Water Report	
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## TREATMENT PLANT PERFORMANCE SUMMARY: February 2015:

## Bay Discharge – NPDES Limits

Parameter	Value		Limit	
	Ave	Max	#1	#2
Flow, MGD (monthly ave/max)	5.78	14.22	N/A	N/A
Max Peak Hour, MGD – 2/8/2015, 1240 Hours	N/A	~ 21	N/A	N/A
Influent BOD <sub>5</sub> , lb/day (month ave/max)	10,956	24,183	N/A	N/A
Influent TSS, lb/day (monthly ave/max)	14,287	33,197	N/A	N/A
Effluent BOD <sub>5</sub> , mg/L (monthly ave/weekly max)	12	16	30	45
Effluent TSS, mg/L (monthly ave/weekly max)	<4	5	30	45
Effluent BOD <sub>5</sub> - % Removal, Minimum	94	N/A	85	N/A
Effluent TSS - % Removal, Minimum	99	N/A	85	N/A
Ammonia, mg/L – (monthly ave/daily max)	2.05	4.90	6	21
pH, su (min / max)	6.9	7.1	6.5	8.5
Enterococcus, mpn (30 day geo mean)	4.2	N/A	35	N/A
Fecal Coliform, mpn (30 day median)	8	N/A	140	N/A
Fecal Coliform, mpn (90 <sup>th</sup> percentile)	21.1	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	0.59	N/A
Average Turbidity	NTU	N/A	2.0
Turbidity > 5 NTU (in 24 hour)	Minutes	N/A	72
Minimum CT (disinfection)	mg-min/L	N/A	450
Minimum Dissolved Oxygen (DO)	mg/L	N/A	1.0
Maximum Total Coliform	mpn/100 ml	<2	2

Total Rainfall. – 4.13 inches

Daily Max 2/6/15 – 2.13 inches

Note: Rainfall data from weather station readings at 500 Davidson St (WWTP)

**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.
- Accident Free: 6/1/10 – 2/28/15: 1,731 days
- Monthly Safety Topic and Training – Personal Protective Equipment (PPE)

**OPERATIONS & MAINTENANCE STATUS / REVIEW:**

**Key events for the period:**

We experienced two days of significant rainfall during the month. Peak flows in excess of 21 mgd were noted. No process or equipment problems were noted.

**Novato**

- Routine rounds, readings and maintenance
- Replaced fuse in Blower #2
- Repair Primary Effluent Sampler Door
- Replaced tires on lab wagon – sampling aid
- Repaired oil leak on Wet Weather Pump #1

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

- Aeration Basin #1 & #2 (not needed at current flows)

**Ignacio Transfer Pump Station**

- Routine rounds, readings and maintenance
- Biofilter – Media replacement

**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
- Assisted Contractor with clean out installation – District Project
- Flushed lines

**ADMINISTRATION:**

- January Electronic Self Monitoring Report submitted on February 28, 2015
- January Electronic DMR Report submitted on February 28, 2015

**ODORS:**

- Jerome Meter (H<sub>2</sub>S) readings performed in neighborhood and within treatment plant.
- No odor complaints in February

**MISCELLANEOUS**

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

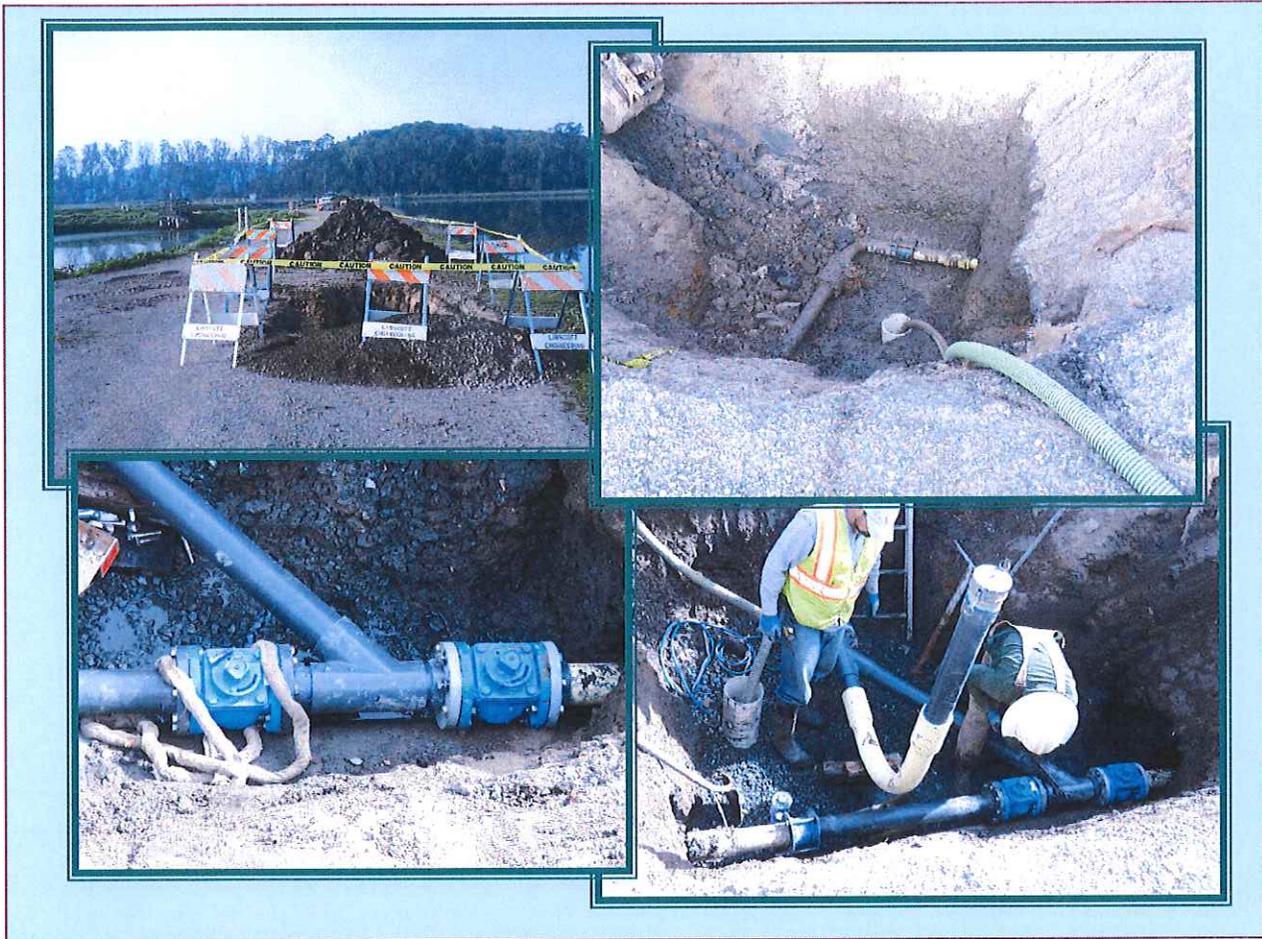
**Veolia Support Staff On/Off Site (Various Times)**

John O'Hare

Technical Support

RECLAMATION AREA – SLUDGE LAGOONS  
REPLACEMENT OF VALVES AND RECONFIGURATION  
OF DISTRIBUTION LINES

February 25, 2015



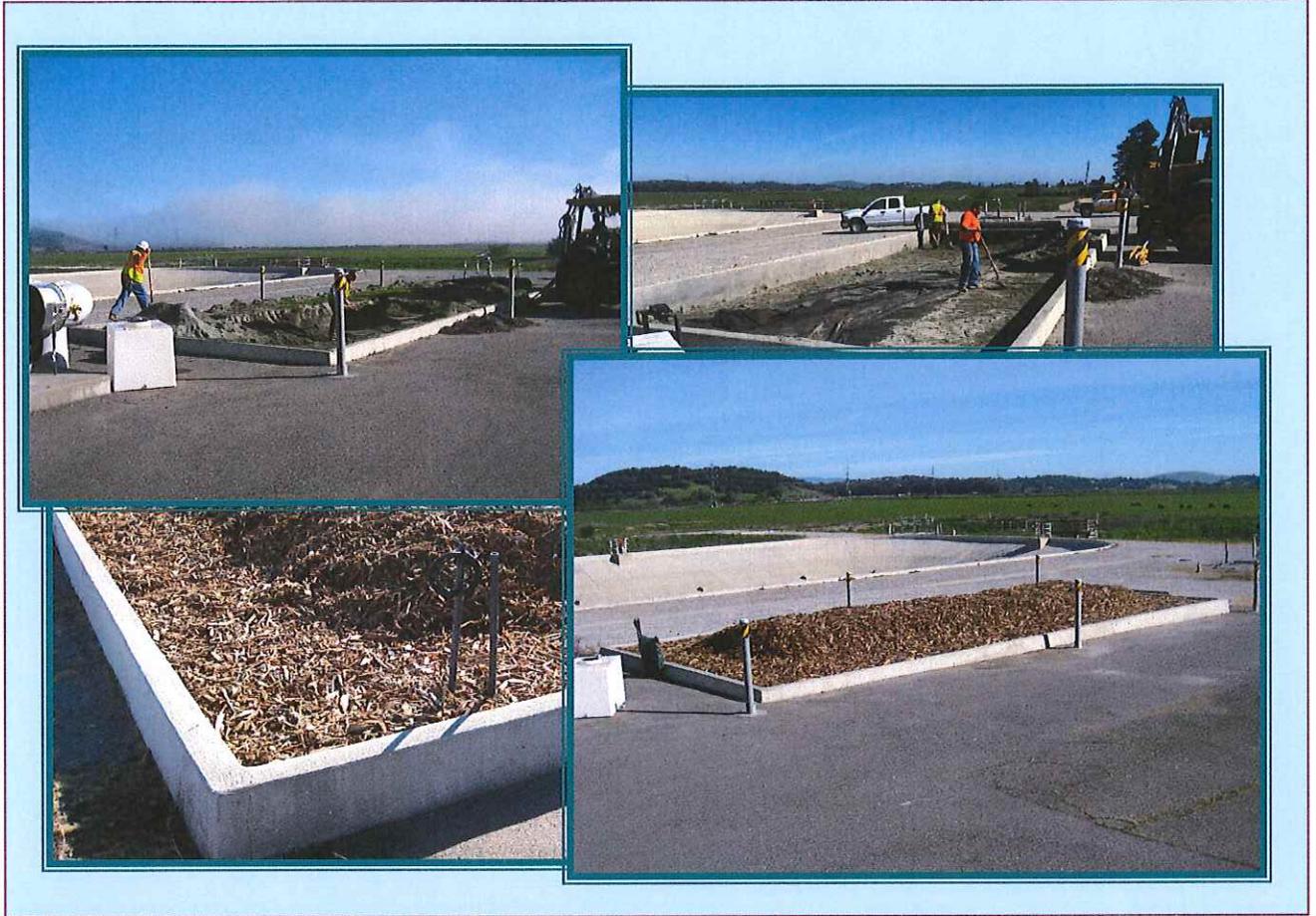
Top Left – Excavation of Sludge Feed Line to Lagoons #3, #4, #5, & #5

Top Right – Frozen Isolation Valve

Bottom Left – New Isolation Valves and Wye (wye will facilitate better flow to lagoons)

Bottom Right – New Cleanout Installed

IGNACIO TRANSFER PUMP STATION  
BIOFILTER MEDIA REPLACEMENT  
February 25, 2015



Top Left & Right – Removal of old media  
Bottom Left – Closeup of new media  
Bottom Right – Biofilter with new media installed





# Novato Plant : Bacterial Results

## EFFLUENT: E-002 Station

### Feb-15

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

February 1, 2015		
February 2, 2015		
February 3, 2015	<b>30</b>	
February 4, 2015	<b>22</b>	
February 5, 2015		
February 6, 2015	<b>8</b>	
February 7, 2015		
February 8, 2015		
February 9, 2015	<b>8</b>	
February 10, 2015		
February 11, 2015	<b>11</b>	
February 12, 2015		
February 13, 2015	<b>2</b>	
February 14, 2015		
February 15, 2015		
February 16, 2015		
February 17, 2015	<b>7</b>	
February 18, 2015		
February 19, 2015	<b>4.5</b>	
February 20, 2015	<b>13</b>	
February 21, 2015		
February 22, 2015	<b>13</b>	
February 23, 2015		
February 24, 2015	<b>4</b>	
February 25, 2015		
February 26, 2015	< <b>2</b>	
February 27, 2015		
February 28, 2015		

90th Percentile		Ranking
Sample #1	<b>2</b>	<b>2</b>
Sample #2	<b>2</b>	<b>2</b>
Sample #3	<b>4</b>	<b>4</b>
Sample #4	<b>4.5</b>	<b>4.5</b>
Sample #5	<b>7</b>	<b>7</b>
Sample #6	<b>8</b>	<b>8</b>
Sample #7	<b>8</b>	<b>8</b>
Sample #8	<b>11</b>	<b>11</b>
Sample #9	<b>13</b>	<b>13</b>
Sample #10	<b>13</b>	<b>13</b>
Sample #11	<b>22</b>	<b>22</b>
Sample #12	<b>30</b>	<b>30</b>
Sample #13		
Sample #14		
Sample #15		
Sample #16		
Sample #17		
Sample #18		
Sample #19		
Sample #20		
Sample #21		

February 1, 2015		
February 2, 2015		
February 3, 2015	<b>85.7</b>	
February 4, 2015	<b>3.0</b>	
February 5, 2015	<b>81.3</b>	
February 6, 2015		
February 7, 2015		
February 8, 2015	<b>5.2</b>	
February 9, 2015		
February 10, 2015	<b>1.0</b>	
February 11, 2015		
February 12, 2015	<b>2.0</b>	
February 13, 2015		
February 14, 2015		
February 15, 2015		
February 16, 2015		
February 17, 2015	<b>3.1</b>	
February 18, 2015		
February 19, 2015	< <b>1.0</b>	
February 20, 2015	<b>2.0</b>	
February 21, 2015		
February 22, 2015	<b>7.5</b>	
February 23, 2015		
February 24, 2015	< <b>1.0</b>	
February 25, 2015		
February 26, 2015	<b>3.0</b>	
February 27, 2015		
February 28, 2015		

<b>Max</b>	<b>30</b>
<b>Min</b>	<b>2.0</b>
<b>Avg</b>	<b>10.38</b>
<b>30-Day Median</b>	<b>8</b>

