

NOVATO SANITARY DISTRICT

Meeting Date: November 16, 2015

The Wastewater Operations Committee of the Novato Sanitary District will hold a meeting at 2:00 PM, Monday, November 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. CONSIDER APPROVAL OF MINUTES OF THE OCTOBER 19, 2015 MEETING

4. WASTEWATER TREATMENT FACILITIES OPERATIONS AND MAINTENANCE REPORT, OCTOBER 2015:

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

5. COLLECTION SYSTEM OPERATIONS AND MAINTENANCE REPORT, OCTOBER 2015:

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

6. RECLAMATION FACILITY REPORT, OCTOBER 2015:

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

7. OTHER ITEMS:

8. 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.

October 19, 2015

A regular meeting of the Wastewater Operations Committee of Novato Sanitary District was held at 2:00 p.m., Monday, October 19, 2015, at the District Office, 500 Davidson Street, Novato.

MEMBERS PRESENT: Committee Members Jerry Peters and Brant Miller.

STAFF PRESENT: Sandeep Karkal, General Manager-Chief Engineer
Erik Brown, Technical Services Manager
Steve Krauthem, Field Services Manager
Dasse de longh, Interim Collections System Superintendent
Julie Swoboda, Administrative Secretary

OTHERS PRESENT: John Bailey, Project Manager, Veolia
Lynda Farmery, Admin/Planner, Veolia

AGENDA APPROVAL: Approved as presented.

PUBLIC COMMENT: None.

APPROVAL OF MEETING MINUTES FOR SEPTEMBER 21, 2015: The September 21, 2015 meeting minutes were approved as presented.

WASTEWATER TREATMENT FACILITIES OPERATIONS AND MAINTENANCE REPORT FOR SEPTEMBER 2015:

- Treatment Plant Performance Report, Maintenance Report and Safety & Training:

John Bailey, Veolia Plant Manager, provided an overview of treatment plant operations for the month of September. He discussed key operations and maintenance events at the Novato facility, the Ignacio Transfer Pump Station, the Recycled Water Plant, and the Sludge Lagoons. He stated that the monthly average flow was 3.23 MGD and that the treatment plant performance was very good with no violations or excursions.

The Plant Manager discussed training events completed in September and stated that as of September 30th, Veolia employees have been accident free for a total of 1,954 days. He reviewed the operations and maintenance report and stated that 12.573 million gallons of recycled water were produced. He 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 eleven (11) odor notifications were received in September.

- Odor control and landscaping report: The General Manager discussed odor control related activities and stated that in late September, operations staff assisted the District's odor consultant Mr. David McEwen of Brown and Caldwell in installing a pilot odor control system at the Headworks area. He stated that the method utilized a chemical system to feed a mist of sodium hypochlorite and sodium hydroxide at a controlled rate into the headspace of the headworks area to neutralize odor causing compounds. He noted that the test was entirely funded by Brown and Caldwell under one of their innovative technology grant programs and that Mr. McEwen is reviewing results from the testing.

The General Manager stated that the redwood trees in the northeast corner of the plant site and the site vegetation continue to be irrigated with recycled water and continue to respond well to the drought conditions.

COLLECTION SYSTEMS OPERATION AND MAINTENANCE REPORT FOR SEPTEMBER 2015:

The Field Services Manager presented the Collection Systems Monthly Report for September 2015. He reported that the Collection Systems crew cleaned a total of 63,461 feet of sewer pipeline and that outside contractors cleaned 2,506 feet of large diameter sewer mains. He stated that staff continued to smoke test District sewer mains, completing approximately 13,179 feet in September. He stated that the department completed 340 maintenance work orders and discussed current projects being completed. He stated that the District's Closed Circuit Television van (CCTV van) televised 70 line segments totaling 7,687 feet and noted that three (3) areas were identified as needing further investigation and repairs. He outlined the specialized training that the department completed and stated that as of September 30, 2015, the Collections Department and the District have worked accident free for a total of 1,662 days.

The Field Services Manager stated that there was one sanitary sewer overflow in September at 823 Reichert Avenue. He stated that the overflow was a minor Category III event (SSO) with a release of approximately eight (8) gallons at the resident's cleanout. He noted that the stoppage may have been created when a roter company cleaned the residence's lateral and potentially released roots into the main, creating a blockage.

RECLAMATION FACILITY REPORT FOR SEPTEMBER 2015:

The Field Services Manager presented the Reclamation Facilities report for September. He stated that the rancher performed weed management and sprinkler repairs as well as tending to his cattle. He stated that all parcels were irrigated and that approximately 58.24 MG of treated water was used for irrigation this month. He stated that Custom Tractor Service (CTS) pumped sludge out of the sludge lagoons and into the Dedicated Land Disposal (DLD) area, in addition to dredging the lagoons. He noted that CTS pumped approximately 3.12 MG of sludge out of the lagoons and into the DLD.

MANAGER'S ANNOUNCEMENTS:

The General Manager stated that the next Wastewater Operations Committee meeting will be held on Monday, November 16th at 2:00 p.m. at the District office.

ADJOURNMENT: There being no further business to come before the Committee, the meeting adjourned at 2:37 p.m.

Respectfully submitted,

Sandeep Karkal
General Manager-Chief Engineer

Julie Swoboda, Recording



November 11, 2015

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

Subject: Veolia Water Operations Report – October 2015

Dear Mr. Karkal:

I am pleased to provide the Monthly Operation report for October 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 that reads "John Bailey". The signature is fluid and cursive, with the first name "John" being more prominent.

John Bailey
Project Manager, Veolia



MONTHLY OPERATIONS REPORT
October 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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| ○ Odor Control Pilot Study – Brown and Caldwell | |
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| ○ Repair of Recycled Water Line at Aeration Basins | |
| ○ Ultra Violet Disinfection System Maintenance | |
| ○ Reclamation Area – Sludge Lagoons and Wildlife Pond | |
| ○ Wet Weather Storage Project – Ignacio Transfer Pump Station (NSD Project) | |
| • Laboratory Data | |
| • Recycled Water Report | |
| • Annual Compliance Summary | |
| • Process Control Data / Graphs | |
| • Customer Notifications | |
| • Jerome Meter Readings and Locations | |

TREATMENT PLANT PERFORMANCE SUMMARY: October 2015:

| Parameter | Value | | Limit | |
|--|-------|-------|-------|--------|
| | Ave | Max | #1 | #2 |
| Flow, MGD (monthly ave/max) | 3.43 | 4.12 | N/A | N/A |
| Max Peak Hour, MGD – No Rainfall | N/A | ~ 7 | N/A | N/A |
| Influent | | | | |
| BOD ₅ , lb/day (month ave/max) | 7,328 | 8,326 | N/A | N/A |
| TSS, lb/day (monthly ave/max) | 7,787 | 8,689 | N/A | N/A |
| Effluent | | | | |
| BOD ₅ , mg/L (monthly ave/weekly max) | <9 | 16 | 40 | N/A |
| TSS, mg/L (monthly ave/weekly max) | <4 | 5 | N/A | N/A |
| BOD ₅ - % Removal, Minimum | 98 | N/A | N/A | N/A |
| TSS - % Removal, Minimum | 99 | N/A | N/A | N/A |
| Ammonia, mg/L – (monthly ave/daily max) | N/A | N/A | N/A | N/A |
| pH, su (min / max) | 6.8 | 7.0 | 6.0 | 9.0 |
| Enterococcus, MPN/100 ml (30 day geo mean) | N/A | N/A | N/A | N/A |
| Fecal Coliform, MPN/100 ml (30 day median) | N/A | N/A | N/A | N/A |
| Fecal Coliform, MPN/100 ml (90 th percentile) | N/A | N/A | N/A | N/A |
| Total Coliform, MPN/100 ml (5 Sample Median/Max) | 13 | 13 | 240 | 10,000 |
| Total Permit Exceedances (NPDES) | 0 | | | |

Title 22 - Recycled Water Production and Quality

| Description | Units | Value | Limit |
|---------------------------------------|-----------------|-------|----------------|
| Volume Produced | Million Gallons | 10.00 | N/A |
| Average Turbidity | NTU | 1.4 | 2.0 |
| Turbidity > 5 NTU (in 24 hour) | Minutes | 0 | 72 |
| Minimum CT (disinfection) | mg-min/L | >450 | 450 minimum |
| Minimum Dissolved Oxygen (DO) | mg/L | 8.4 | 2 mg/L minimum |
| Maximum Total Coliform | MPN/100 ml | <2 | 240 |
| Maximum Total Coliform 2 Samples 30 d | MPN/100 ml | <2 | 23 |
| Total Coliform 7 Sample Median | MPN/100 ml | <2 | 2.2 |

Discussion of Violations / Excursions:

Waste Discharge Requirements (WDR) – None

Recycled Water – None

Rainfall. – 10/3 = 0.02", 10/4 = 0.05", **Total = 0.07"**

SAFETY AND TRAINING:

- Monthly plant safety inspections for Novato WWTP and Ignacio Transfer Pump Station completed
- Five Minute Tailgate training is held daily with all staff.
- No safety incidents for the month of October.
- Accident Free: 6/1/10 – 10/31/15: 1,985 days
- Monthly Safety Topics and Training:
 - Great Shakeout Drill
 - Emergency Action Plan review
 - Fall Protection
 - Crane Safety Awareness
- Annual Hearing Test Conducted

OPERATION & MAINTENANCE STATUS / REVIEW:

Key events for the period:

Novato

- Routine rounds, readings and maintenance
- Factory Technician from Ozonia (manufacturer) on site to fine tune Ultra Violet (UV) disinfection system
- Annual electrical checks on all rotating equipment, performed by Matt Nausin (Veolia Richmond) and Ben Baybayn (Veolia Rio Vista)
- Replaced Blower #3 Uninterruptable Power Supply (UPS) & Fuses

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

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

Ignacio Transfer Pump Station

- Routine rounds, readings and maintenance
- Annual Service on Flygt, conveyance pumps, Matt Nausin (Veolia Richmond)

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
- Pumped Down Monitoring Wells for groundwater sampling
- Flushed Decant line
- Flushed Sludge line

LABORATORY ACTIVITIES SUMMARY:**Wildlife Pond and Reclamation Activities**

Irrigation Wetwell Sampling:

Monthly sampling of the irrigation wetwell occurred in October and will last as long as irrigation happens. The data collected will be compiled and reported in the 2015 triennial Irrigated Pasture Report.

Wildlife Pond and Reclamation Activities:

Samples and weekly/monthly observations at the Wildlife pond were taken according to the Waste Discharge Requirements (WDR), Order No. 92-065.

Monitoring Wells

Sampling of the NSD groundwater monitoring wells was conducted on October 16, 2015. This biannual monitoring is to assure the protection of groundwater around the Designated Land Disposal (DLD) site and the decommissioned sludge lagoons at the Ignacio Treatment Plant as part of the EPA Part 503 Biosolids requirements. Sampling and data collection was performed in collaboration with North Marin Water District Staff (Jessica Bena).

Nutrients

Environmental Services Supervisor, Liz Falejczyk worked with consultants Mike Falk of HDR and Mary Cousins of RMC to provide comments on the nutrient discharge data presented in the BACWA Group Annual Report. Data was reviewed, corrected as necessary, and submitted.

Total Coliforms

Three samples were analyzed each week for Total Coliforms and all results were well below the regulatory limits.

Whole Effluent Toxicity Testing

There are no requirements for toxicity testing during the reclamation discharge season.

Biochemical Oxygen Demand (BOD) Testing

Several BOD results in October, while well within regulatory limits, were marginally out of range for QA / QC standards. One sample result was also considerably higher than usual, although it did not result in any violation(s) either. Veolia staff has been in contact with the contract laboratory manager responsible for the BOD analysis. We are evaluating options which include split sample analysis, changing contract laboratories, and performing BOD analysis at the NSD facility. Our Environmental Services Supervisor has initiated discussion with another contract laboratory and as a back-up has begun preparation for "in-house" analysis of BOD.

Public Education

Liz Falejczyk attended the North Bay Science Discovery Day with John Bailey, Brian Exberger, and John O'Hare. Along with showing the mysterious and fascinating microorganisms of the wastewater treatment plant, we demonstrated what not to flush and why, using magical magnetic stir plates and Erlenmeyer shaker flasks.

Environmental Laboratory Accreditation Program (ELAP)

The Novato Sanitary District ELAP Certificate No. 1092 renewal packet was sent to the State ELAP office by email on October 29th, and a confirmation email that the packet was received and complete was received on October 30th.

Training

- Liz Falejczyk (and Jessica Bena of NMWD) attended the CWEA Redwood Empire Section's Laboratory Committee Meeting on October 28th at Caltest Laboratory in Napa.
- Laboratory Technician, Kurt Hawkyard and Liz Falejczyk attended training at the Central Contra Costa Sanitary District titled "Generating Legally Defensible Field Sampling and Testing Data for Pre-Treatment Inspection Compliance Professionals."

Bay Area Clean Water Agencies (BACWA)

Liz Falejczyk attended the BACWA Permits Committee meeting.

Pretreatment

Kurt Hawkyard and Liz Falejczyk continued to work with Bob Adamson for training and familiarization of the NSD pretreatment program.