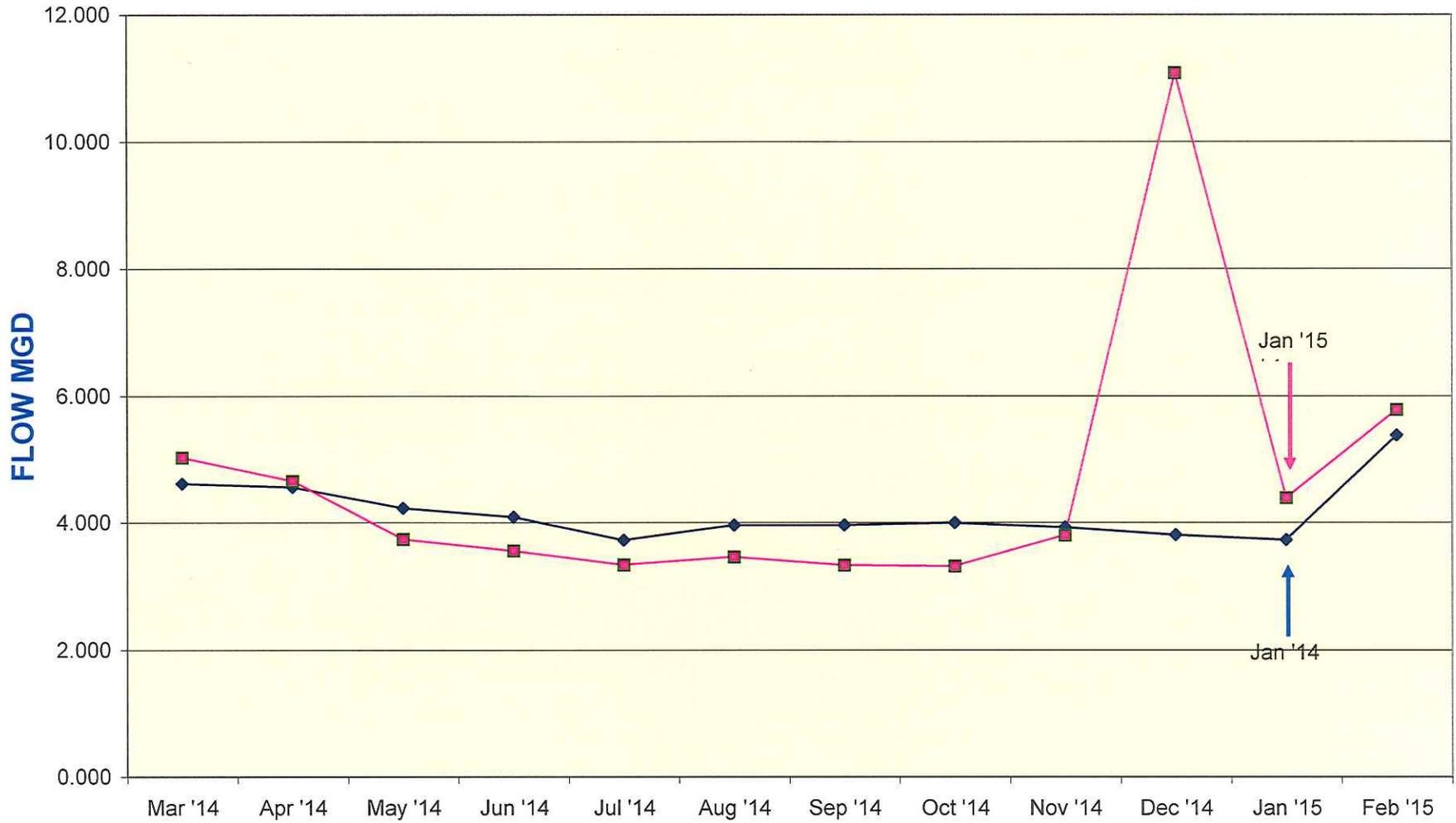
90th Percentile Value **21.1**

<b>Max</b>	<b>85.7</b>
<b>Min</b>	<b>1.0</b>
<b>Avg</b>	<b>16.3</b>
<b>30 Day Geo. Mean</b>	<b>4.2</b>



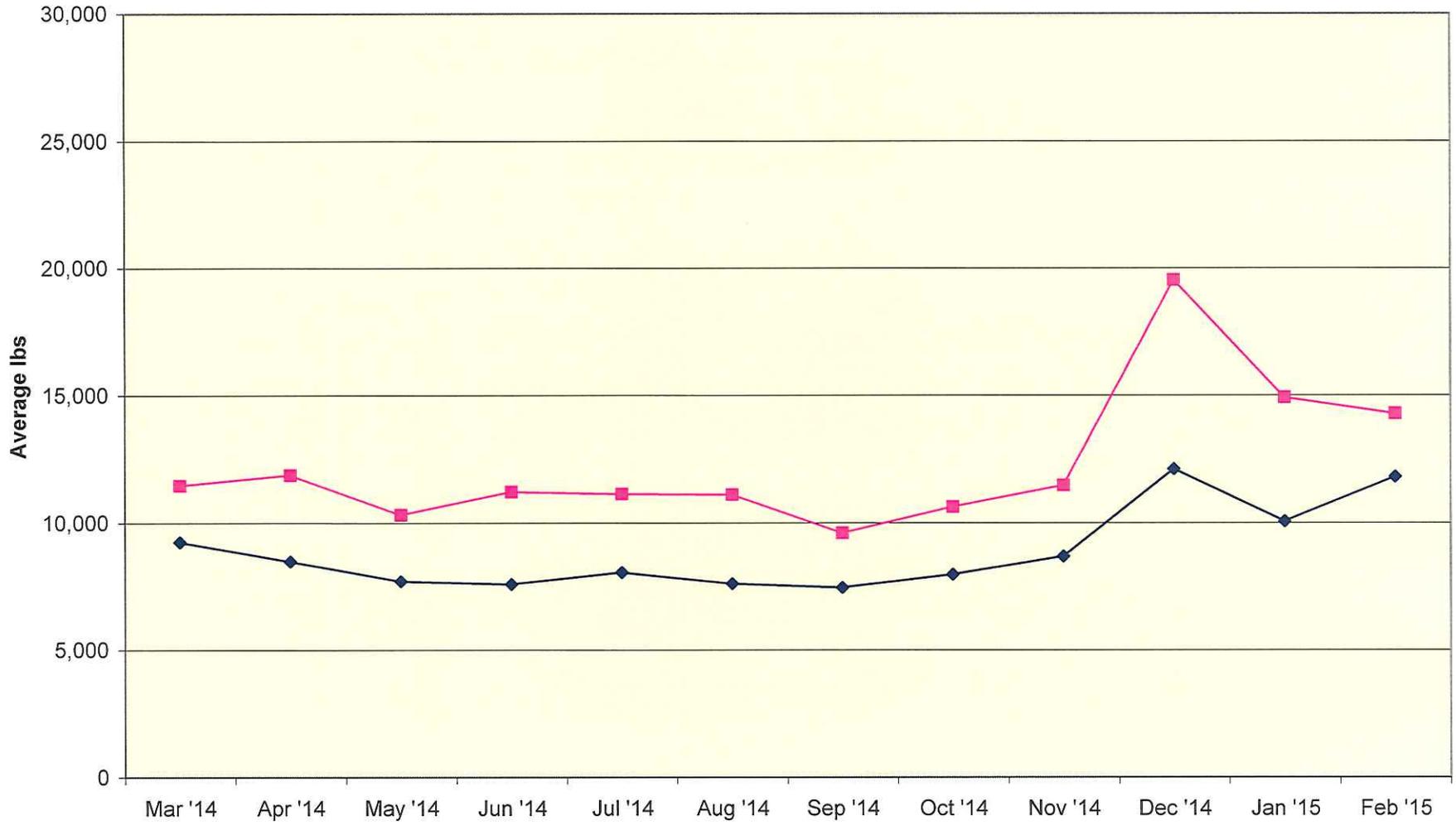
# FLOW COMPARISON

—◆— 2013 / 14    —■— 2014 / 15



### Influent Load BOD / TSS lbs

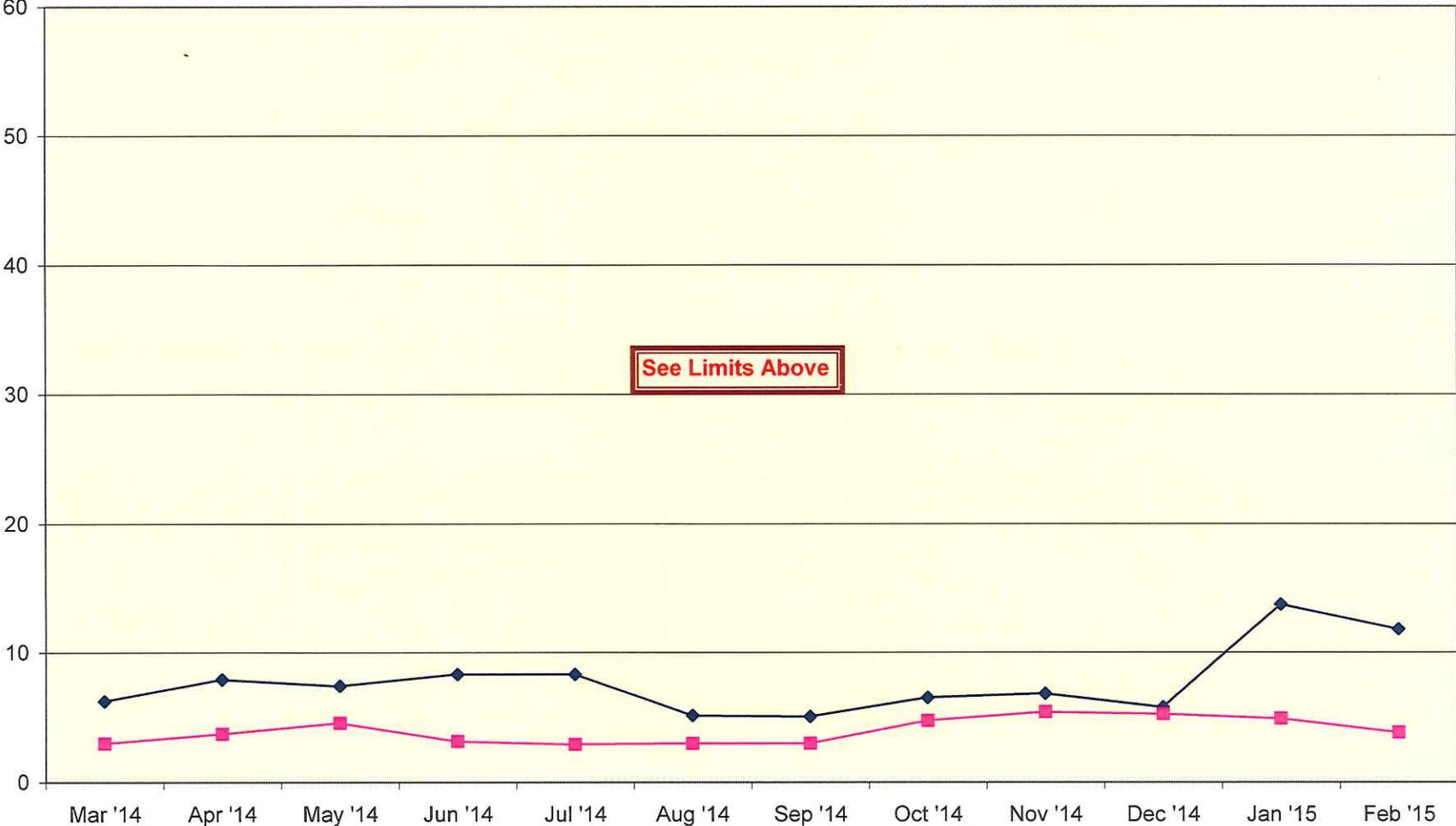
◆ BOD lbs    ■ TSS lbs



# Effluent BOD / TSS Concentration

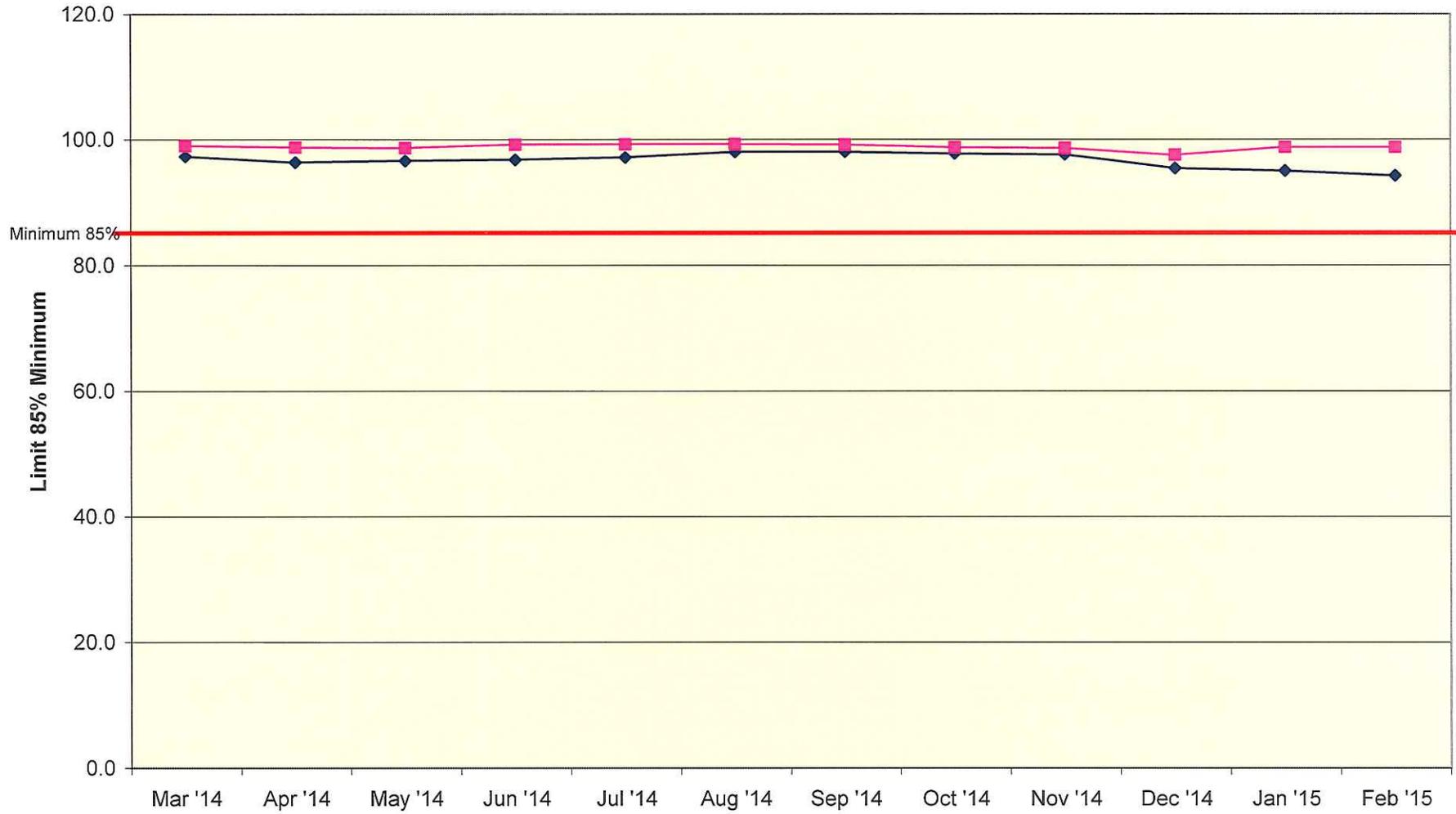
**NPDES LIMITS WET SEASON**  
BOD & TSS - 30 mg/L Monthly Ave, 45 mg/L Weekly Ave  
NPDES LIMITS DRY SEASON  
BOD - 15 mg/L Monthly Ave, 30 mg/L Weekly Ave  
TSS - 10 mg/L Monthly Ave, 20 mg/L Weekly Ave  
WDR (Waste Discharge Requirements) RECLAMATION  
BOD - 40 mg/L

◆ BOD ■ TSS



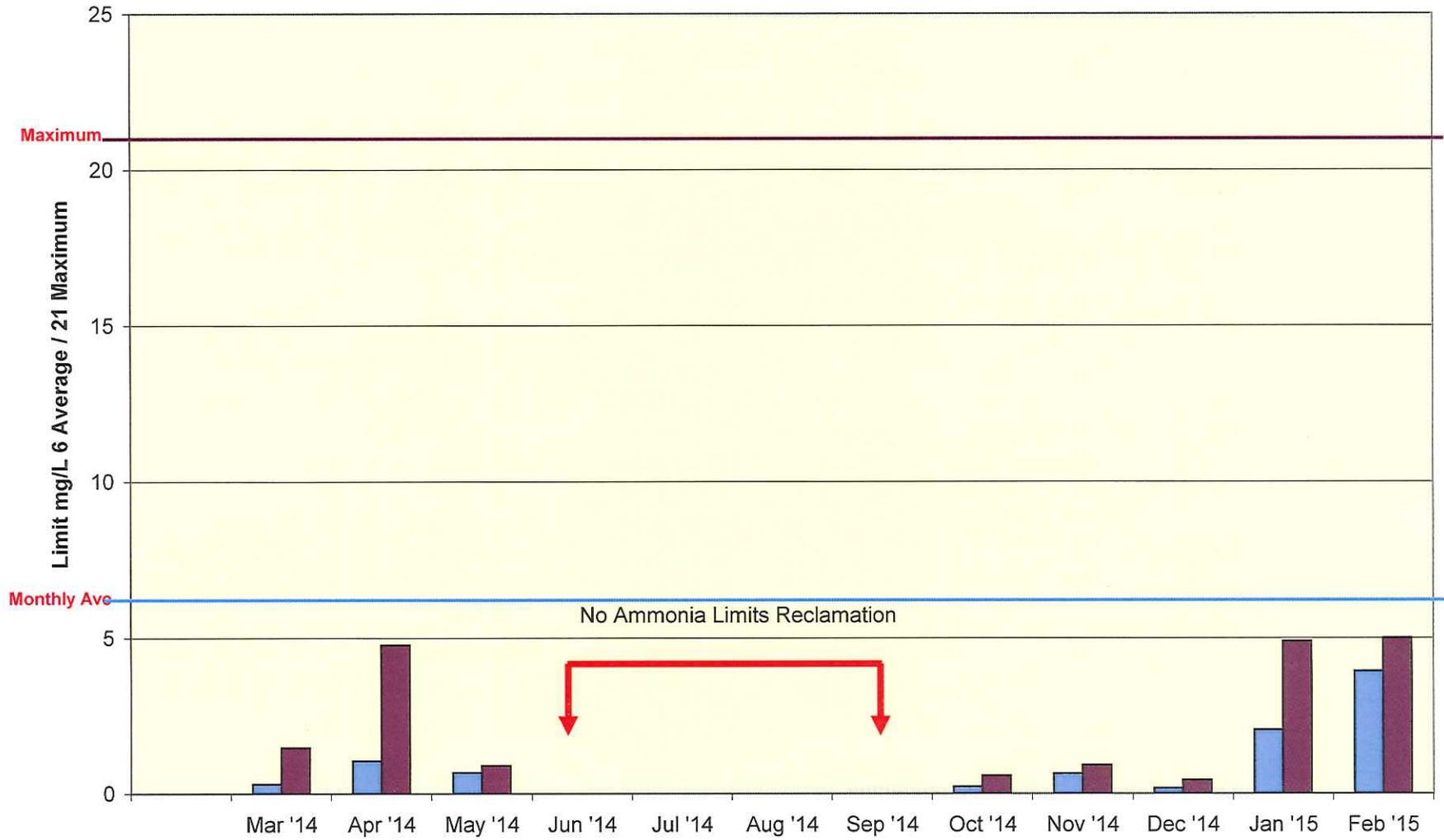
# BOD / TSS Percent Removal

◆ BOD ■ TSS



# Effluent Ammonia

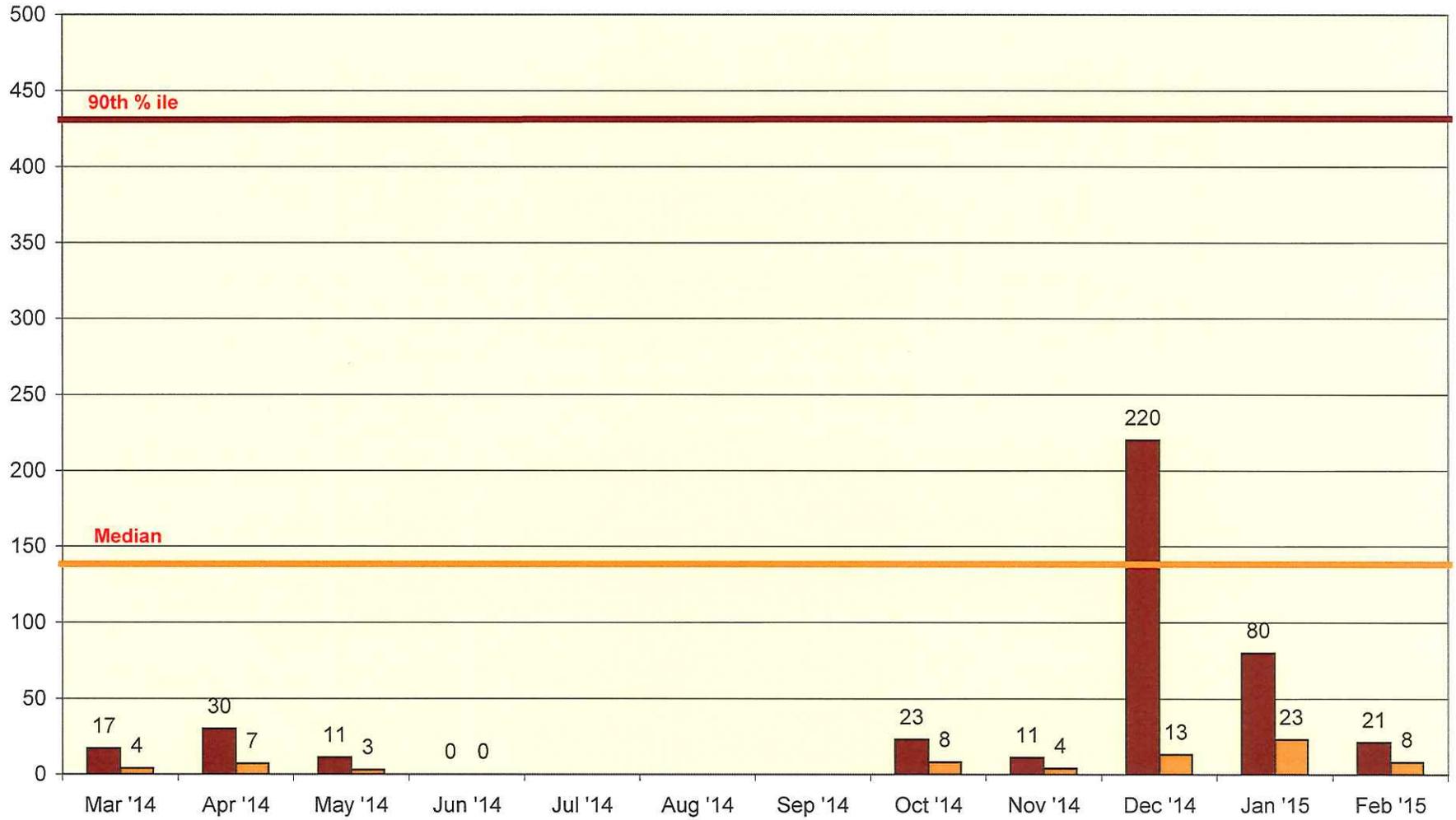
Average Maximum



# Disinfection - Fecal Coliform

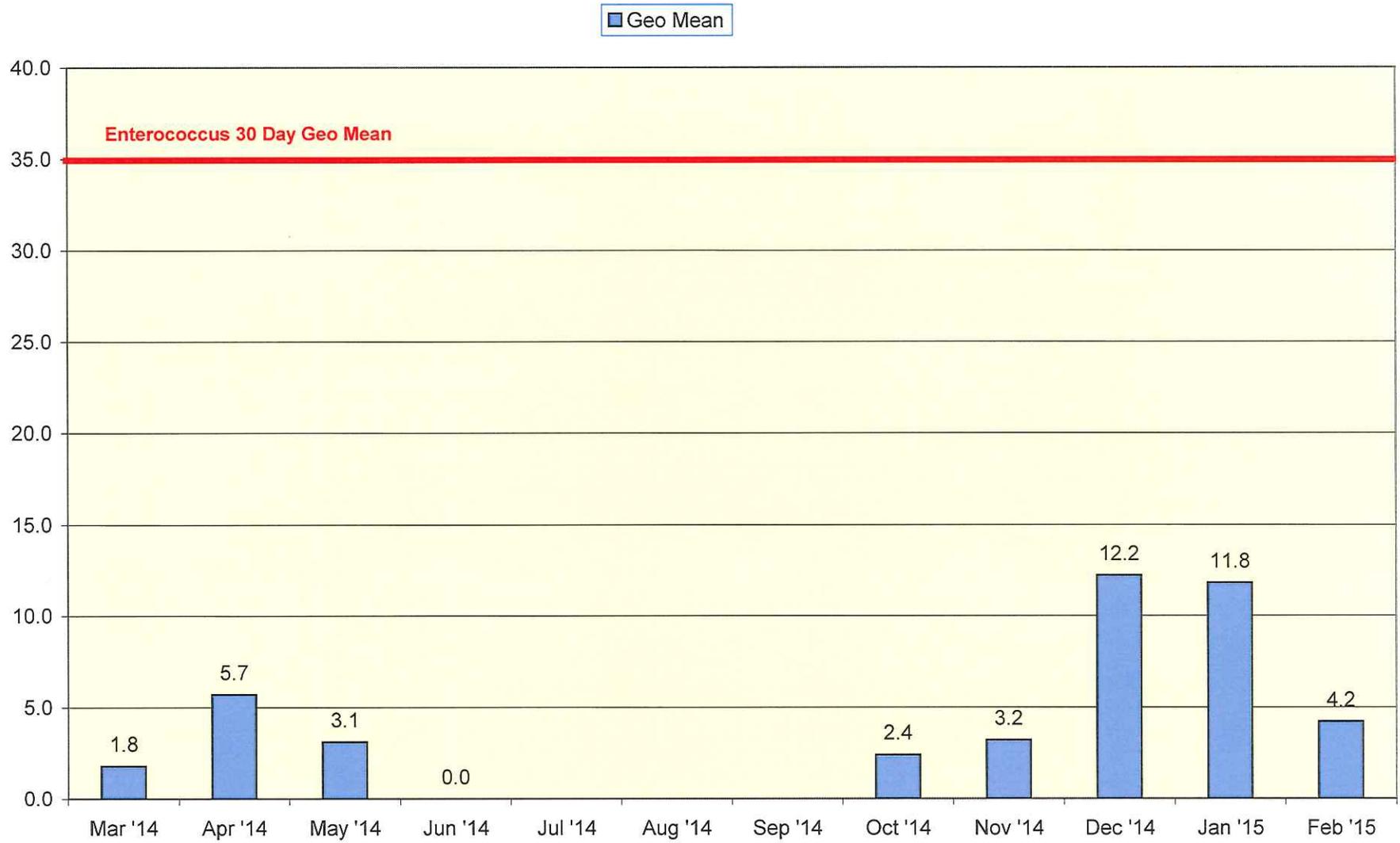
LIMITS - NPDES  
Fecal 140 mpn monthly median  
Fecal 430 mpn 90th percentile 30 day