Permits

- Renewed Graphene Technologies Inc. Class I Permit

Inspections

- Bob Adamson, Kurt Hawkyard and NSD Technical Services Manager, Erik Brown inspected Graphene Technologies in preparation for their permit renewal.
- Liz Falejczyk, Kurt Hawkyard, and Erik Brown inspected NMWD's Stafford Lake Water Treatment Plant in preparation for their permit renewal (November).
- Bob and Kurt inspected the following restaurants: SushiHolic (2 visits), Target, China Palace, Ming Yen, Chevy's, Extreme Pizza, Pasta Pomodoro and Costco.
- Bob Adamson and Liz Falejczyk inspected Belli Deli, Village Pizza (formerly Muscios), and Jenny Low's.

Periodic Reports of Continued Compliance (PRCC)

All required quarterly PRCCs, (BioMarin, Buck Center, NMWD) were submitted on time and reviewed for compliance. All were in compliance.

ADMINISTRATION:

- September Electronic Self-Monitoring Report (SMR) submitted on October 20, 2015
- September Electronic Discharge Monitoring Report (DMR) submitted on October 20, 2015
- September Recycled Water Report submitted on October 20, 2015

ODORS:

- Jerome meter (H₂S) readings performed in neighborhood and within treatment plant.
- All readings in neighborhood were at the minimum detection threshold of the Jerome meter.
- Ten contacts regarding odors.

MISCELLANEOUS

- Process Control Management Plan (PCMP) meetings held weekly.
- Recruitment open for Maintenance Technician.

Veolia Support Staff On/Off Site (Various Times)

| | |
|--------------|-------------------|
| John O'Hare | Technical Support |
| Dave Coffman | Asset Management |

PHOTOS

NORTH BAY SCIENCE AND DISCOVERY FAIR
OCTOBER 24, 2015



Top Left - Liz Falejczyk and John O'Hare prepare to demonstrate non-flushable materials (wipes etc)
Top Right & Bottom Right – Liz Falejczyk demonstrates rag formation in pumps and sewers. Note upper right clear boxes with real "rag balls" from a pump (cleaned and bleached)
Lower Right – Brian Exberger demonstrates to young students the microscopic world of wastewater treatment.

ODOR CONTROL PILOT STUDY – BROWN AND CALDWELL SEPTEMBER & OCTOBER 2015



Top Left – Dave McEwen, (Brown & Caldwell) meets with team to outline installation and monitoring plan

Top Right – Assembly of mist system

Bottom Left – Installation of monitoring and logging system

Bottom Right – Installed monitoring and logging unit

Center – Final setup of chemical feed system

NOTE - Chemicals were sodium hypochlorite and sodium hydroxide

ANNUAL INSPECTION AND SERVICE OF INFLUENT PUMPS
SEPTEMBER & OCTOBER 2015



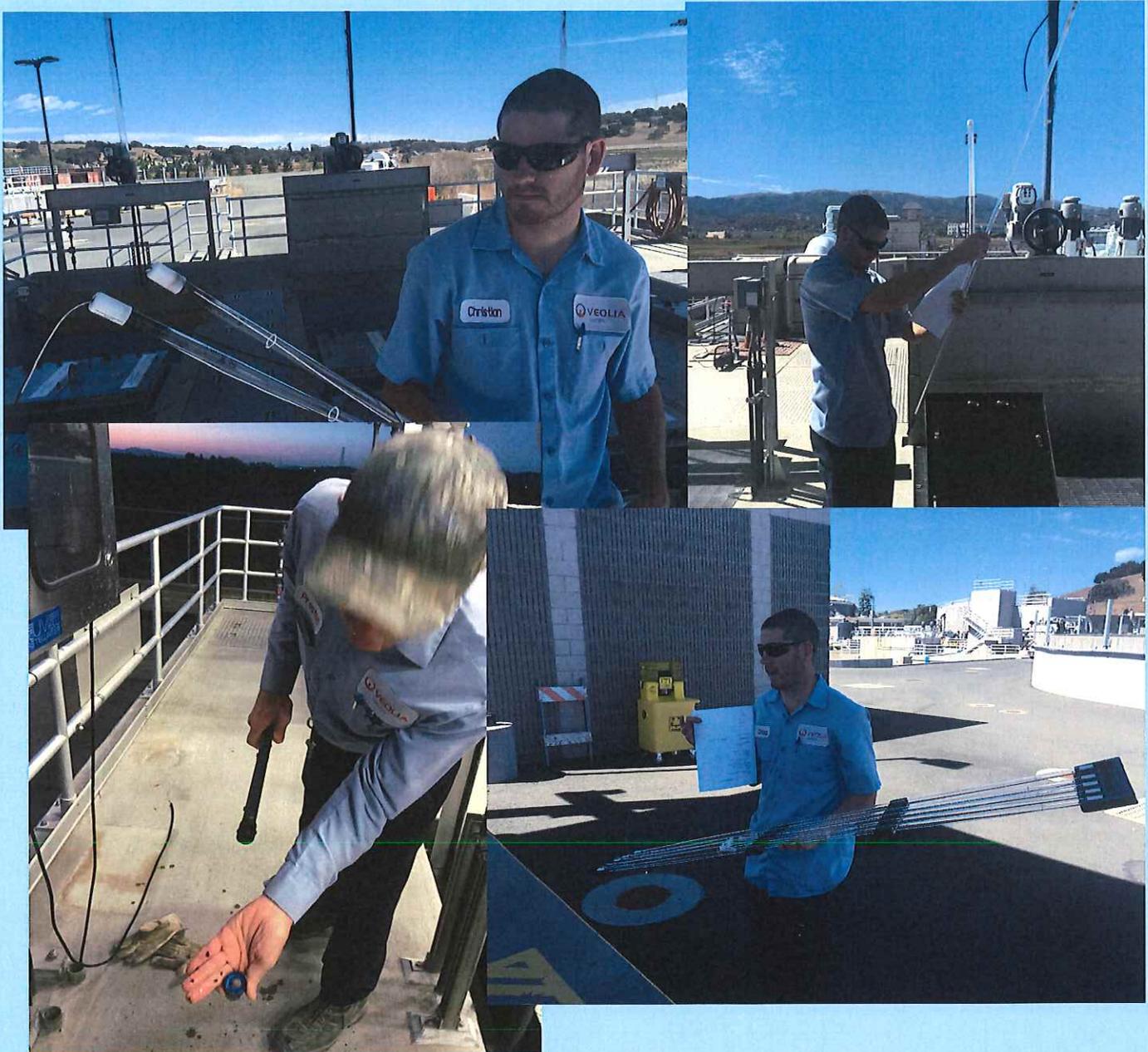
Christian Williams and Matt Nausin (Veolia, Richmond) perform annual service on six (Flygt) influent pumps.

REPAIR OF RECLAIM WATER LINE ON AERATION BASINS



Top Left & Right – Brian Exberger (in boat) & Ralph Loveless work on broken #3 water line
Bottom Left – Brian and Ralph fabricate replacement parts
Bottom Right – Brian with damaged coupling

ULTRA VIOLET DISINFECTION SYSTEM MAINTENANCE



Top Right & Left – Christian Williams changing Ultra Violet (UV) Lamps
Bottom Left – Preston Ingram cleaning Ultra Violet Transmittance Meter
Bottom Right – New UV lamps

RECLAMATION AREA – DEER ISLAND SLUDGE LAGOONS & WILDLIFE POND



Top Left – Brian Exberger adjusting decant discharge (telescoping) valve
Top Right – Flock of Pelicans at Wildlife Pond
Bottom Right & Left – Otters at play in Wildlife Pond

WET WEATHER STORAGE PROJECT
IGNACIO TRANSFER PUMP STATION
NSD PROJECT



Top Left – Removal of dyke separating decommissioned sludge lagoons at Ignacio Transfer Pump Station
Top Right – Enlarging, sloping, and grading the new Wet Weather Storage Pond
Bottom Left – Construction of concrete head wall
Bottom Right – New Wet Weather Storage Pond

LABORATORY DATA

Novato Sanitary District
BOD/TSS Report



October, 2015

| Date | Flow MGD | Influent | | | | Effluent | | | | BOD % Removal PERCENT | TSS % Removal PERCENT |
|------------------------|-------------|----------|-------|------|-------|----------|------|------|------|-----------------------------|-----------------------------|
| | | BOD | | TSS | | BOD | | TSS | | | |
| | | mg/l | lb/d | mg/l | lb/d | mg/l | lb/d | mg/l | lb/d | | |
| 10/01/15 | 3.17 | | | | | | | | | | |
| 10/02/15 | 3.26 | | | | | | | | | | |
| 10/03/15 | 3.11 | | | | | | | | | | |
| 10/04/15 | 3.15 | | | | | | | | | | |
| 10/05/15 | 3.37 | | | | | | | | | | |
| 10/06/15 | 3.31 | | | | | | | | | | |
| 10/07/15 | 3.32 | 246 | 6,811 | 307 | 8,500 | <5 | <138 | <3 | <83 | 98.0 | 99.0 |
| 10/08/15 | 3.12 | | | | | <5 | <130 | <3 | <78 | | |
| 10/09/15 | 3.44 | | | | | 6 | 172 | <3 | <86 | | |
| 10/10/15 | 3.67 | | | | | | | | | | |
| 10/11/15 | 3.66 | | | | | | | | | | |
| 10/12/15 | 3.65 | | | | | | | | | | |
| 10/13/15 | 3.51 | | | | | | | | | | |
| 10/14/15 | 3.63 | 253 | 7,659 | 287 | 8,689 | 7 | 212 | <3 | <91 | 97.2 | 99.0 |
| 10/15/15 | 3.71 | | | | | 7 | 217 | <3 | <93 | | |
| 10/16/15 | 3.45 | | | | | 9 | 259 | 3 | 86 | | |
| 10/17/15 | 3.92 | | | | | | | | | | |
| 10/18/15 | 3.69 | | | | | | | | | | |
| 10/19/15 | 3.91 | | | | | | | | | | |
| 10/20/15 | 3.54 | 282 | 8,326 | 261 | 7,706 | <5 | <148 | 3 | 89 | 98.2 | 98.9 |
| 10/21/15 | 3.83 | | | | | | | | | | |
| 10/22/15 | 3.55 | | | | | 7 | 207 | 3 | 89 | | |
| 10/23/15 | 3.53 | | | | | 10 | 294 | 4 | 118 | | |
| 10/24/15 | 3.41 | | | | | | | | | | |
| 10/25/15 | 4.12 | | | | | | | | | | |
| 10/26/15 | 3.15 | 248 | 6,515 | 238 | 6,252 | 6 | 158 | 5 | 131 | 97.6 | 97.9 |
| 10/27/15 | 3.26 | | | | | 6 | | 4 | 109 | | |
| 10/28/15 | 2.95 | | | | | | | | | | |
| 10/29/15 | 2.92 | | | | | 36 | | 6 | 146 | | |
| 10/30/15 | 2.98 | | | | | | | | | | |
| 10/31/15 | 2.97 | | | | | | | | | | |
| Weekly Averages | | | | | | | | | | | |
| 10/03/15 | Week 1 | 276 | 7,090 | 367 | 9,427 | 6 | 160 | 3 | 80 | | |
| 10/10/15 | Week 2 | 246 | 6,811 | 307 | 8,500 | 5 | 147 | 3 | 82 | | |
| 10/17/15 | Week 3 | 253 | 7,659 | 287 | 8,689 | 8 | 229 | 3 | 90 | | |
| 10/24/15 | Week 4 | 282 | 8,326 | 261 | 7,706 | 7 | 216 | 3 | 98 | | |
| 10/31/15 | Week 5 | 248 | 6,515 | 238 | 6,252 | 16 | 158 | 5 | 129 | | |
| Monthly | | | | | | | | | | | |
| Minimum | 2.92 | 246 | 6,515 | 238 | 6,252 | <5 | <130 | <3 | <78 | 97 | 98 |
| Maximum | 4.12 | 282 | 8,326 | 307 | 8,689 | 36 | 294 | 6 | 146 | 98 | 99 |
| Total | 106.26 | | | | | | | | | | |
| Average | 3.43 | 257 | 7,328 | 273 | 7,787 | <9 | <194 | <4 | <100 | 98 | 99 |