90th % ile 30 day med



# Disinfection - Enterococcus

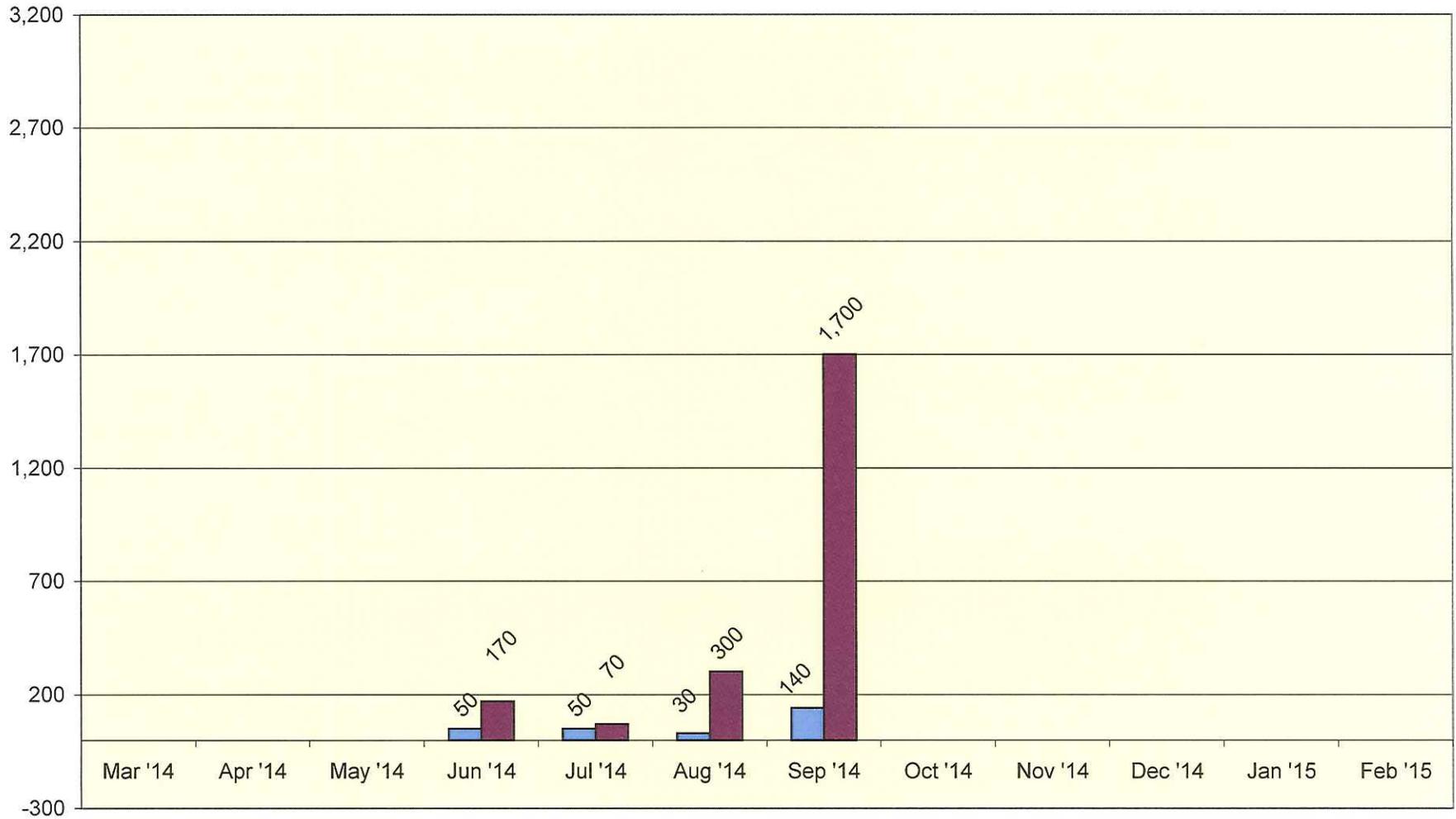
LIMITS - NPDES  
Entero 30 day geo mean 35 mpn /100ml



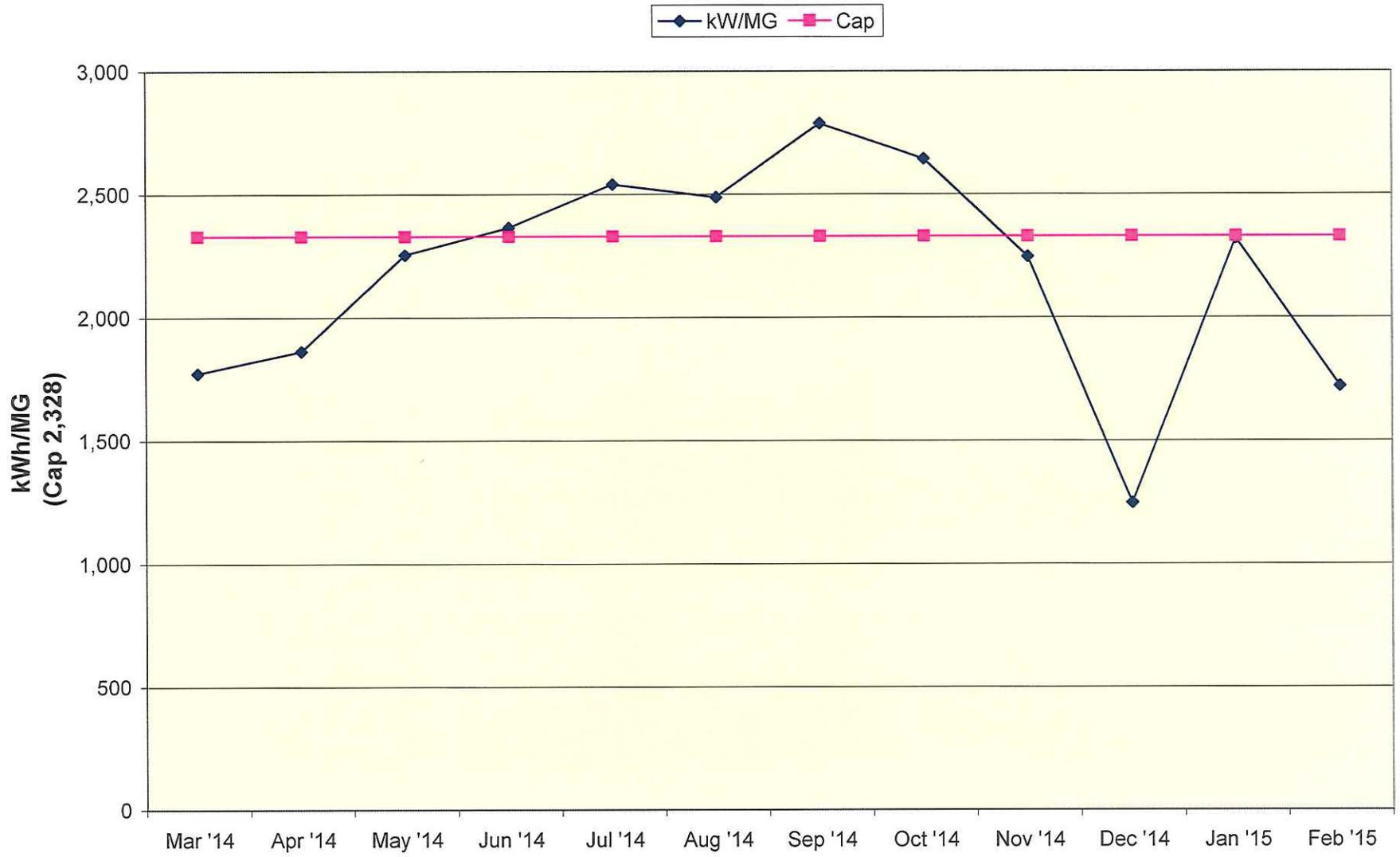
# Disinfection - Total Coliform

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

5 Sampl Med Monthly Max

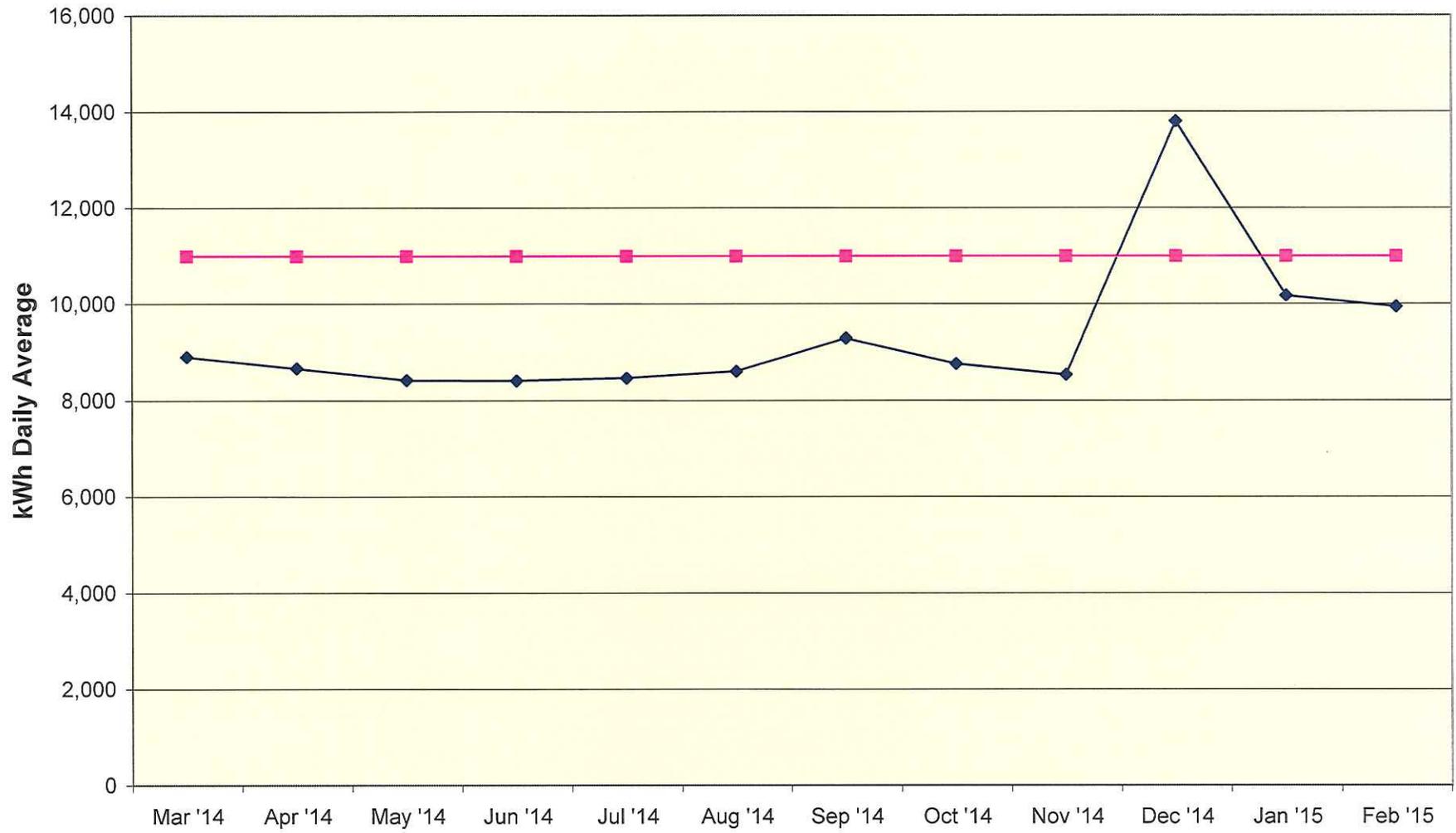


### Energy kWh/MG



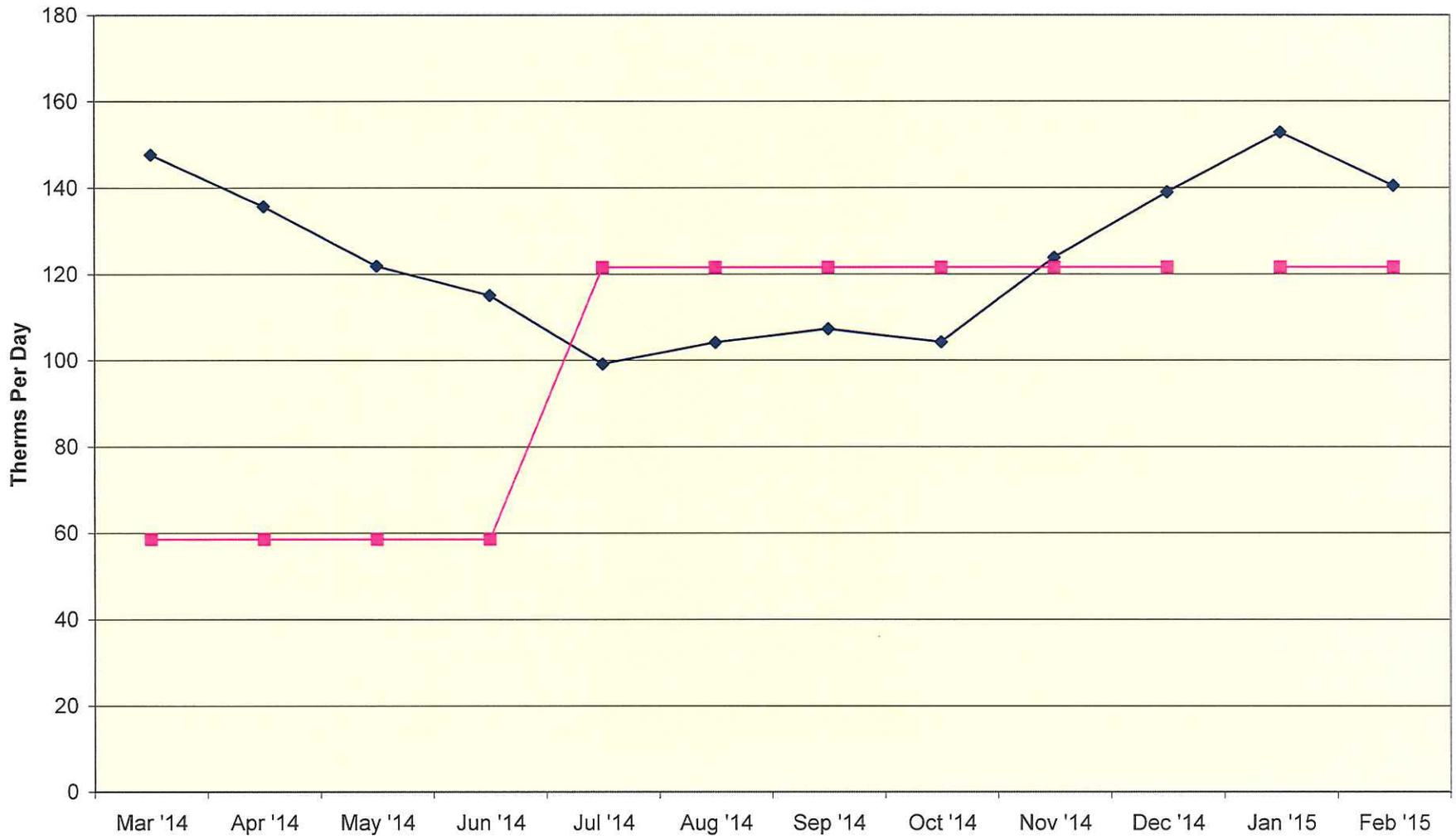
# Energy kWh

—◆— kWh —■— Cap

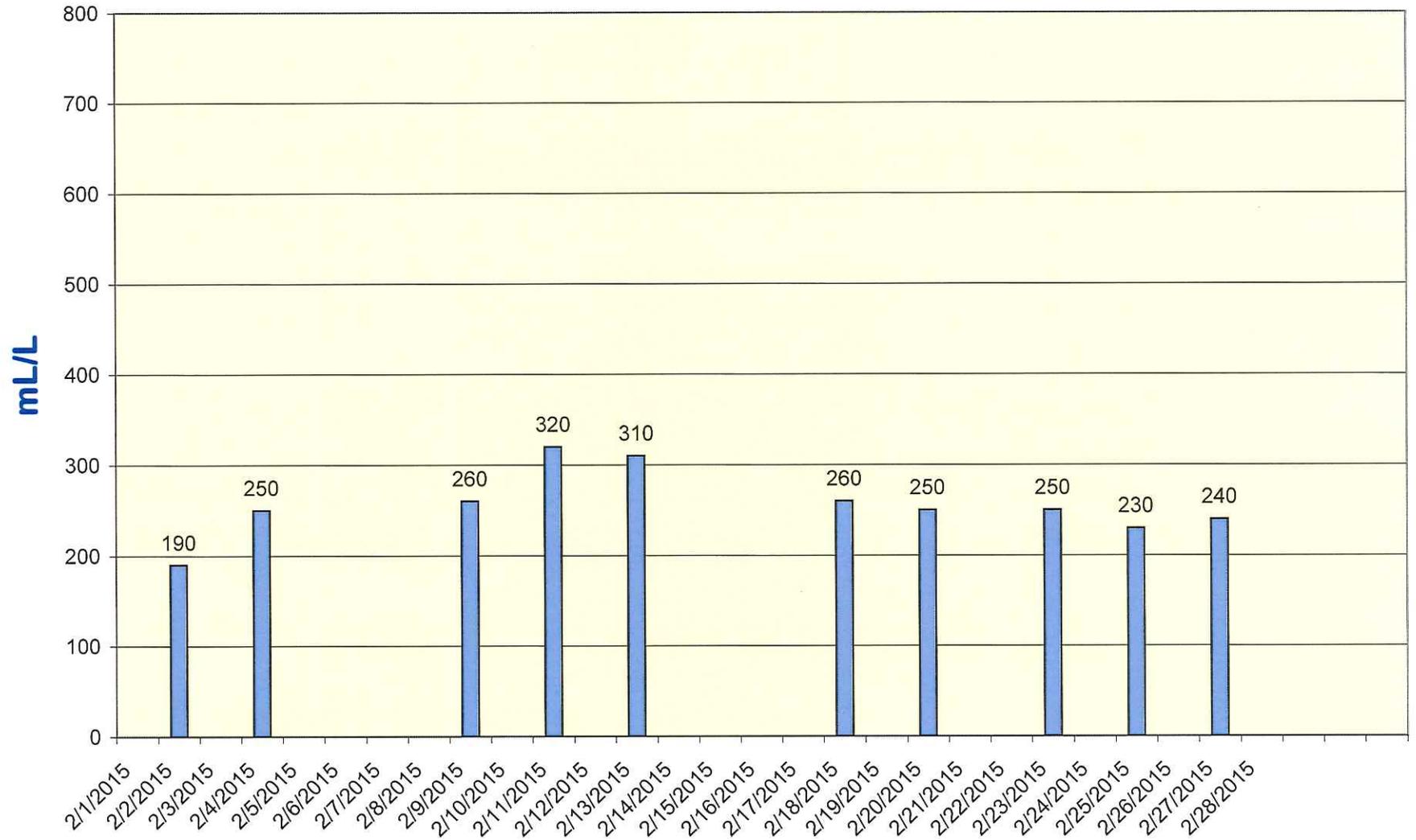


### Natural Gas Use

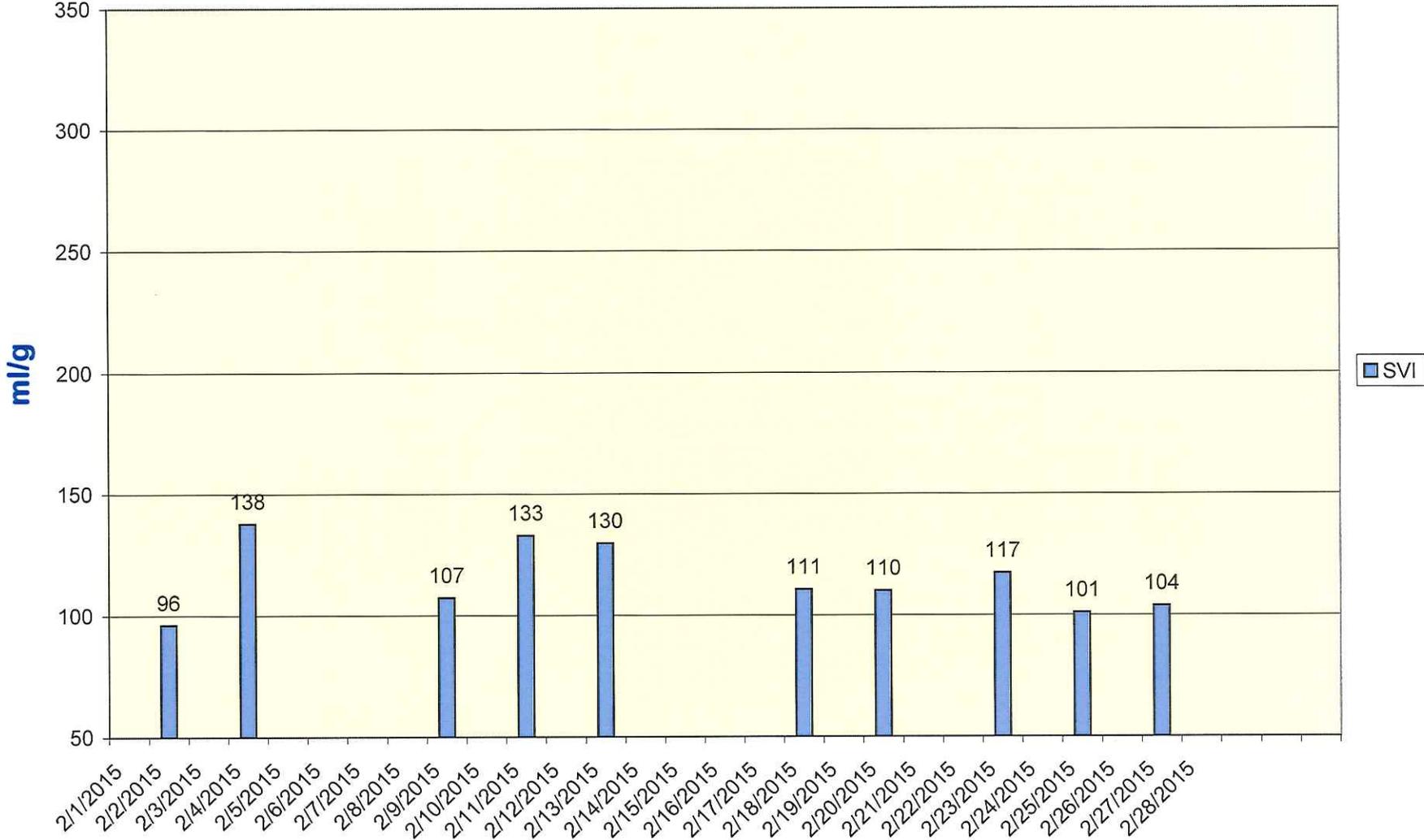
◆ Natural Gas    ■ Cap



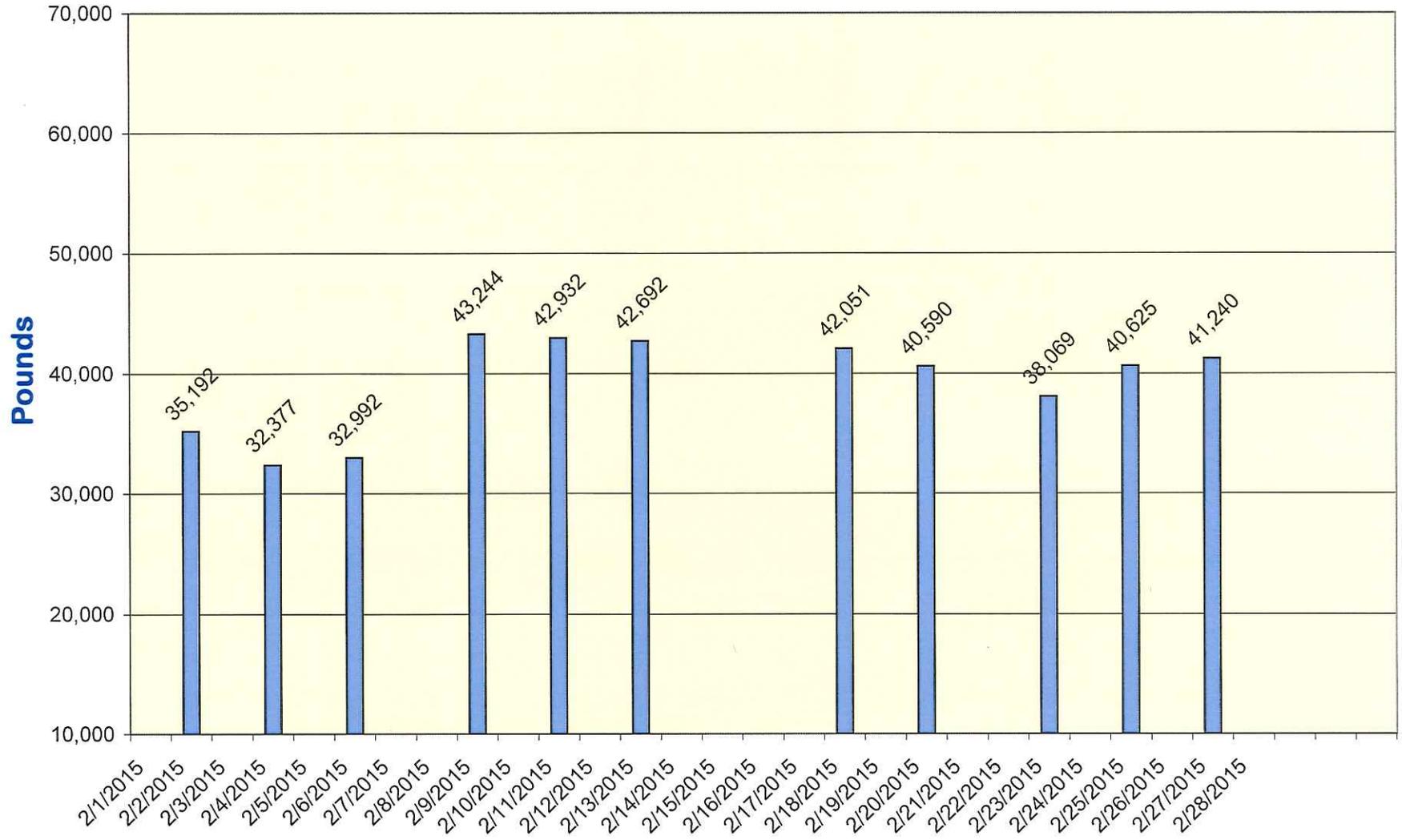
## Settleability



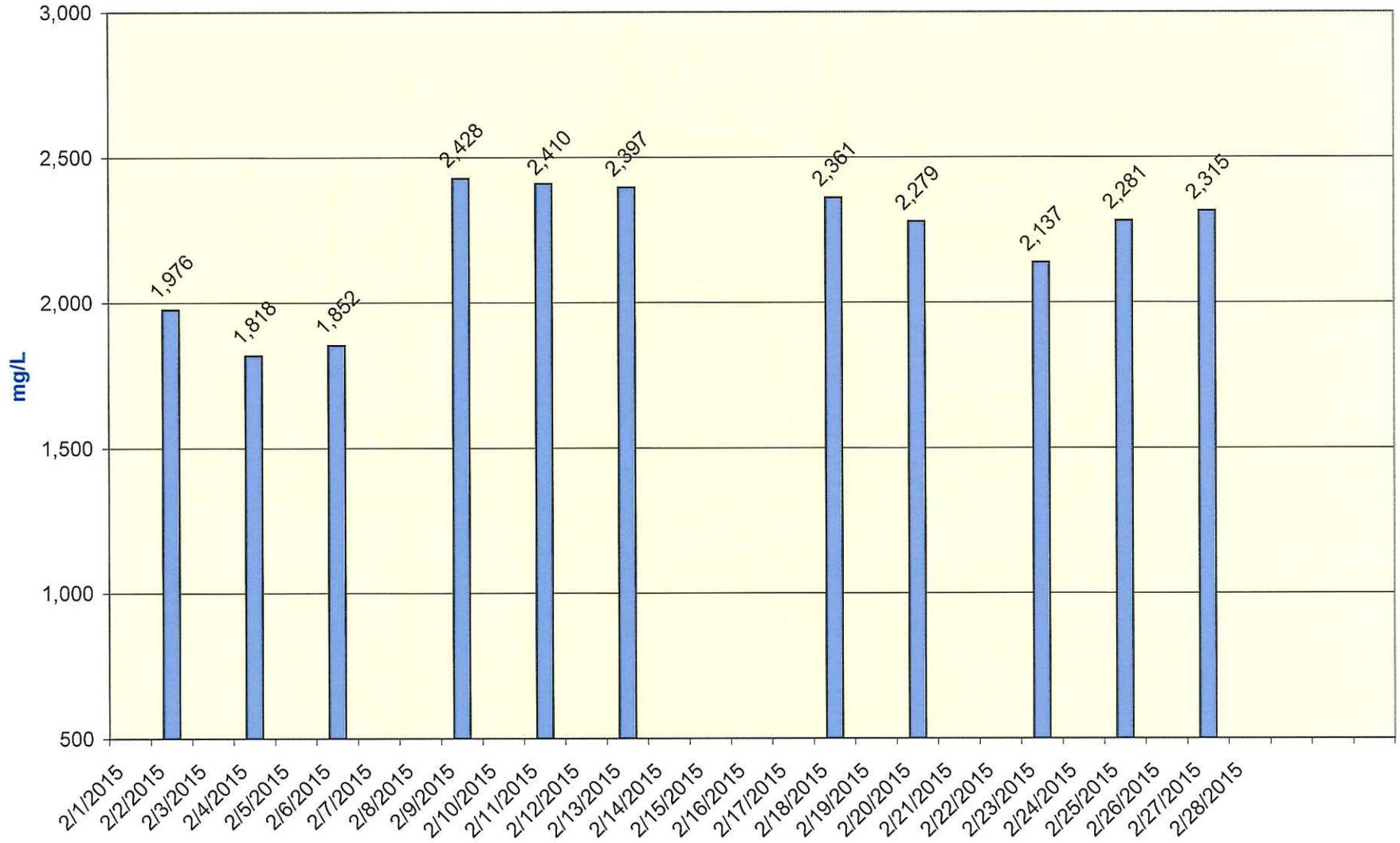
# Sludge Volume Index



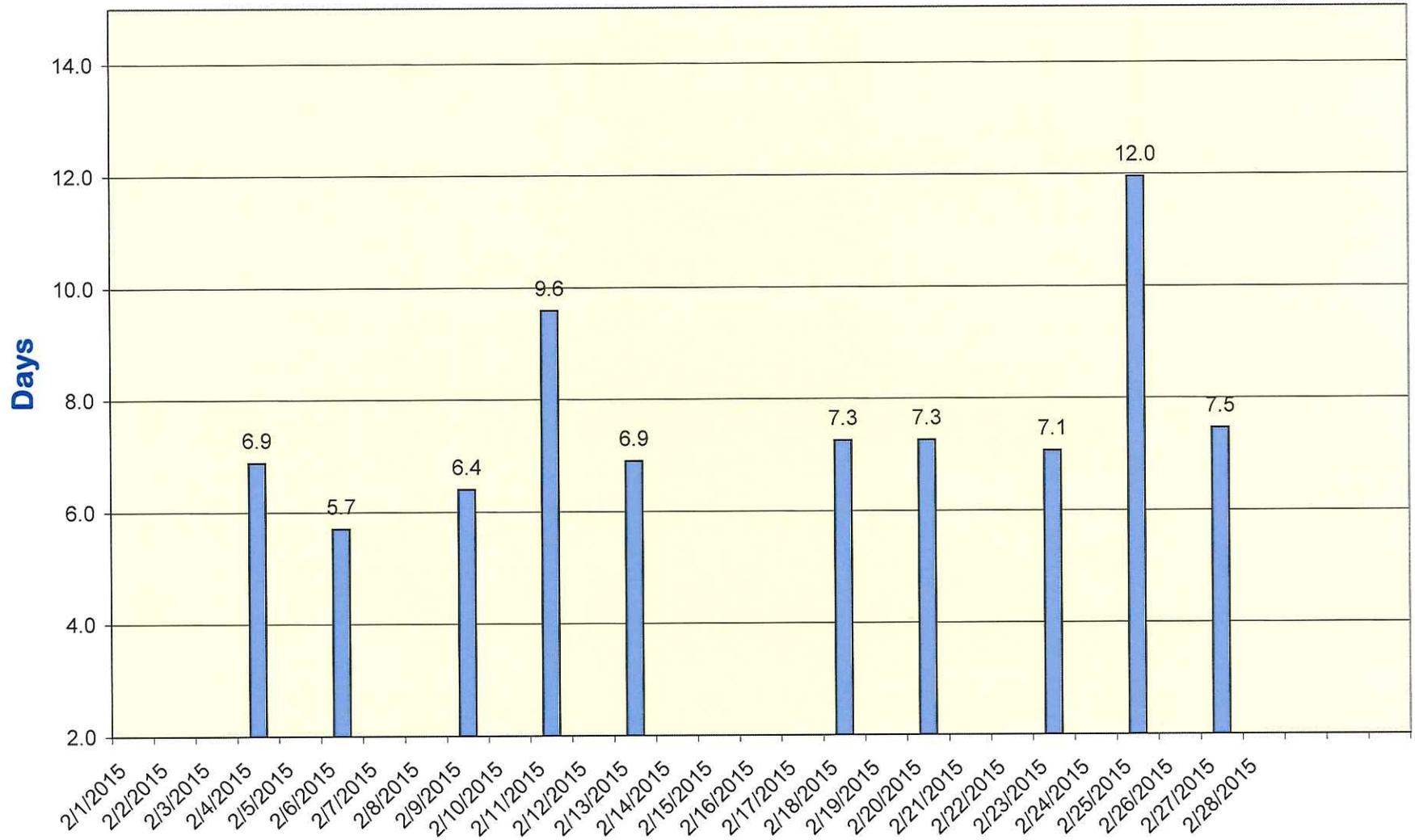
# MLSS Inventory



### MLSS Concentration



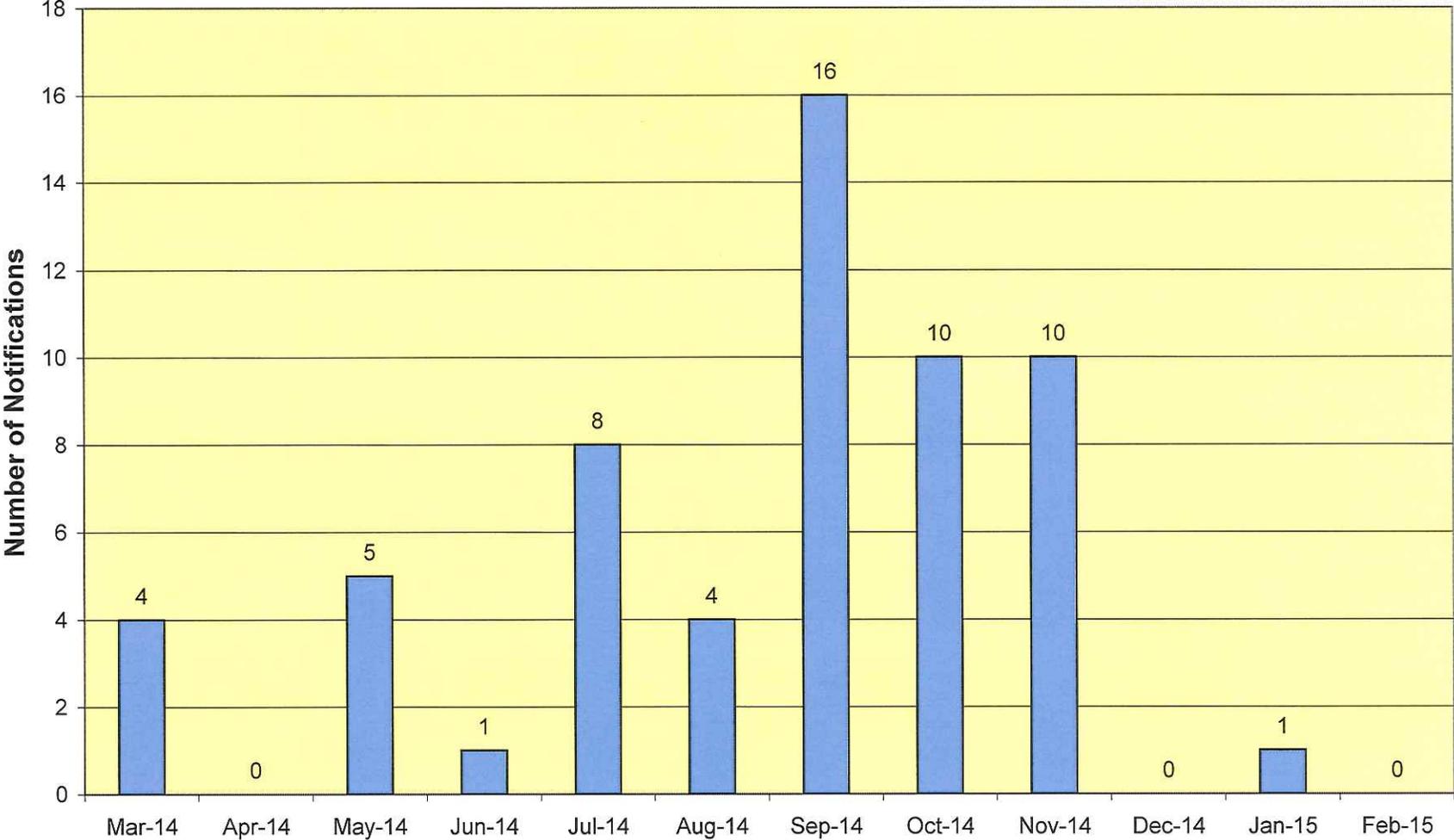
## Mean Cell Residence Time



## Process Control Data

	Influent Flow	Settleability	MLSS Concentration	MLSS Inventory	F:M Ratio	MCRT	SVI
2/1/2015	3.98						
2/2/2015	3.88	190	1,976	35,192			96
2/3/2015	3.86						
2/4/2015	3.85	250	1,818	32,377	0.23	6.9	138
2/5/2015	3.99						
2/6/2015	10.70		1,852	32,992	0.61	5.7	
2/7/2015	10.92						
2/8/2015	14.22						
2/9/2015	9.41	260	2,428	43,244		6.4	107
2/10/2015	7.71						
2/11/2015	6.92	320	2,410	42,932		9.6	133
2/12/2015	6.02						
2/13/2015	5.54	310	2,397	42,692		6.9	130
2/14/2015	5.36						
2/15/2015	5.25						
2/16/2015	5.09						
2/17/2015	4.98						
2/18/2015	4.90	260	2,361	42,051		7.3	111
2/19/2015	5.03						
2/20/2015	4.86	250	2,279	40,590		7.3	110
2/21/2015	4.95						
2/22/2015	4.99						
2/23/2015	4.34	250	2,137	38,069		7.1	117
2/24/2015	4.41						
2/25/2015	4.21	230	2,281	40,625		12.0	101
2/26/2015	4.23						
2/27/2015	4.07	240	2,315	41,240		7.5	104
2/28/2015	4.09						
Minimum	3.85	190.00	1,817.50	32,377	0.23	5.7	96
Maximum	14.22	320	2,428	43,244	0.61	12.0	138
Total	161.76	2,560	24,251	432,004	0.84	76.5	1,146
Average	5.78	256	2,205	39,273	0.42	7.6	115

# Complaints / Contacts Received





**NOVATO SANITARY DISTRICT**  
**Wastewater Operations Committee Meeting**  
**Odor Control and Landscaping Report**  
**February 2015**

**1.0 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 initial 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.

**2.0 Odor control**

Odor control related activities in February included:

- Staff initiated liquid phase sulfide sampling and analysis, based on recommendations from Dave McEwen of Brown and Caldwell (B&C), the District's odor consultant. For process and water quality reasons, operations staff had to revert the converted anoxic zones in the aeration basins, back to anoxic mode in February. Although initially unrelated, this process change will fortuitously enable staff to provide Mr. McEwen with liquid phase sulfide data for this process mode of operation.
- As-needed use from a trial installation of the new Aqua-Fog system which utilizes an odor counteractant technique that broadcasts a water based non-toxic odor neutralizer in the vicinity of the aeration basins.
- Monitoring the performance of the media in the large odor control bed between primary clarifiers #1 & #2. The media was topped off in November, and appears to be performing very well.
- Continued addition of an oxidizing agent, sodium hypochlorite, on an as-needed basis to the influent flow, with staff monitoring performance.

**3.0 Landscaping**

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. In January, staff had solicited bids to relocate the redwood trees in planter boxes along the eastern fence line of the plant site to the northeast corner of the plant site. Three bids were received, and the contract was awarded to the low bidder Doughty Landscaping of Novato, CA in January. The trees were installed in February, and the District has received some positive comments from at least one Lea Drive neighbor. Staff will continue to monitor the landscaping, and evaluate the potential for additional tree plantings, in this area of the plant site.