Novato Sanitary District
Conventional Pollutants Report



October, 2015

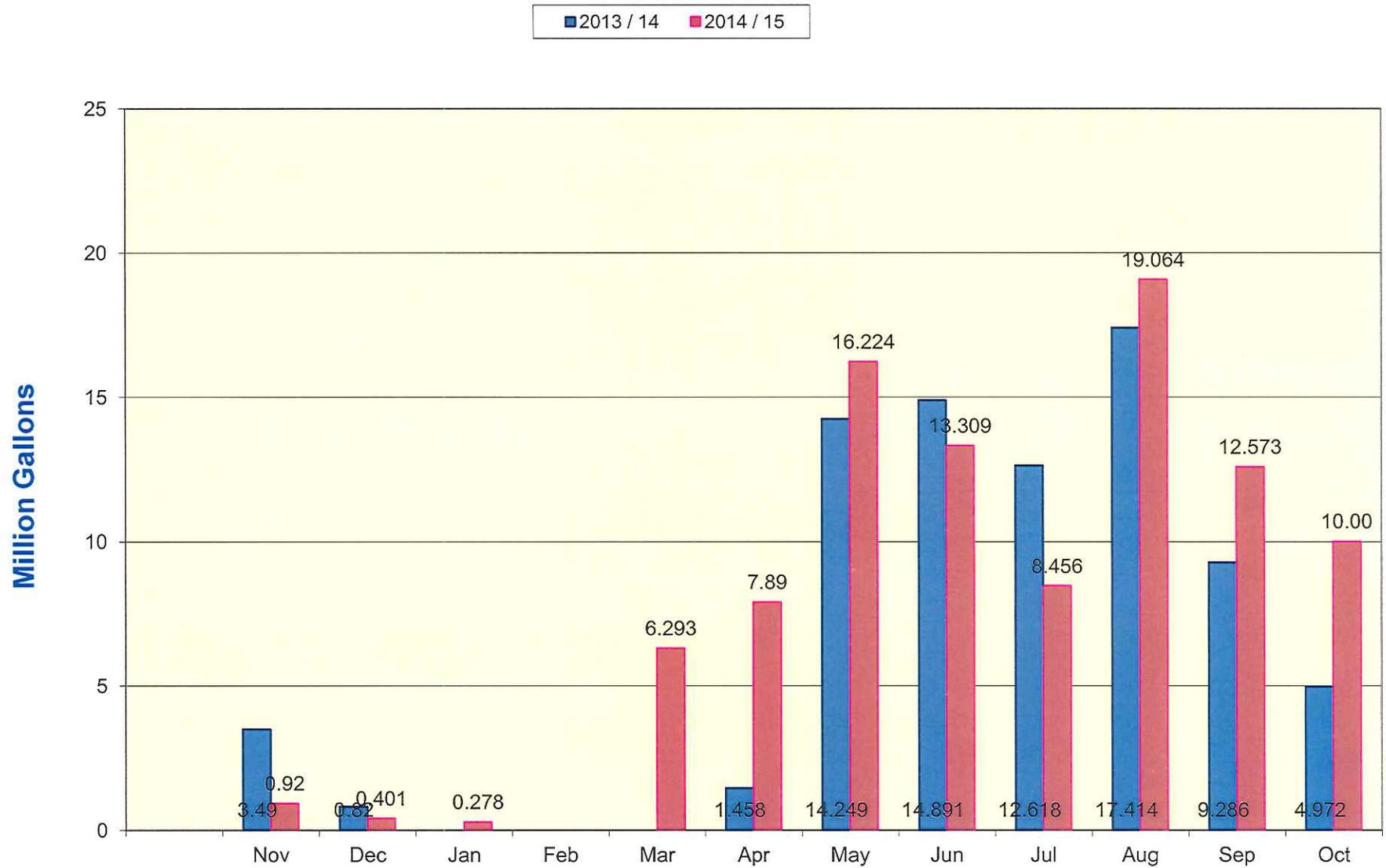
| Date | INFLUENT - A001 | | | Effluent - E002 | | | | | | | |
|----------------|-----------------|-----|---------|---------------------|--------|-------|-----|---------|----------------------|-----------------|-------|
| | Flow Total | pH | Ammonia | Coliform / Bacteria | | | pH | Ammonia | Unionized Ammonia | Oil & Grease | Temp |
| | | | | Fecal | Entero | Total | | | | | |
| | MGD | su | mg/L | MPN/100 mL | | | su | mg/L | mg/L | | Deg C |
| 10/01/15 | 3.17 | | | | | | 6.9 | | | | 24.0 |
| 10/02/15 | 3.26 | | | | | | 7.0 | | | | 24.2 |
| 10/03/15 | 3.11 | | | | | | | | | | |
| 10/04/15 | 3.15 | | | | | | | | | | |
| 10/05/15 | 3.37 | | | | | | 7.0 | | | | 24.7 |
| 10/06/15 | 3.31 | 7.2 | | | | | 7.0 | | | | 24.6 |
| 10/07/15 | 3.32 | | | | | 2 | 7.0 | | | | 23.8 |
| 10/08/15 | 3.12 | | | | | 13 | 7.0 | | | | 23.8 |
| 10/09/15 | 3.44 | | | | | 2 | 7.0 | | | | 24.9 |
| 10/10/15 | 3.67 | | | | | | | | | | |
| 10/11/15 | 3.66 | | | | | | | | | | |
| 10/12/15 | 3.65 | 7.0 | | | | 8 | 6.9 | | | | 24.8 |
| 10/13/15 | 3.51 | | | | | 4 | 7.0 | | | | 24.5 |
| 10/14/15 | 3.63 | | | | | 7 | 7.0 | | | | 24.5 |
| 10/15/15 | 3.71 | | | | | | 7.0 | | | | 24.8 |
| 10/16/15 | 3.45 | | | | | | 7.0 | | | | 24.8 |
| 10/17/15 | 3.92 | | | | | | | | | | |
| 10/18/15 | 3.69 | | | | | | | | | | |
| 10/19/15 | 3.91 | | | | | | 6.9 | | | | 23.9 |
| 10/20/15 | 3.54 | | | | | 2 | 7.0 | | | | 24.2 |
| 10/21/15 | 3.83 | | | | | | 6.9 | | | | 24.1 |
| 10/22/15 | 3.55 | 7.1 | | | | 13 | 7.0 | | | | 23.8 |
| 10/23/15 | 3.53 | | | | | 13 | 6.9 | | | | 24.2 |
| 10/24/15 | 3.41 | | | | | | | | | | |
| 10/25/15 | 4.12 | | | | | | | | | | |
| 10/26/15 | 3.15 | | | | | 8 | 6.9 | | | | 23.5 |
| 10/27/15 | 3.26 | | | | | 9 | 6.9 | | | | 23.6 |
| 10/28/15 | 2.95 | 7.2 | | | | | 6.9 | | | | 23.7 |
| 10/29/15 | 2.92 | | | | | 8 | 6.9 | | | | 23.7 |
| 10/30/15 | 2.98 | | | | | | 6.8 | | | | 24.2 |
| 10/31/15 | 2.97 | | | | | | | | | | |
| Monthly | | | | | | | | | | | |
| Minimum | 2.92 | 7.0 | | | | 2 | 6.8 | | | | 23.5 |
| Maximum | 4.12 | 7.2 | | | | 13 | 7.0 | | | | 24.9 |
| Total | 106.26 | | | | | | | | | | |
| Average | 3.43 | 7.1 | | | | | 7.0 | | | | 24.2 |

RECYCLED WATER REPORT

NOVATO SANITARY DISTRICT RECYCLED WATER COMPLIANCE SUMMARY REPORT

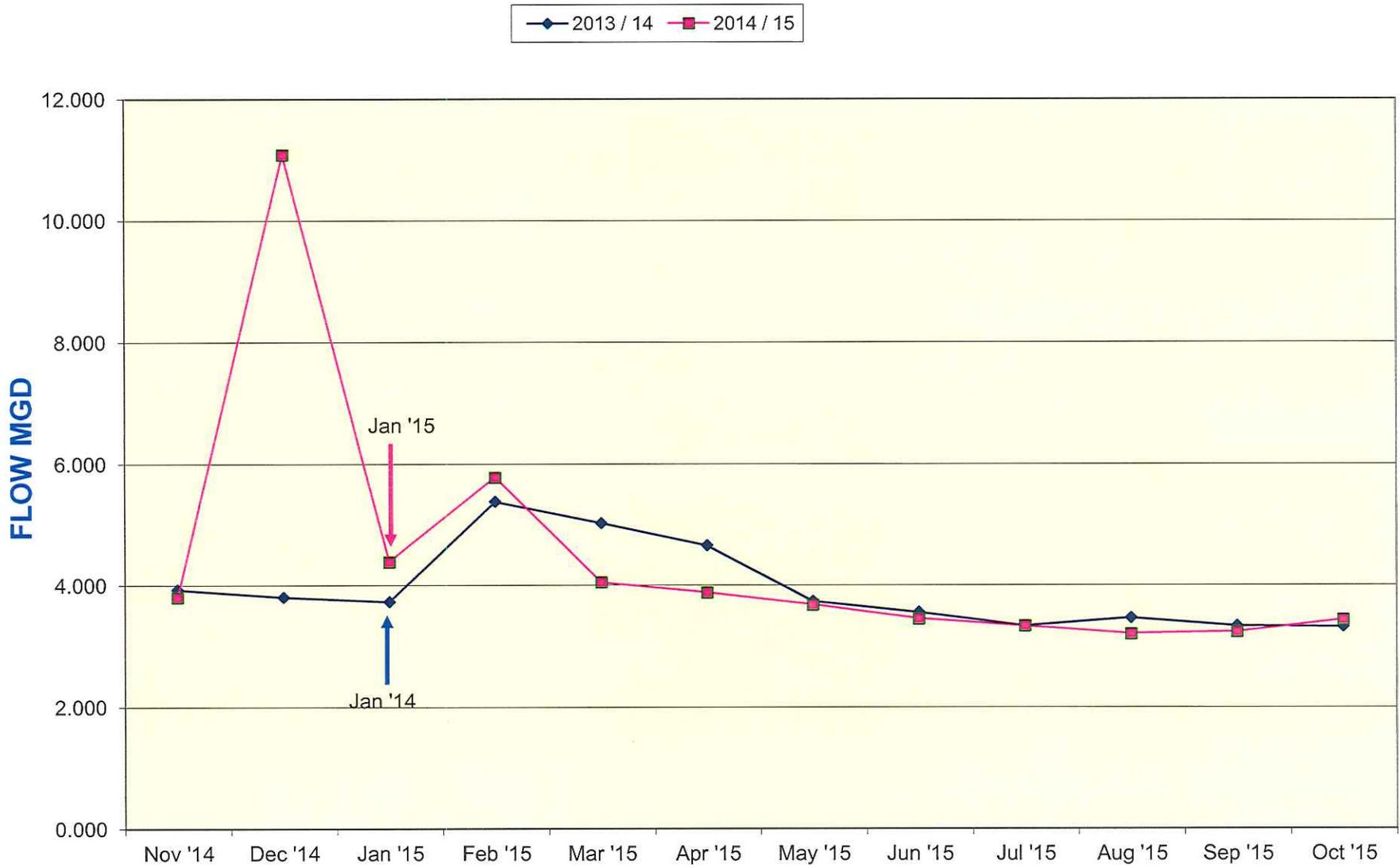
| Date | Filter Influent Flow | Recycled Water Flow to Plum St. | Recycled Water Banked | Banked Water To Plum Street Tank | Potable Water To Plum St Tank | Recycled Water Influent Turbidity Max | Recycled Water Influent Turbidity Ave. | Minutes Over 5 NTU Turbidity | Filter Effluent 24 Hr Average Turbidity | Recycled Water Inf Chlorine Dose | Filter Effluent Dissolved Oxygen | Filter Effluent Total Coliform | Chlorint Contact Time |
|--------------|----------------------|---------------------------------|-----------------------|----------------------------------|-------------------------------|---------------------------------------|--|------------------------------|---|----------------------------------|----------------------------------|--------------------------------|-----------------------|
| | MGD | MGD | MG | MGD | NTU | NTU | (m) | NTU | (mg/l) | (mg/l) | MPN/100m | Minutes | |
| 10/1/2015 | 0.640 | 0.515 | | | | 0.8 | 0 | 0.4 | | | <2 | >450.000 | |
| 10/2/2015 | 0.690 | 0.059 | | | | 0.5 | 0 | 0.3 | | | <2 | >450.000 | |
| 10/3/2015 | 0.750 | 0.636 | | | | 1.0 | 0 | 0.8 | | | <2 | >450.000 | |
| 10/4/2015 | 0.890 | 0.811 | | | | 1.2 | 0 | 1.0 | | | <2 | >450.000 | |
| 10/5/2015 | 0.650 | 0.479 | | | | 1.3 | 0 | 1.1 | | 8.9 | <2 | >450.000 | |
| 10/6/2015 | 0.720 | 0.604 | | | | 1.5 | 0 | 1.1 | | 8.4 | <2 | >450.000 | |
| 10/7/2015 | 0.670 | 0.591 | | | | 1.6 | 0 | 1.3 | | 8.6 | <2 | >450.000 | |
| 10/8/2015 | 0.590 | 0.530 | | | | 1.5 | 0 | 1.2 | | | <2 | >450.000 | |
| 10/9/2015 | 0.750 | 0.497 | | | | 1.3 | 0 | 0.9 | | | <2 | >450.000 | |
| 10/10/2015 | 0.650 | 0.291 | | | | 1.4 | 0 | 0.9 | | | <2 | >450.000 | |
| 10/11/2015 | 0.640 | 0.303 | | | | 1.9 | 0 | 1.0 | | | <2 | >450.000 | |
| 10/12/2015 | 0.660 | 0.248 | | | | 1.5 | 0 | 0.8 | | 8.9 | <2 | >450.000 | |
| 10/13/2015 | 0.650 | 0.326 | | | | 1.3 | 0 | 0.8 | | 8.4 | <2 | >450.000 | |
| 10/14/2015 | 0.650 | 0.267 | | | | 0.9 | 0 | 0.7 | | 8.7 | <1.8 | >450.000 | |
| 10/15/2015 | 0.640 | 0.270 | | | | 0.8 | 0 | 0.7 | | | <2 | >450.000 | |
| 10/16/2015 | 0.660 | 0.210 | | | | 0.8 | 0 | 0.7 | | | <2 | >450.000 | |
| 10/17/2015 | 0.650 | 0.231 | | | | 0.8 | 0 | 0.9 | | | <2 | >450.000 | |
| 10/18/2015 | 0.640 | 0.258 | | | | 0.8 | 0 | 0.9 | | | <2 | >450.000 | |
| 10/19/2015 | 0.640 | 0.263 | | | | 0.9 | 0 | 1.2 | | 9.1 | <2 | >450.000 | |
| 10/20/2015 | 0.650 | 0.253 | | | | 1.5 | 0 | 1.3 | | 8.9 | <2 | >450.000 | |
| 10/21/2015 | 0.600 | 0.242 | | | | 1.8 | 0 | 1.2 | | 8.8 | <2 | >450.000 | |
| 10/22/2015 | 0.580 | 0.326 | | | | 1.3 | 0 | 1.1 | | | <2 | >450.000 | |
| 10/23/2015 | 0.570 | 0.208 | | | | 1.7 | 0 | 1.1 | | | <2 | >450.000 | |
| 10/24/2015 | 0.580 | 0.227 | | | | 1.8 | 0 | 0.9 | | | <2 | >450.000 | |
| 10/25/2015 | 0.580 | 0.255 | | | | 1.9 | 0 | 0.9 | | 8.8 | <2 | >450.000 | |
| 10/26/2015 | 0.570 | 0.095 | | | | 1.7 | 0 | 0.9 | | 8.7 | <2 | >450.000 | |
| 10/27/2015 | 0.580 | 0.042 | | | | | 0 | 1.2 | | 8.9 | <2 | >450.000 | |
| 10/28/2015 | 0.630 | 0.000 | | | | | 0 | 1.3 | | | | | |
| 10/29/2015 | 0.640 | 0.468 | | | | 2.8 | 0 | 1.6 | | | <2 | >450.000 | |
| 10/30/2015 | 0.650 | 0.350 | | | | 2.6 | 0 | 1.4 | | | <2 | >450.000 | |
| 10/31/2015 | 0.680 | 0.144 | | | | 2.5 | 0 | 1.3 | | | <2 | >450.000 | |
| Total | 20.140 | 9.999 | | | | | | | | | | | |
| Minimum | 0.570 | 0.000 | | | | 0.5 | 0 | 0.3 | | 8.4 | <2 | >450.0 | |
| Maximum | 0.890 | 0.811 | | | | 2.8 | 0 | 1.6 | | 9.1 | <2 | >450.0 | |
| Average | 0.650 | 0.323 | | | | 1.4 | 0 | 1.0 | | 8.8 | <2 | >450.0 | |

RECYCLED WATER FLOW COMPARISON

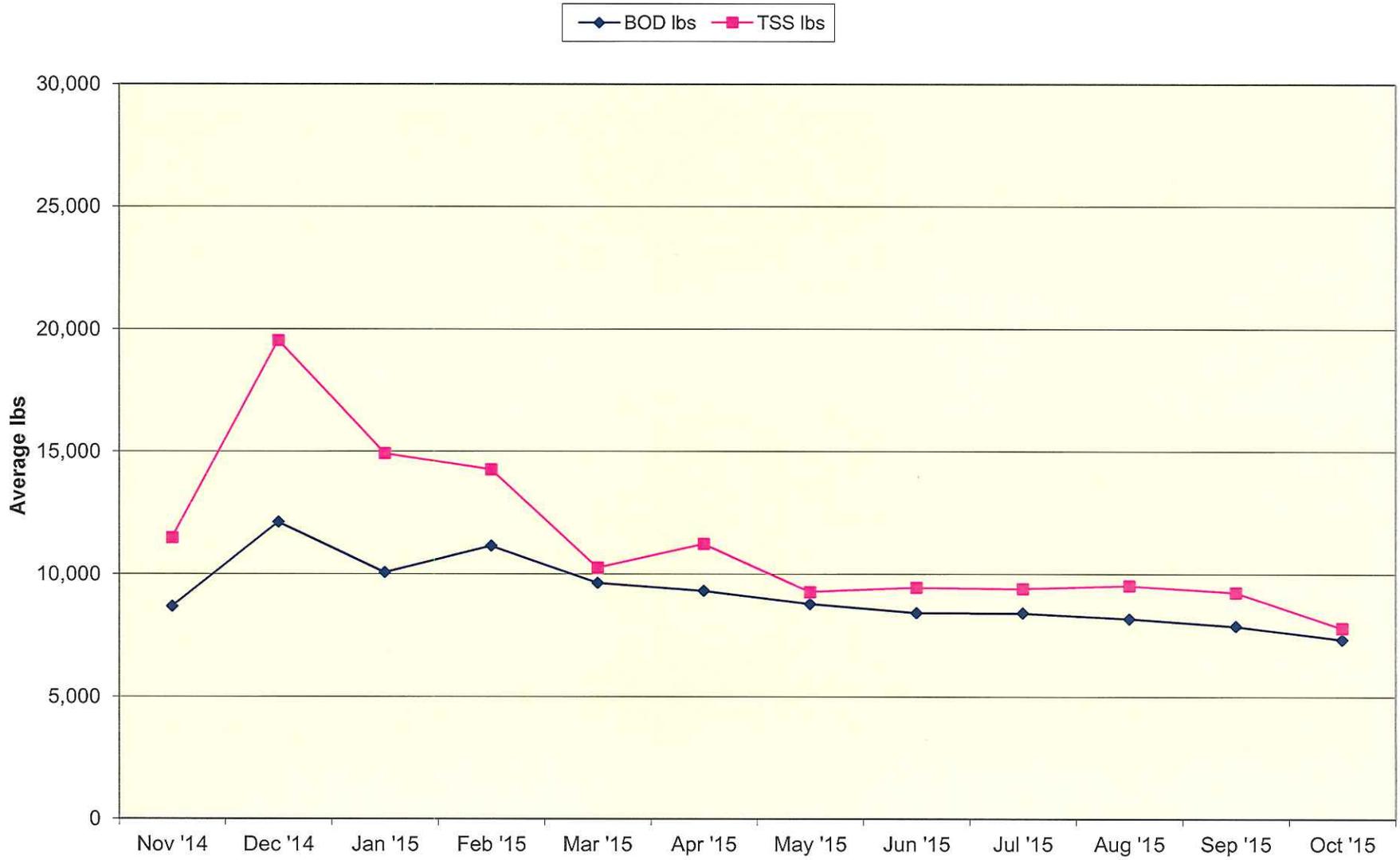


ANNUAL COMPLIANCE SUMMARY – GRAPHS

WASTEWATER INFLUENT FLOW COMPARISON



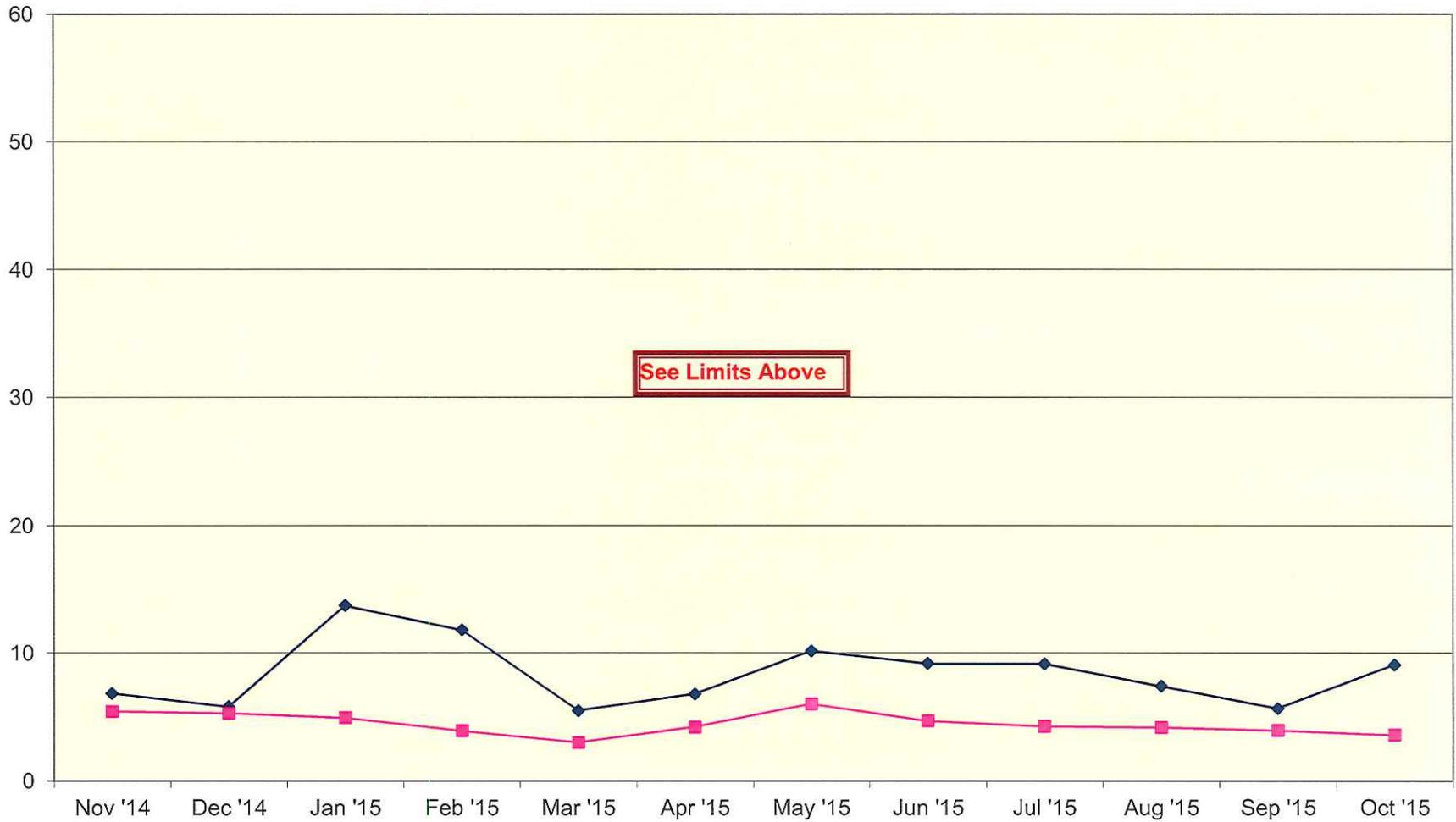
Influent Load BOD / TSS lbs



Effluent BOD / TSS Concentration

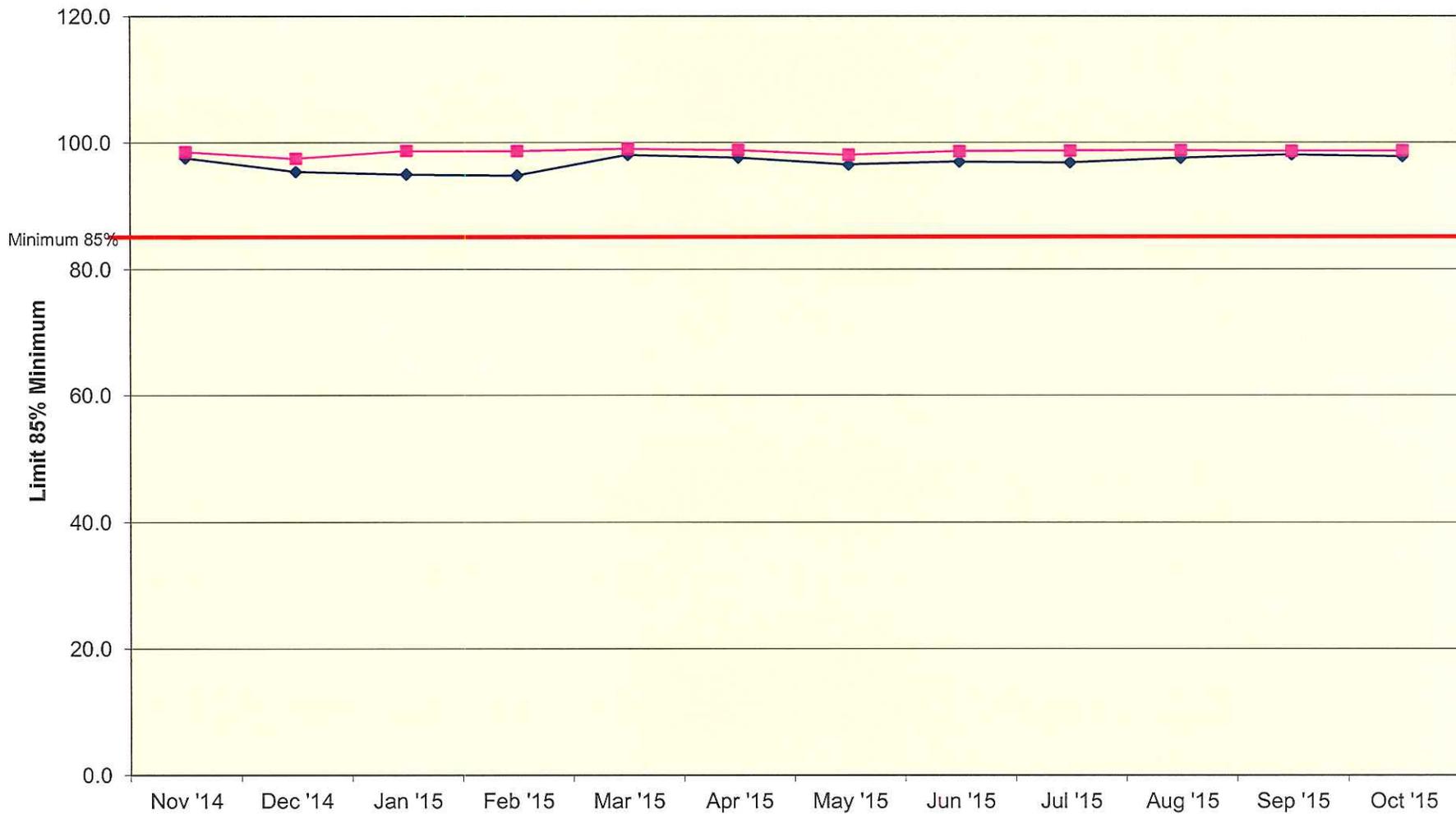
NPDES LIMITS WET SEASON
BOD & TSS - 30 mg/L Monthly Ave, 45 mg/L Weekly Ave
NPDES LIMITS DRY SEASON
BOD - 15 mg/L Monthly Ave, 30 mg/L Weekly Ave
TSS - 10 mg/L Monthly Ave, 20 mg/L Weekly Ave
WDR (Waste Discharge Requirements) RECLAMATION
BOD - 40 mg/L