\*\*\*\*\*

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
February 2015**

**1.0 General:**

The breakdown of Collection System department staff time for February 2015, in terms of equivalent full-time employee (FTE) hours utilized, works out approximately as follows:

- 1.2 FTE field workers for Sewer Maintenance (main line cleaning)
- 1.3 FTE field workers for Pump Station Maintenance
- 0.2 FTE field workers for Closed Circuit Television (CCTV) work
- 2.1 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
- 2.2 FTE field workers Vacation/Sick Leave/Holiday

**2.0 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 214 work orders were generated for February by the ICOM3 Computerized Maintenance Management System (CMMS). Staff completed 198 work orders leaving 14 work orders outstanding. The 198 maintenance work orders completed in February resulted in 40,553 feet of sewer pipelines cleaned by staff. The 16 outstanding work orders are all work orders for hydro-flushing which will be completed in March. Outside contractors also cleaned 553 feet of trunk sewer main line during the month.

For rodding work orders in easement areas, the crew inspected 6 line segments (806 feet) using the push camera in lieu of hand rodding, a more efficient, effective and less labor intensive method to assure that the sewer main is clear.

CCTV Performance:

The District's CCTV van was in the field for 6 working days, inspecting 40 line segments totaling 6,622 feet. Staff also televised 806 feet using the Push Cam. Outside contractors televised 553 feet of trunk sewer main line during the month.

CCTV production was low this month due to mechanical/electrical issues with the truck as well as staff availability for this activity.

CCTV Findings:

- Infrastructure related: The February CCTV work did not find any line segments that will require repair.

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
February 2015**

- O&M related: The February CCTV work did not identify any areas that require a change in sewer line operations.

**3.0 Pump Station Maintenance:**

The Collection System Department conducted 228 lift station inspections this month. 112 of the inspection visits were generated through the District's JobsCal Plus CMMS system. There are 5 outstanding work orders for the month that will be completed in February.

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

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

Staff completed maintenance inspections on 2 air relief/vacuum valves.

**5.0 Safety and Training:**

General: Collection System staff attended four safety tailgate meetings.

Specialized training: Collection System staff did not attend any specialized training during the month of February

Safety performance: There were no lost time accidents this month for a total of 1,446 accident free days since the last lost time accident.

**6.0 Minor Projects:**

The District did not perform any repair projects under the informal contract provisions of the Uniform Public Construction Cost Accounting Act (UPCCAA).

**7.0 Standard Operating Procedures (SOPs):**

Department staff generated zero (0) SOPs during the month of February. As mentioned in the January report, a matrix document for tracking SOP development was created in January. This document is still in the draft stage and is being reviewed internally by staff.