◆ BOD ■ TSS



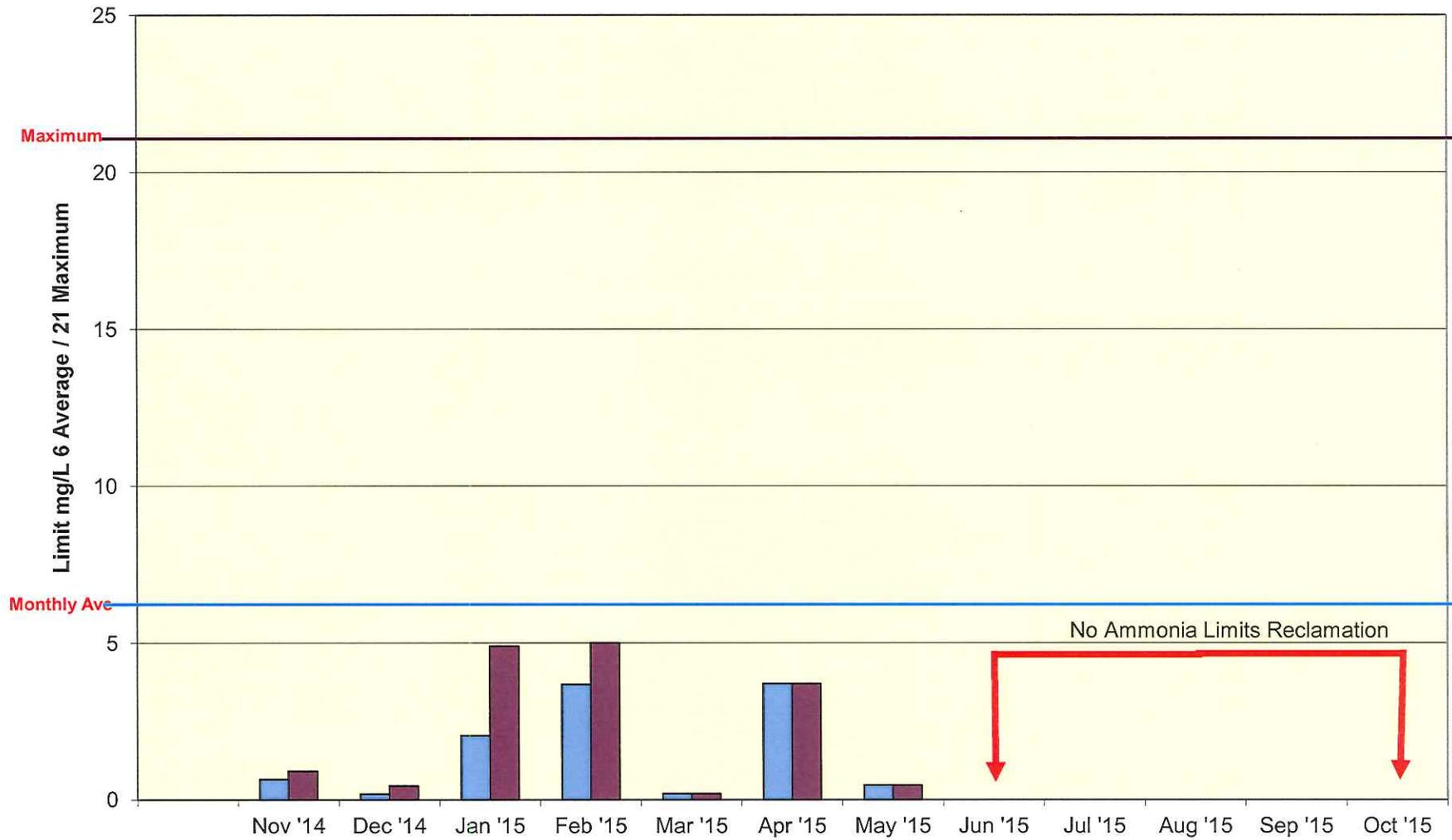
BOD / TSS Percent Removal

—◆— BOD —■— TSS



Effluent Ammonia

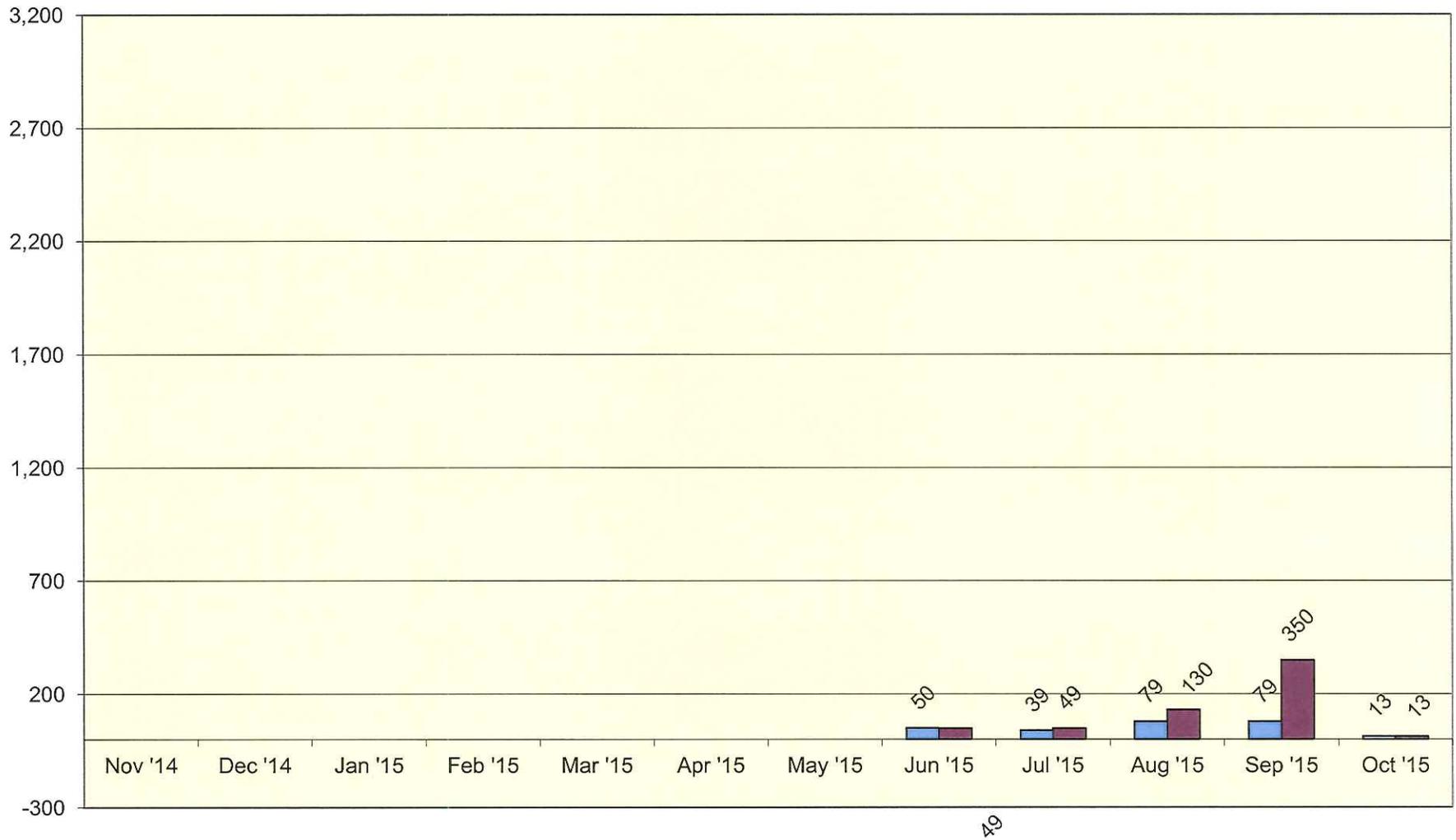
Average Maximum



Disinfection - Total Coliform

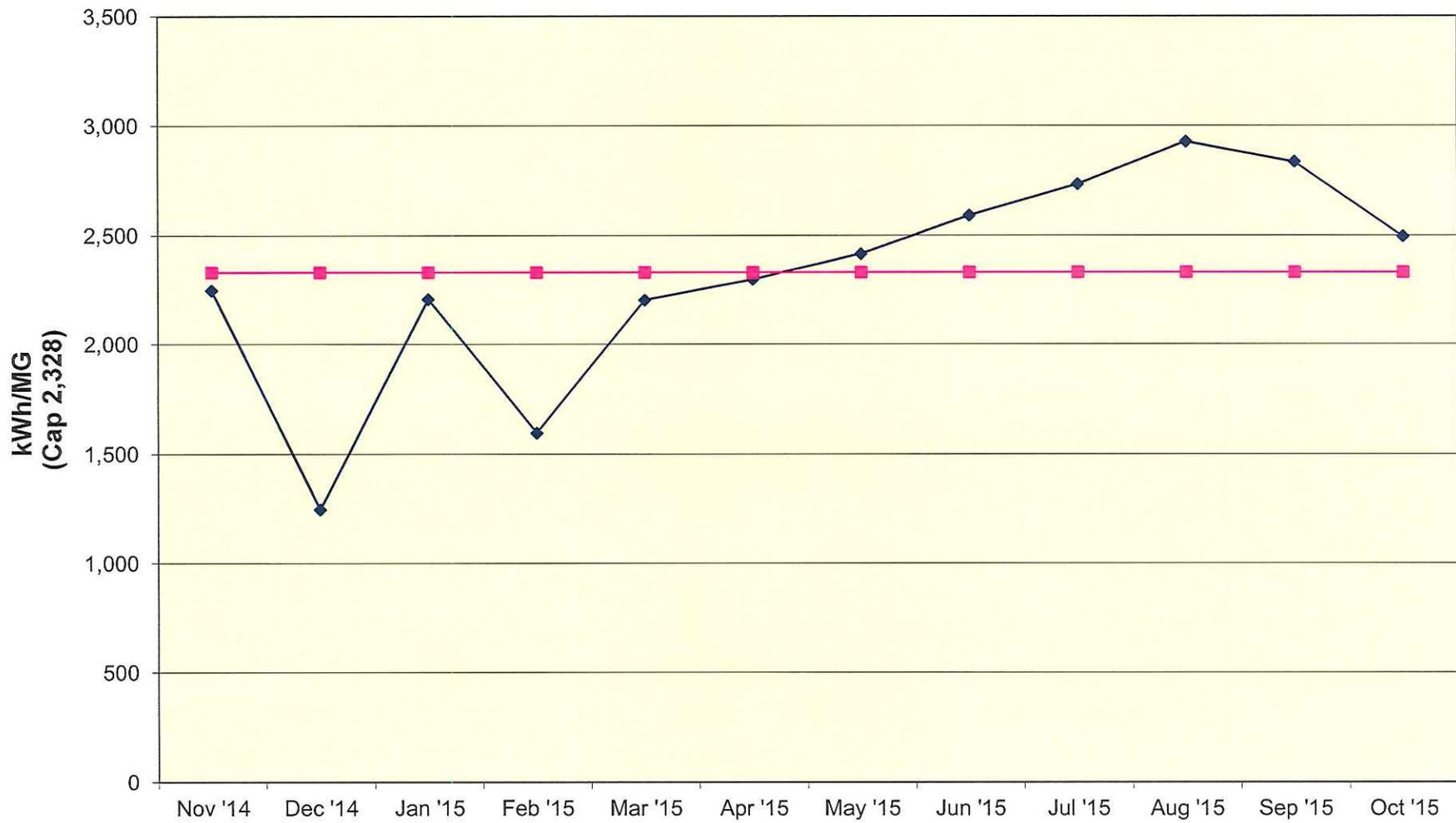
TOTAL COLIFORM LIMITS - WDR
5 Sample Median - 240 mpn /100 ml
Maximum - 10,000 mpn/100 ml

■ 5 Sampl Med ■ Monthly Max



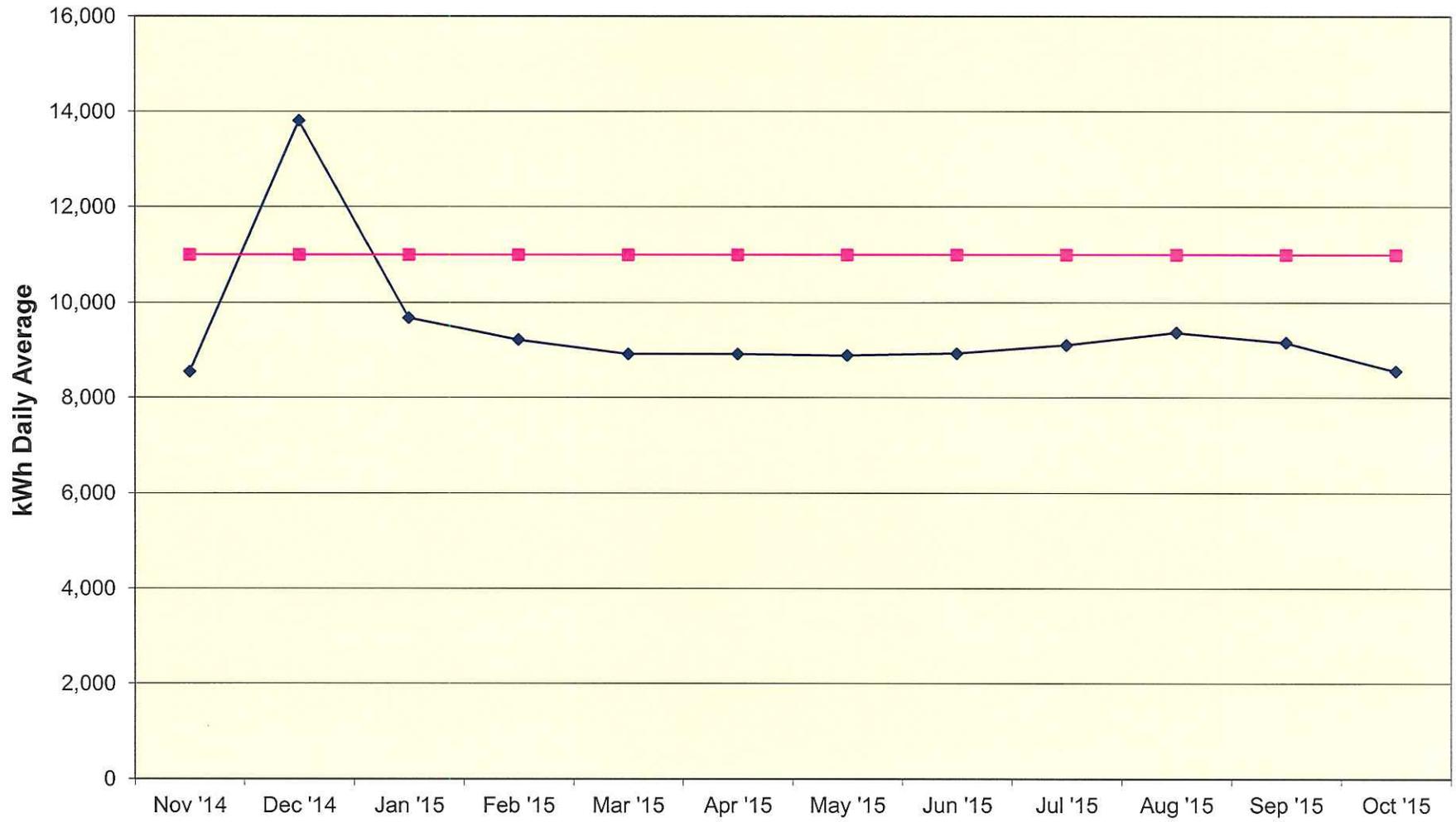
Energy kWh/MG

—◆— kW/MG —■— Cap

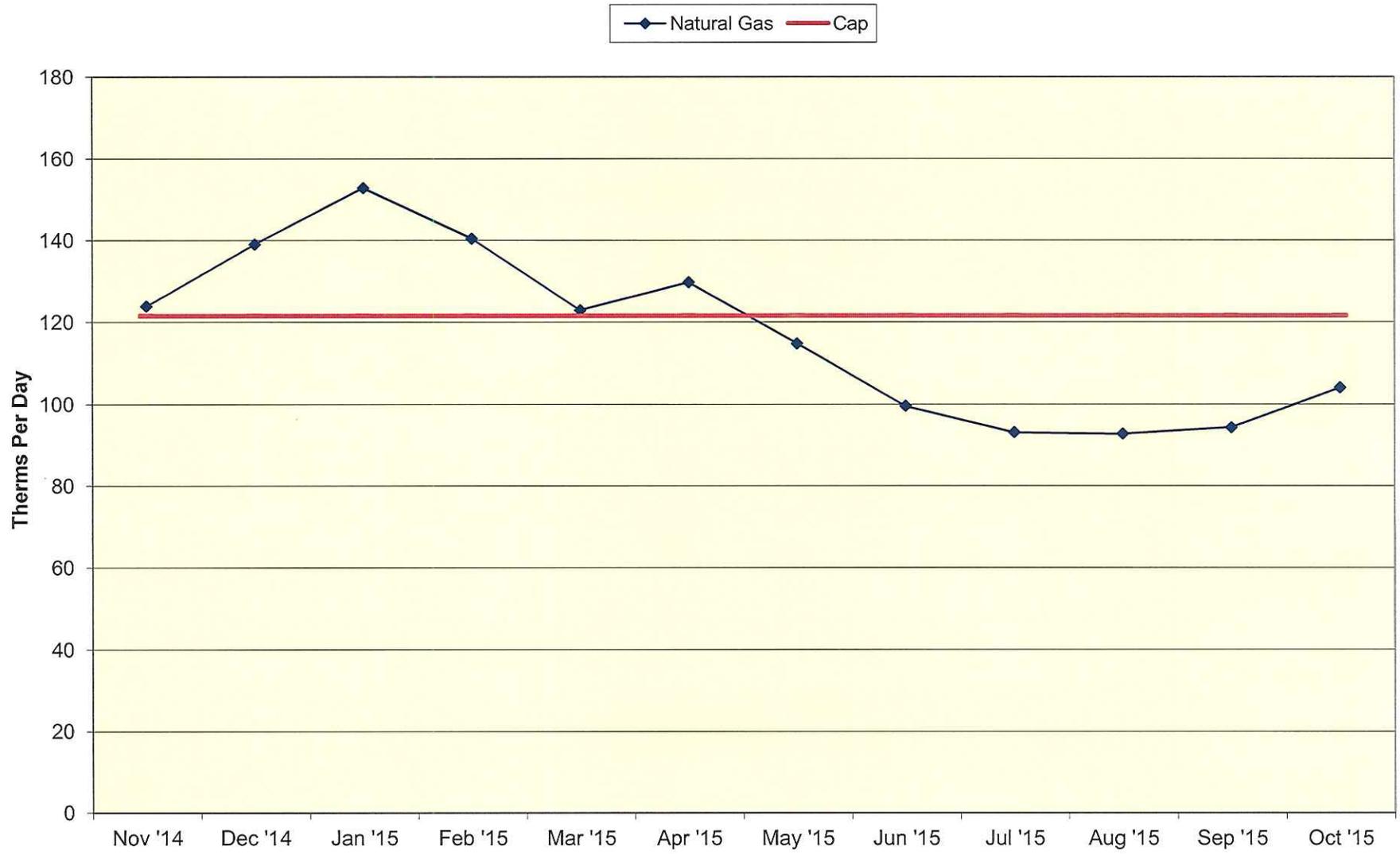


Energy kWh

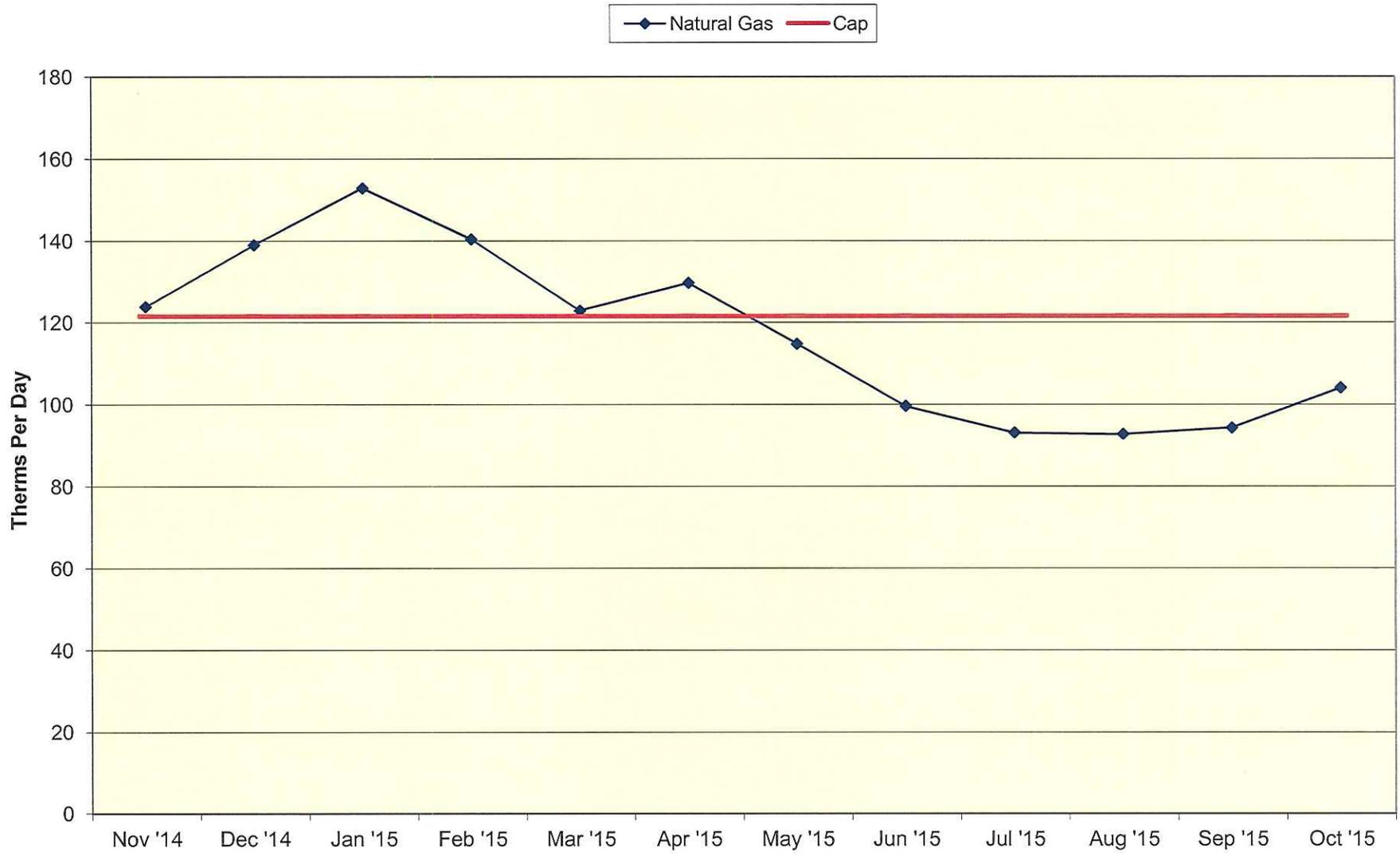
—◆— kWh —■— Cap



Natural Gas Use

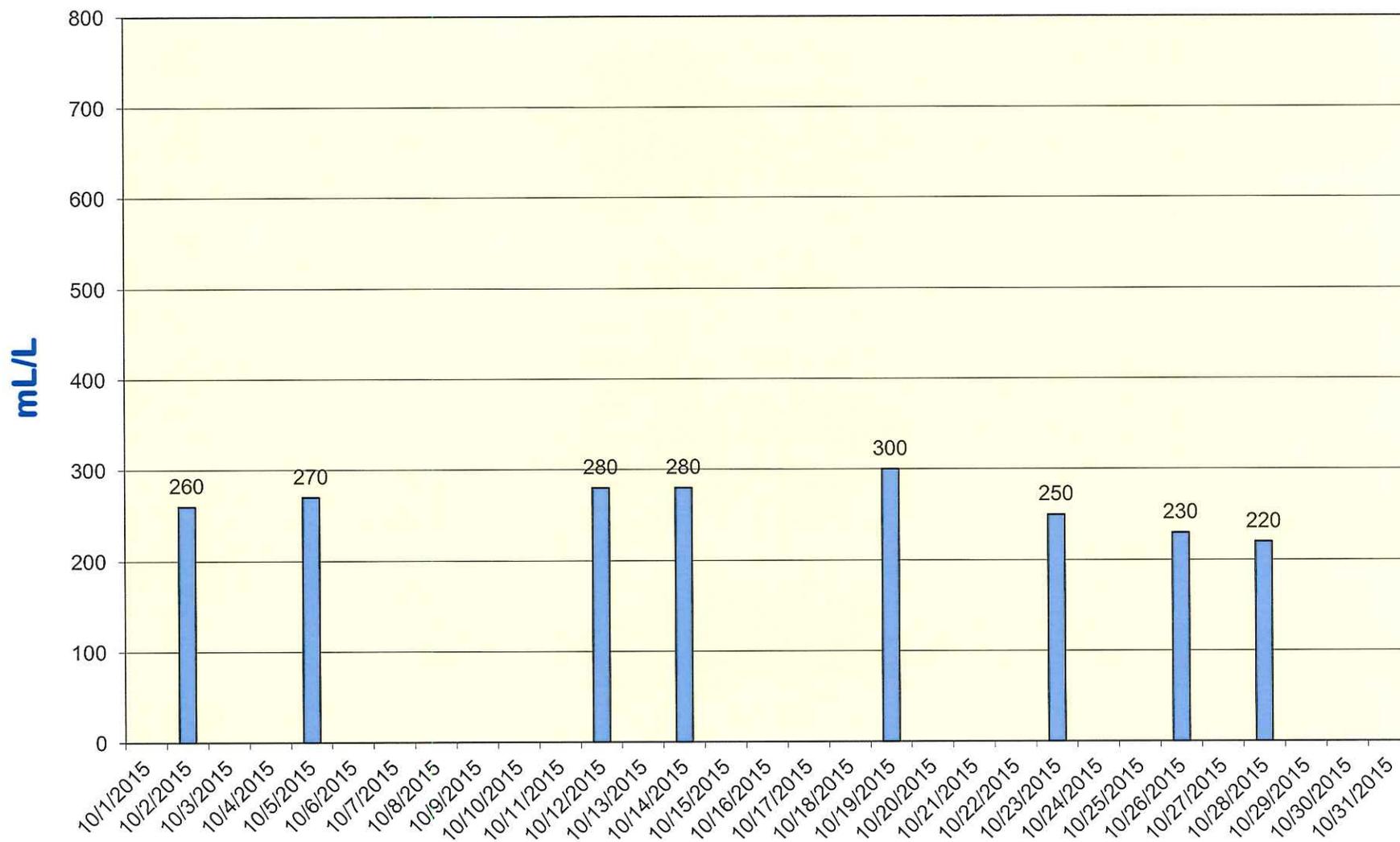


Natural Gas Use

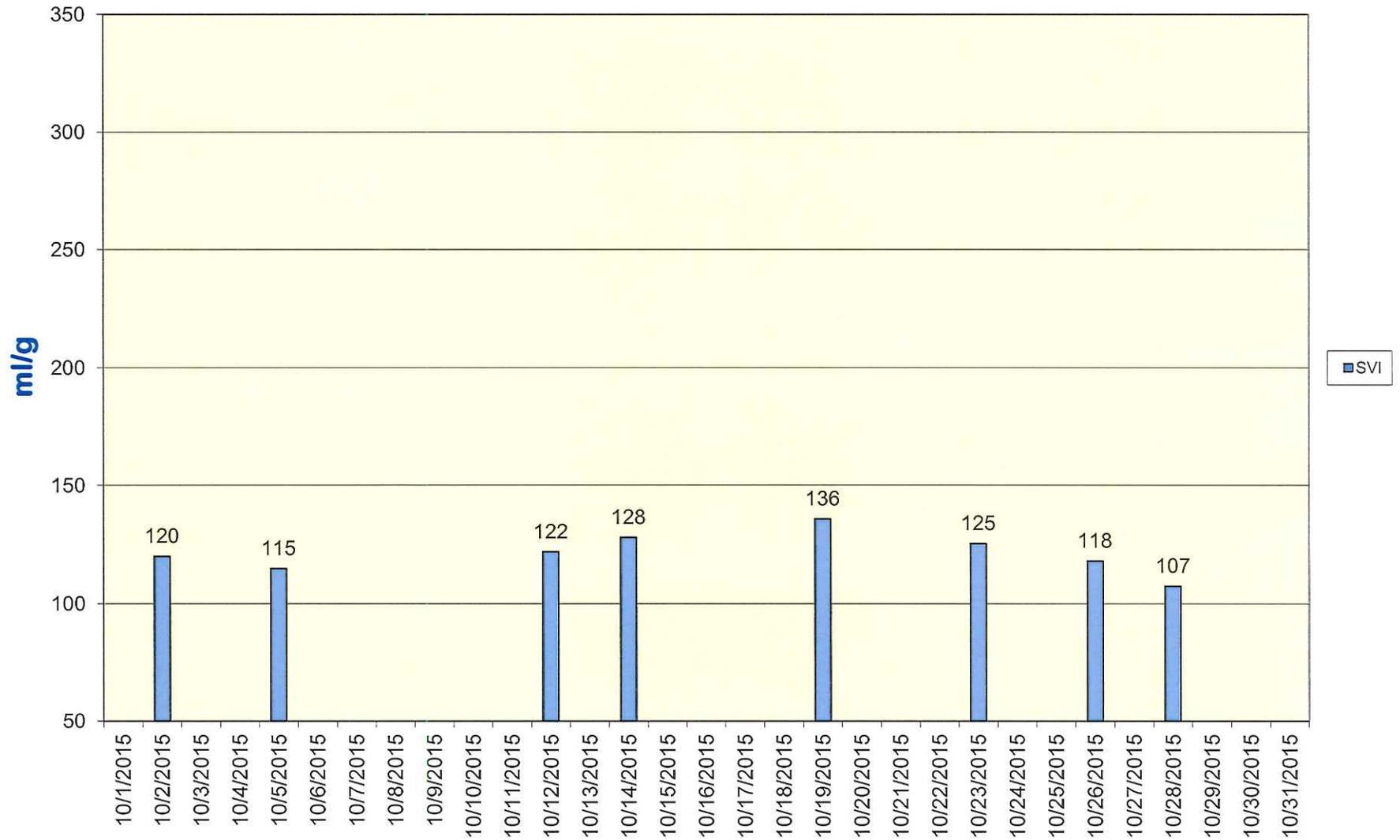


PROCESS CONTROL DATA / GRAPHS

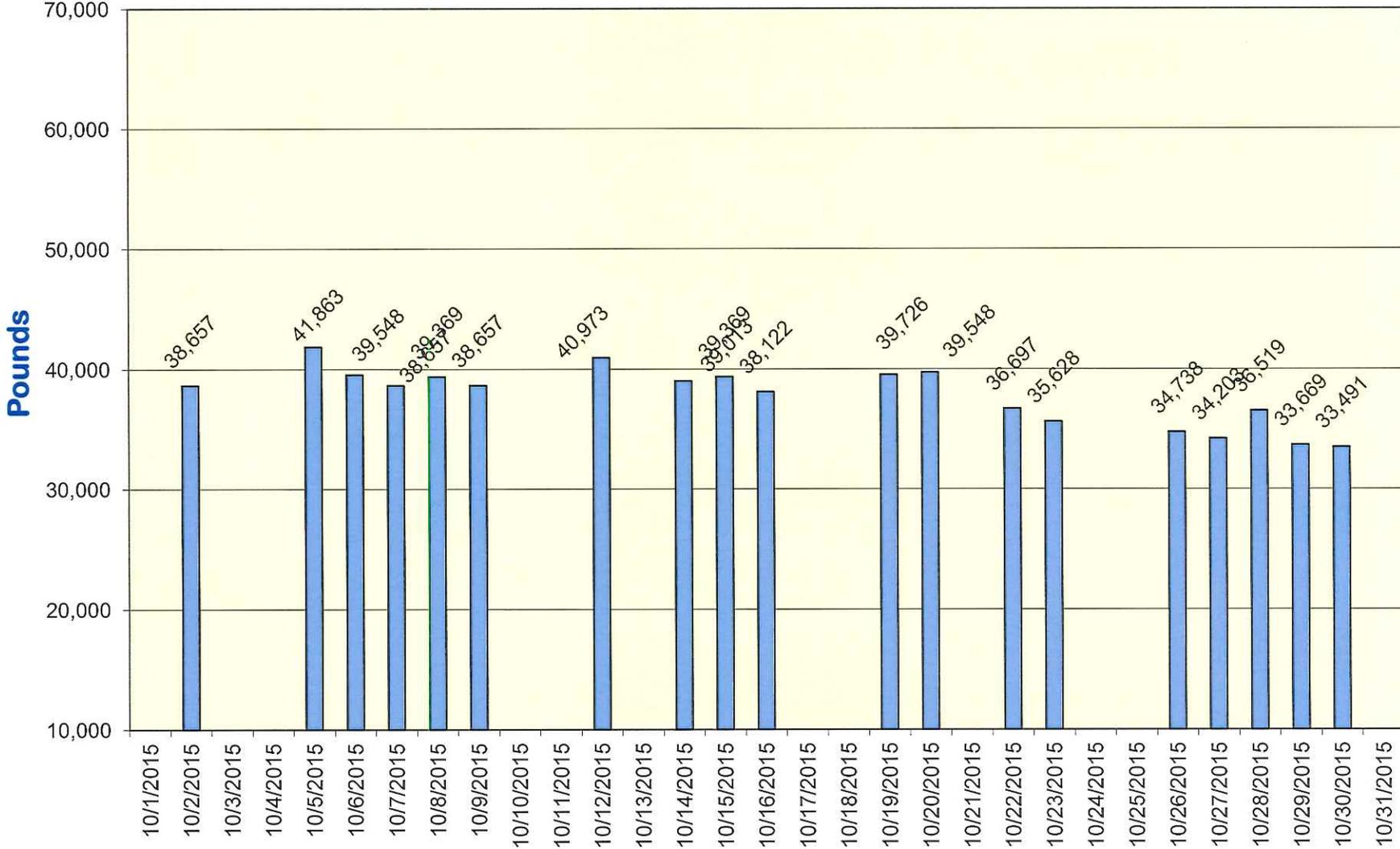
Settleability



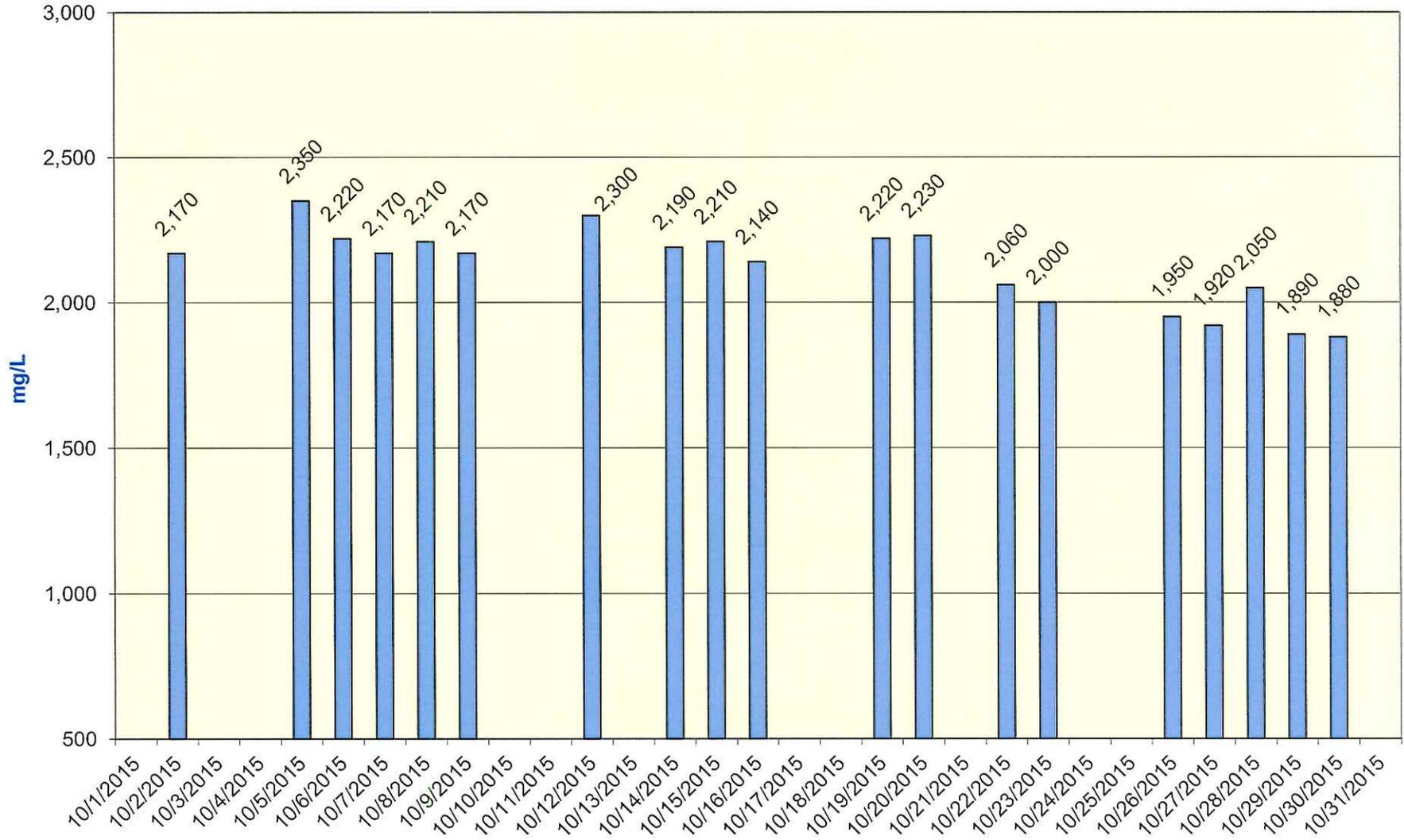
Sludge Volume Index



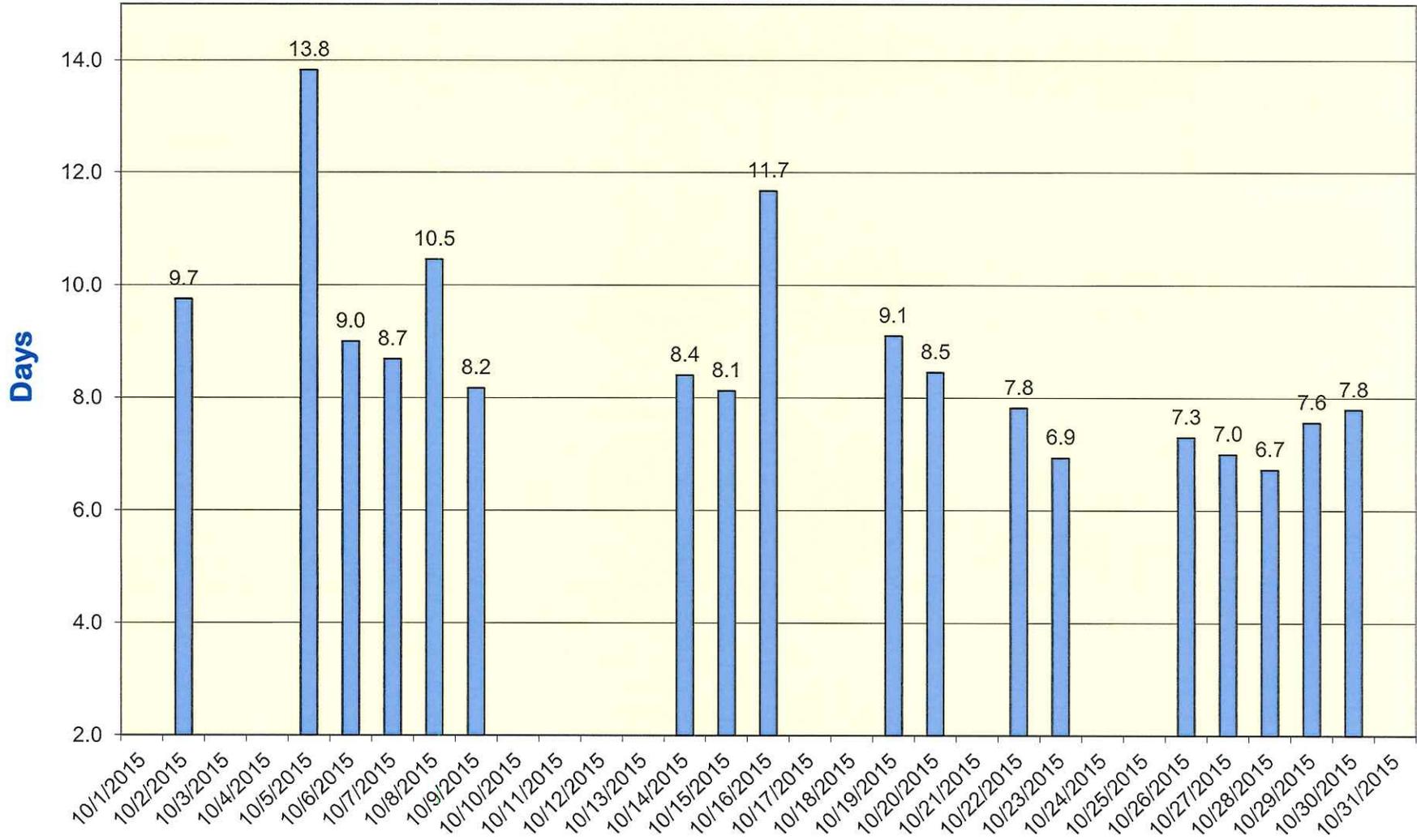
MLSS Inventory



MLSS Concentration



Mean Cell Residence Time

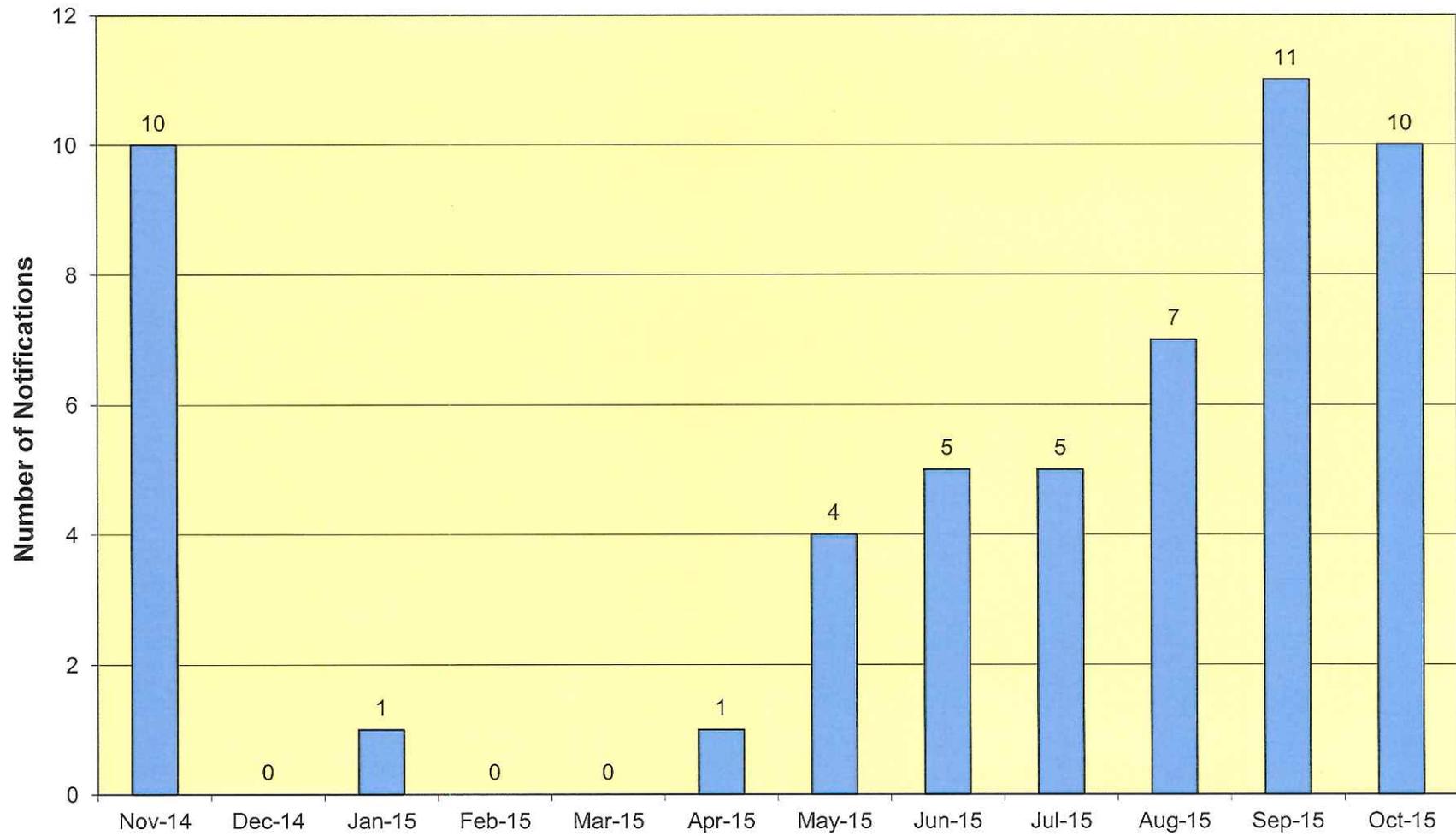


Process Control Data

| | Influent Flow | Settleability | MLSS Concentration | MLSS Inventory | F:M Ratio | MCRT | SVI |
|------------|---------------|---------------|--------------------|----------------|-----------|-------|-----|
| 10/1/2015 | 3.17 | | | | | | |
| 10/2/2015 | 3.26 | 260 | 2,170 | 38,657 | | 9.7 | 120 |
| 10/3/2015 | 3.11 | | | | | | |
| 10/4/2015 | 3.15 | | | | | | |
| 10/5/2015 | 3.37 | 270 | 2,350 | 41,863 | | 13.8 | 115 |
| 10/6/2015 | 3.31 | | 2,220 | 39,548 | | 9.0 | |
| 10/7/2015 | 3.32 | | 2,170 | 38,657 | | 8.7 | |
| 10/8/2015 | 3.12 | | 2,210 | 39,369 | | 10.5 | |
| 10/9/2015 | 3.44 | | 2,170 | 38,657 | | 8.2 | |
| 10/10/2015 | 3.67 | | | | | | |