**8.0 Sanitary Sewer Overflows (SSOs):**

In February, there were four (4) SSO's:

No.	Date	Location	Amount, gal	Cause/Probable Cause
1.	2/6/2015	Railroad Avenue	25	Existing Olive PS force main pipe failure during replacement project
2.	2/10/2015	42 San Benito Way	70	Root Intrusion/Debris
3.	2/12/2015	2034 Shady Lane	452	Root Intrusion/Debris
4.	2/23/2015	63 Capilano Drive	1,872	Root Intrusion/Debris

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
February 2015**

1. SSO at Railroad Ave:

Overview: This event was categorized as a Category III event due to its low volume, (estimated at twenty-five (25) gallons or less), and the fact that the discharge likely soaked into the soil in the adjacent railroad right of way. The event occurred on a pipeline replacement project where the District is paralleling an existing force main with a new force main. The discharge likely occurred as a result of a break in the existing force main within the same excavation as for the new pipe, and all of the discharge (except for an estimated 25 gallons) was contained within the trench.

Photographs taken during cleanup activities support this volume estimate. District staff used eyewitness interviews, visual estimation and pictures taken during cleanup activities to determine the volume and duration of this event.

Discussion: On Friday, February 6, 2015 at 08:04, Javier Vega, CSW III, noticed an open sink hole along the trench line of the Olive Street Pump Station force main replacement project while enroute to perform daily pump station checks, so he pulled over to investigate the problem. The construction project and the trench failure were located on Railroad Avenue near Orange Street. At 08:05, Javier observed a car drive into the sink hole, causing damage to the vehicle.



Javier called Dasse de longh, Collection System Lead Worker, at 08:07 to inform him of the incident while he was securing the accident site with cones to direct traffic around the sinkhole. Javier checked the driver for injuries and calmed the driver, then called Novato Police Department to report the accident and to get help with traffic control at 08:09.

Javier called Dasse at about 08:12 to update his arrival status and called Aaron Hendricks, CSW I, and PJ Siragusa, CSW I, the hydro-flusher crew, at 08:14 for assistance with traffic control. He called Dasse again at about 08:20 and told him that he saw water rapidly rising in the construction trench. Dasse assumed that the force main had failed and so he went directly to Olive Street pump station and shut down the pumps at 08:22. As Dasse shut down the pumps, Javier visually estimated 100 gallons escaping the trench. As the pressure in the force main went down, most of the water flowed back into the trench with a small amount discharging into the gutter pan on the west side of the street. This gutter pan has cutouts at several locations that drain into an open ground dirt area along the railroad tracks. Because of this condition, all the sewage that escaped soaked into the soil of the open ground area so there was no measurable recovery for this discharge. PJ and Aaron arrived on site at about 08:30 to assist with shutting off the force main, continuing traffic control, and cleanup activities.

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
February 2015**

During the course of this response, Sandeep Karkal, Manager/Engineer and Kevin Craig, Construction Inspector, arrived on site to observe the operation.

Staff determined that the cause of this discharge was likely the result of pipe failure on the existing force main. It is unclear what caused the force main pipe to fail. The force main is constructed of Techite pipe, a material now known in the industry as prone to failure and it is one reason the District is completing the force main replacement project. Also, during the repair, an unknown white PVC pipeline was found directly under the pipe failure location (see photo at right).

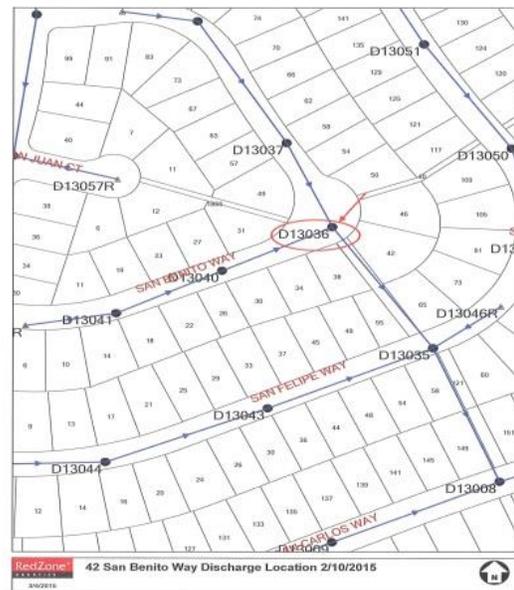


The District and the contractor mobilized in a joint effort to secure pumps, parts, & manpower to repair the force main. All of the repair parts necessary were not readily available so a temporary repair was made. The permanent repair was completed a week later. The force main replacement project should be completed by March or April, 2015.

This event was reported into the CIWQS database on March 10, 2015 as a Category III event, SSO Event ID # 813807 and was certified in CIWQS on March 11, 2015, Certification ID # 523847.

2. SSO at 42 San Benito Way: This event was categorized as a Category I event because the discharge reached a storm drain and potentially entered Novato Creek.

On Tuesday, February 10, 2015 at 11:00, Tim O'Connor, Collection System Superintendent, received a call from Robin Merrill, Information Systems Specialist II, reporting a possible overflow at 42 San Benito Way. Tim contacted Javier Vega, CSW III, and Aaron Hendricks, CSW I, who were on the hydro-flusher, and Dasse de longh, Collection System Lead Worker, and directed them to respond immediately to the site.



Tim proceeded to the site and arrived at 11:12, at which time he took pictures and implemented containment protocols. Javier and Aaron arrived on site with the hydro-flusher at approximately 11:15 and setup on manhole D13035 on San Felipe Way to relieve the stoppage. During setup, they noticed flow in the downstream manhole,

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
February 2015**

indicating that the event was as a result of a partial stoppage. Javier and Aaron relieved the blockage at 11:20 and came over to the overflow site at 42 San Benito Way to begin cleanup operations.

Tim interviewed the reporting party, Lita Carroll, by phone, and she said that she noticed the discharge during her morning walk (at ~11:00am), and called it in immediately. Tim then interviewed four residents in the immediate area of the discharge, none of whom saw the discharge. Tim then interviewed Mark Ross with One Hour Heating and Air Conditioning who drove over the discharge site at 10:00 enroute to 46 San Benito Way. Mr. Ross stated that the overflow had not started at that time. Tim estimated a start time of 10:30 based on these interviews and a discharge rate of 1.4 gallons per minute using the "Water Height Above the Pick-hole Method" (from the District's SSO Response Plan) for a total estimated discharge volume of 70 gallons.



Armando Alegria of Marin County Environmental Health Services (MCEHS) was notified of this event on February 10, 2015 at 12:04 and Michael Ford of CAL-EMA was notified on February 10, 2015 at 12:36 meeting the two hour reporting requirement for a Category I Discharge event.

Mr. Alegria of MCEHS directed District staff to post Public Notification signs along Novato Creek at points of public access and did not require water sampling for this discharge. Two signs were posted by staff after cleanup operations were complete.

Staff determined that the cause of this discharge was the result of root intrusion and debris in the line segment. This line segment was last cleaned on schedule on December 12, 2012 using a hydro-flusher and was on a thirty-six (36) month cleaning frequency. The cleaning schedule has been changed to a 12 month cleaning frequency as a precautionary measure.

CCTV inspection following the discharge event showed the line segment to have root intrusion at several points in the line segment. This line segment will be added to the 2014/15 root abatement schedule. The Public Notification signs were removed on February 19, 2015.

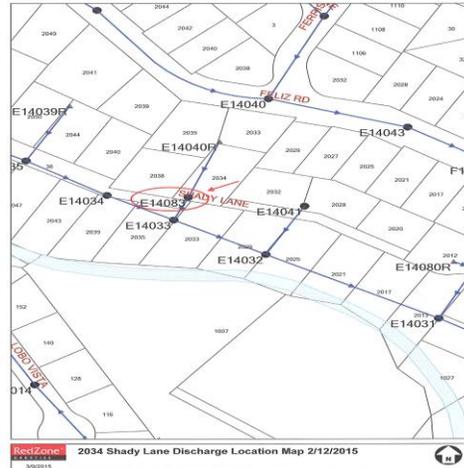
This event was reported into the CIWQS database on February 12, 2015 as a Category I event, SSO Event ID # 813078 and was certified in CIWQS on February 23, 2015, Certification ID # 294147.

3. SSO at 2034 Shady Lane: This event was categorized as a Category I event because the discharge reached a storm drain and potentially entered Novato Creek.

**Novato Sanitary District  
Wastewater Operations Committee meeting  
Collection System Operations Report  
February 2015**

On Thursday, February 12, 2015 at 08:40, Tim O'Connor, Collection System Superintendent, checked his e-mail and found a forwarded voice message from Maria Cuevas who lives at 2034 Shady Lane reporting a possible overflow in front of her home. The call came in and went to voice mail at the District main telephone line at 08:04 on that day. Tim contacted Bob Stiles, CSW I, and Justin Wall, CSW I, who were working on the hydro-flusher and directed them to respond immediately to the site.

Tim proceeded to the site and arrived at 08:45, at which time he took pictures and implemented containment protocols. Bob and Justin arrived on site with the hydro-flusher at approximately 08:51 and setup on manhole E14083 and vacuumed the water out of the manhole, temporarily alleviating the overflow at 09:00. The crew was unable to access downstream of the discharge manhole because it is a blind tie-in. Tim authorized them to carefully clear the stoppage from the upstream side using a hydro-flusher. Bob and Justin relieved the blockage at 09:36 and began cleanup operations.



Tim interviewed the reporting party, Maria Cuevas, and she stated that her husband had seen the discharge two (2) days earlier. Tim asked her if she could call her husband to clarify the time when he had first noticed the overflow. Mr. Cuevas said that he had noticed the overflow on Tuesday, February 10, 2015 at approximately 07:00 when he left for work. Mrs. Cuevas asked Mr. Cuevas why he had not mentioned the problem sooner and he said that he was too busy to call anyone about the discharge. Tim then interviewed four residents in the immediate area of the discharge and only Brenda Roberts at 2038 Shady Lane saw the discharge. Mrs. Roberts also stated that she saw the manhole weeping on Tuesday, February 10, 2015 at about 07:00. Both people who saw the discharge said that it was an intermittent event and did not discharge continuously. Tim determined a start time of 06:30 on February 10, 2015 based on these interviews and used residential winter water use records to calculate a total estimated discharge volume of 452 gallons.



Armando Alegria of Marin County Environmental Health Services (MCEHS) was notified of this event on February 12, 2015 at 10:16 and Michael Ford of CAL-EMA was notified

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on February 12, 2015 at 10:40, meeting the two hour reporting requirement for a Category I Discharge event.

Mr. Alegria of MCEHS directed District staff to post Public Notification signs along Novato Creek at points of public access and did not require water sampling for this discharge. Nine (9) signs were posted by staff after cleanup operations were complete.

Staff determined that the cause of this discharge was the result of root intrusion and debris in the line segment. This line segment was last cleaned on schedule on December 2, 2014 using a mechanical rodder and was on a six (6) month cleaning frequency. The cleaning schedule has not been changed as a result of this event but instructions have been added to the work order to visually inspect this line segment after cleaning with CCTV equipment.

CCTV inspection following the discharge event showed the line segment to have root intrusion at several points in the line segment. This line segment will be added to the 2014/15 root abatement schedule.

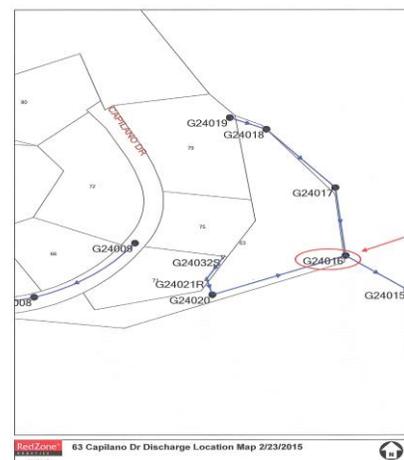
The Public Notification signs were removed on February 19, 2015.

This event was reported into the CIWQS database on February 13, 2015 as a Category I event, SSO Event ID # 813101 and was certified in CIWQS on February 23, 2015, Certification ID # 388596.

4. SSO at 63 Capilano Dr.: This event was categorized as a Category I event because the discharge reached a storm drain and potentially entered Arroyo de San Jose Creek.

On Monday, February 23, 2015 at 09:15, Javier Vega, CSW III and Bob Stiles, CSW I were performing routine mechanical rodder cleaning maintenance in an easement on the Marin Country Club Golf Course near 63 Capilano Drive and discovered an overflowing manhole in a secluded area on the course. Javier immediately called Tim O'Connor, Collection System Superintendent to notify him of the overflow.

Tim proceeded to the site and arrived at 09:43 and inspected the overflow site. Bob and Javier had blocked a storm drain inlet, after observing a trickle of water leading to the inlet, approximately 40 feet away from the discharge manhole (G24016). They then set up the mechanical rodder on the downstream manhole to remove the blockage. Bob and Javier relieved the blockage at 09:35 and began cleanup operations. Initial observations of the discharge area found the area to be composed of highly absorbent leaf litter debris and sandy



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loam soil. They also found the ground saturated for approximately twenty (20) feet around the discharge manhole. Dasse de longh, Collection System Lead Worker, PJ Siragusa, CSW I, and Justin Wall, CSW I, had also been called, and arrived at the golf course to assist with cleanup operations.

District staff removed seven (7) fifty-five gallon (55) bags of saturated debris from the site. They also spread wood chips around the site to act as a barrier over the moist soil and for aesthetic purposes for the golf course, although this area is not an area frequented by golfers.

Tim interviewed Scott Thomsen, Assistant Golf Course Superintendent in an effort to establish a probable start time for the discharge and to determine where the golf course drainage lines were installed. During this first interview, Tim determined that the discharge may have reached a pond on the course that is part of the Arroyo de San Jose Creek. Staff vacuumed approximately one hundred and ten gallons of mixed runoff and overflow water from a runoff collection box in line with the discharge location, but prior to reaching the pond. During subsequent interviews with Mr. Thomsen, Tim estimated a start time of midnight, February 13, 2015. Based on these



interviews and using residential winter water use records of homes tributary to the discharge manhole, Tim was able to calculate a total estimated total discharge volume of 1,872 gallons. Based on staff observations and consultations with Mr. Thomsen, Tim estimated that approximately ninety-five percent (1,778 gallons) of the discharge soaked into open ground with potentially five percent (94 gallons) reaching a waterway.

This event was determined to be a Category I event because it reached a storm drain and potentially entered Arroyo de San Jose Creek. District staff used reporting party/local resident interviews, and residential water use rates to estimate the volume and duration of this event.

Armando Alegria of Marin County Environmental Health Services (MCEHS) was notified of this event on February 23, 2015 at 11:05 and Blake Tyson of CAL-EMA was notified on February 23, 2015 at 11:07 meeting the two hour reporting requirement for a Category I Discharge event.