| 10/11/2015 | 3.66 | | | | | | |
| 10/12/2015 | 3.65 | 280 | 2,300 | 40,973 | | | 122 |
| 10/13/2015 | 3.51 | | | | | | |
| 10/14/2015 | 3.63 | 280 | 2,190 | 39,013 | | 8.4 | 128 |
| 10/15/2015 | 3.71 | | 2,210 | 39,369 | | 8.1 | |
| 10/16/2015 | 3.45 | | 2,140 | 38,122 | | 11.7 | |
| 10/17/2015 | 3.92 | | | | | | |
| 10/18/2015 | 3.69 | | | | | | |
| 10/19/2015 | 3.91 | 300 | 2,220 | 39,548 | | 9.1 | 136 |
| 10/20/2015 | 3.54 | | 2,230 | 39,726 | | 8.5 | |
| 10/21/2015 | 3.83 | | | | | | |
| 10/22/2015 | 3.55 | | 2,060 | 36,697 | | 7.8 | |
| 10/23/2015 | 3.53 | 250 | 2,000 | 35,628 | | 6.9 | 125 |
| 10/24/2015 | 3.41 | | | | | | |
| 10/25/2015 | 4.12 | | | | | | |
| 10/26/2015 | 3.15 | 230 | 1,950 | 34,738 | 0.23 | 7.3 | 118 |
| 10/27/2015 | 3.26 | | 1,920 | 34,203 | | 7.0 | |
| 10/28/2015 | 2.95 | 220 | 2,050 | 36,519 | | 6.7 | 107 |
| 10/29/2015 | 2.92 | | 1,890 | 33,669 | | 7.6 | |
| 10/30/2015 | 2.98 | | 1,880 | 33,491 | | 7.8 | |
| 10/31/2015 | 2.97 | | | | | | |
| Minimum | 2.92 | 220.00 | 1,880.00 | 33,669 | 0.23 | 6.7 | 107 |
| Maximum | 4.12 | 300 | 2,350 | 41,863 | 0.23 | 13.8 | 136 |
| Total | 100.31 | 2,090 | 38,450 | 684,958 | 0.23 | 149.0 | 972 |
| Average | 3.46 | 261 | 2,136 | 38,053 | 0.23 | 8.8 | 121 |

CUSTOMER NOTIFICATIONS

Neighborhood Contacts Received