Mr. Alegria of MCEHS directed District staff to post Public Notification signs around the pond in Arroyo de San Jose Creek at points of public access and did not require water

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sampling for this discharge. Seven (7) signs were posted by staff after cleanup operations were complete.

Staff determined that the cause of this discharge was the result of root intrusion and debris in the line segment. This line segment was last cleaned via ad hoc work order on September 8, 2014, two months before a scheduled cleaning. The cleaning was in preparation for CCTV inspection. There were no unusual problems noted during the September 8<sup>th</sup> CCTV inspection. This line segment was on a thirty-six (36) month cleaning frequency. The cleaning schedule has been adjusted to a 12 month schedule as a result of this event.

CCTV inspection following the discharge event showed the line segment to have root intrusion in the line segment. This line segment will be added to the 2014/15 root abatement schedule. The Public Notification signs were removed on March 3, 2015 after consulting with Mr. Alegria, MCEHS.

This event was reported into the CIWQS database on February 25, 2015 as a Category I event, SSO Event ID # 813307 and was certified in CIWQS on March 9, 2015, Certification ID # 683205.

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Novato Sanitary District  
Collection System Monthly Report For February 2015 (as of February 28, 2015)

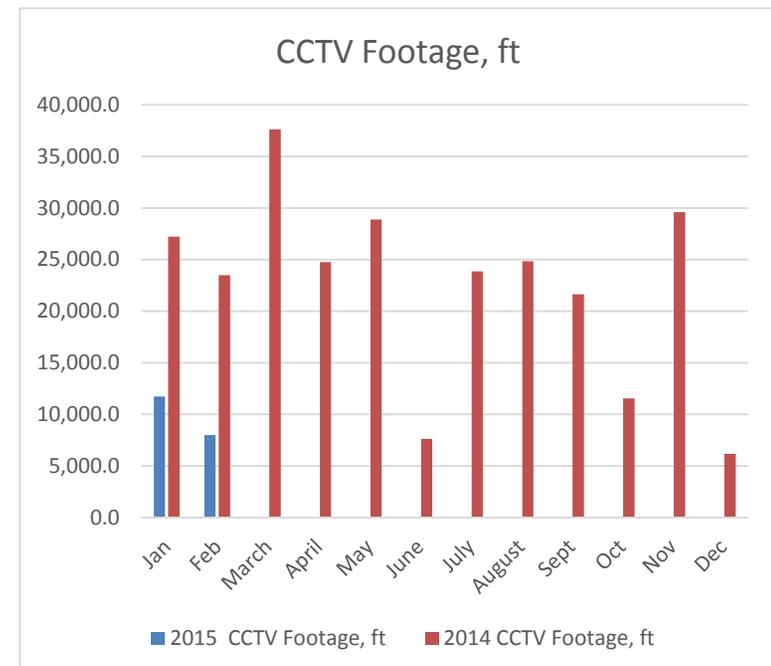
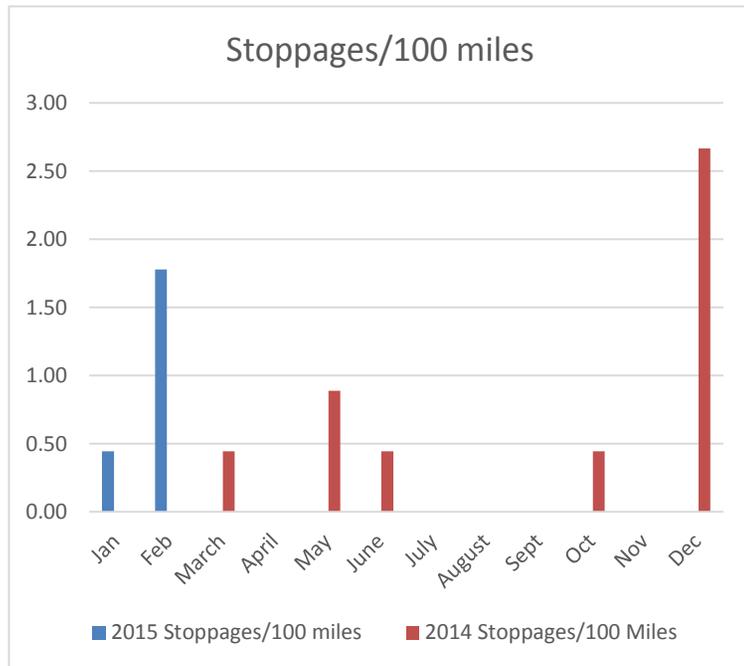
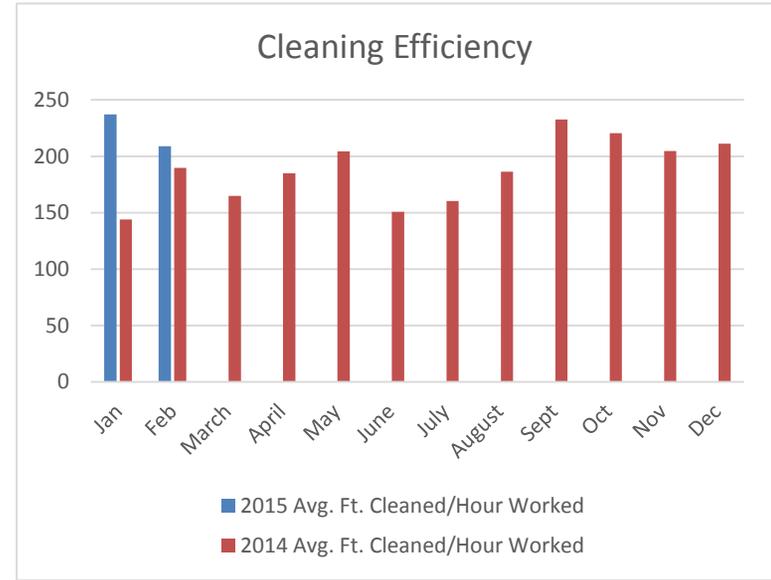
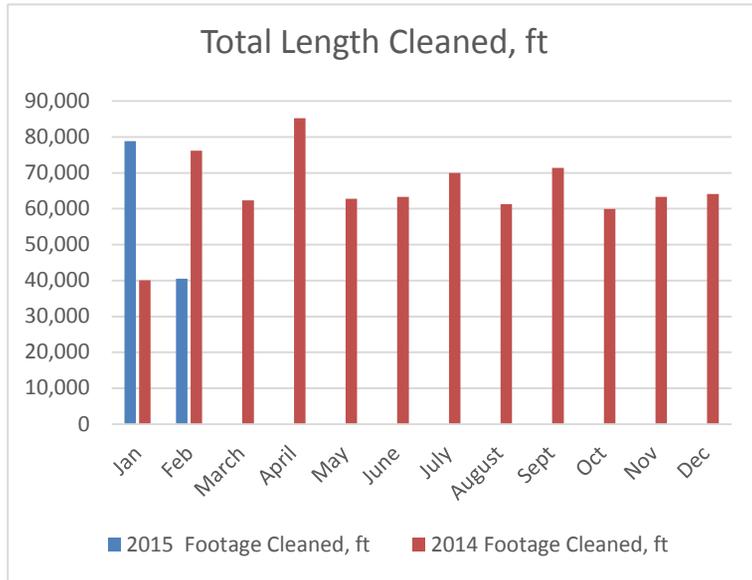
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total Year to Date	Average Year to Date
<b>A. Employee Hours Worked</b>														
Number of FTEs (main line cleaning), hrs.	1.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.3
Number of FTEs (other)	1.6	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.3
Number of FTEs (CCTV)	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0
Total, FTEs	3.6	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.6
Regular Time Worked, (main line cleaning), hrs	333	194												
Regular Time Worked on Other, hrs (1)	281	329												
Regular Time Worked on CCTV (2)	15	36												
Total Regular time, worked, hrs	628	559	0	0	0	0	0	0	0	0	0	0	1,186	99
Total Vacation/Sick Leave/Holiday, hrs	403	356											758	379
Vacation/Sick Leave/Holiday, FTEs	2.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.4
Overtime Worked on Coll. Sys., hrs	3	0											3	1
Overtime Worked on Other, hrs (1)	14	45											59	30
Overtime Worked on CCTV (2)	0	0											0	0
Total Overtime, hrs	17	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62	31
<b>B. Productivity</b>														
<b>1. Line Cleaning</b>														
Rodder Work Orders generated	90	31											121	61
Rodder 3208 ft. cleaned	15,611	6,776											22,387	11,194
Rodder - outside services, ft cleaned	0	0											0	0
Flusher Work Orders generated	340	183											523	262
Truck 3205V ft. cleaned	107	4,165											4,272	2,136
Truck 3206V ft. cleaned	63,145	29,612											92,757	46,379
Flusher - outside services, ft. cleaned	1,349	553											1,902	
Total Footage cleaned(3)	78,863	40,553	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	119,416	59,708
Work Orders completed	416	198											614	307
Work Orders backlog	14	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	15
<b>2. Closed Circuit Television (CCTV)</b>														
Camera Work Orders generated	0	0											0	
CCTV Truck 3126T, ft. videoed	3,998	6,622											10,620	5,310
CCTV (hand cam), ft. videoed	6,378	806											7,184	
CCTV Inspection - outside services, ft. videoed	1,349	553											1,902	
Total CCTV footage(3)	11,725	7,981	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19,706	
<b>C. Sanitary Sewer Overflows (SSOs)</b>														
Minor (Category III)	1	4											5	NA
Major (Category II)	1	1											2	NA
Major (Category I)	0	0											0	NA
Major (Category I)	0	3											3	NA
Overflow Gallons	126	2,419											2,545	NA
Volume Recovered	0	0											0	NA
Percent Recovered	0%	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0%	NA
<b>D. Service Calls (non-SSO related)</b>														
Service calls, normal hours, #	10	11											21	11
Normal hours S.C. response time, mins (avg.)	22	20											42	21
Service Callouts, after hours, #	1	1											2	1
After Hours S.C. response time, mins (avg.)	33	35											68	34
<b>E. Benchmarks</b>														
Average Ft. Cleaned/Hour Worked	237	209	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	223
Total Stoppages/100 Miles	0.4	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	NA
Average spill response time (mins)	28	5											NA	17
Callouts/100 Miles	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.1
Overtime hours/100 Miles	1	0	0	0	0	0	0	0	0	0	0	0	1.11	0
Overflow Gallons/100 Miles	55	1052	0	0	0	0	0	0	0	0	0	-	1,107	92

(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 2014-15 Graphs





**COLLECTION SYSTEM (Pump Stations)  
WORK ORDER STATISTICS  
February 1, 2015 - February 28, 2015**

	<b>Open Work Orders Due Prior to 2/1/2015</b>	<b>Open Work Orders 2/1/2015 - 2/28/2015</b>	<b>Total Open Work Orders</b>
Preventive	0	117	117
Corrective	0	0	0
<b>Total</b>	<b>0</b>	<b>117</b>	<b>117</b>

	<b>Closed Work Orders 2/1/2015 - 2/28/2015</b>
Preventive	112
Corrective	0
<b>Total</b>	<b>112</b>

<b>Total Outstanding Work Orders as of 2/28/2015</b>	<b>5</b>
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**NOVATO SANITARY DISTRICT  
Wastewater Operations Committee Meeting  
Reclamation Facilities Report  
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**1.0 Summary:**

The rancher continued to apply weed suppressant around sprinkler heads on Parcels in the pasture areas. The contractor for the Drainage Pump Station Improvement Project continued work on the project as the weather and conditions allowed. There were no irrigation or sludge handling activities this month.

**2.0 Ranch Operations:**

The rancher continued to apply weed suppressant around sprinkler heads on various Parcels throughout Reclamation. There were no other ranching activities.

**3.0 Irrigation Parcels:**

As previously reported, staff determined that a culvert which is either plugged or collapsed is causing rainwater to accumulate in the ditch along the line of eucalyptus trees on Site 2. Staff used a portable pump to move the accumulated water around the culvert because this water was backing up and flowing across an access road and into Parcel 1. After the water was pumped out of the ditch the early February rains quickly filled the ditch up before staff could locate the subject culvert.

A Work Order was issued to fill in potholes along the access road which were exacerbated by the water crossing the road. Also, several trees have fallen out of the eucalyptus grove, knocked down by heavy winds and wet soil conditions (see photo at right).



The Drainage Pump Stations pumped approximately 99 MG of rainwater in February.

The contractor for the Drainage Pump Station Improvement Project continued working on the project as weather, tides and conditions allowed. The contractor completed installing the structural steel for the new pipe supports and also installed the new discharge pipe ends with flap gates at each pump station (see photos below). Debris fencing around the pump wells at each station remain to be installed.



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**4.0 Irrigation Pump Station:**

There was no irrigation activity this month. The Irrigation Storage Ponds accumulated 3.8 MG of rainwater this month.

**5.0 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 2015, as of February 2015**

	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											-	0.00
Irrigation (MG)		0											-	0.00
Irrigation Pump 1 Hours													-	0.00
Irrigation Pump 2 Hours													-	0.00
Irrigation Pump 3 Hours													-	0.00
Washdown Water Pump Hours													-	0.00
Wildlife Feed Pump Hours													-	0.00
Water Circulated through Wildlife Pond (MG)	0	0	0	0	0	0	0	0	0	0	0	0	-	0.00
Strainer No. 1 Hours													-	0.00
Strainer No. 2 Hours													-	0.00
Pond 1 Gauge @ Beginning of Month	5.4	5.4												
Pond 1 Gauge @ End of Month	5.4	5.6												
Pond 1 Gallons Stored @ End of Month(MG)	39.2	41												
Pond 2 Gauge @ Beginning of Month	5.5	5.5												
Pond 2 Gauge @ End of Month	5.5	5.7												
Pond 2 Gallons Stored @ End of Month(MG)	52	54												
Total Irrigation Water Stored	91.2	95	0	0	0	0	0	0	0	0	0	0		
<b>Drainage Pump Station No. 3</b>														
Drainage Pump No. 1 Hours	0	133.1												
Drainage Pump No. 2 Hours	0	0												
Drainage Pump No. 3 Hours	100.3	127.1												
Total Gallons Stormwater Pumped (MG)	30.09	78.06	0	0	0	0	0	0	0	0	0	0	108.15	9.01
<b>Drainage Pump Station No. 7</b>														
Drainage Pump No. 1 Hours	331.6	46.2												
Drainage Pump No. 2 Hours	0	0												
Drainage Pump No. 3 Hours	0	1.5												
Total Gallons Stormwater Pumped (MG)	149.22	21	0	0	0	0	0	0	0	0	0	0	170.685	14.22