| WEEKLY NEIGHBOR CONTACT LOG | | | | | | | | | | | | | | | |
|-----------------------------|-------------------------------------|---------|-----|--------|-----|---------|-----|---------|-----|---------|-----|--------|-----|--------|-------|
| October 12, 2015 | October 12, 2015 - October 18, 2015 | | | | | | | | | | | | | | |
| NEIGHBOR | Mon | 12-Oct | Tue | 13-Oct | Wed | 14-Oct | Thu | 15-Oct | Fri | 16-Oct | Sat | 17-Oct | Sun | 18-Oct | Notes |
| | | Time | | Time | | Time | | Time | | Time | | Time | | Time | |
| Neighbor #1 | 1 | 8 23:00 | | | 1 | 1 23:30 | 1 | 1 23:00 | 1 | 1 7:00 | | | | | |
| | | | | | | | | | 1 | 1 16:00 | | | | | |
| Neighbor #2 | | | | | | | | | | | | | | | |
| Neighbor #3 | | | | | | | | | | | | | | | |
| Neighbor #4 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | | |

| Legend | |
|-------------------------|---|
| Description | |
| Aeration Basins | 1 |
| Raw Sewage | 2 |
| H2S | 3 |
| Aeration + Sewage | 4 |
| Aeration, Sewage, H2S | 5 |
| Sewage + H2S | 6 |
| Other (see notes) | 7 |
| Not Specified / Unknown | 8 |
| Intensity | |
| Mild Intermittent | 1 |
| Mild Persistent | 2 |
| Moderate Intermittent | 3 |
| Moderate Persistent | 4 |
| Strong Intermittent | 5 |
| Strong Persistent | 6 |
| Other (see notes) | 7 |
| Not Specified / Unknown | 8 |

| |
|---|
| Neighbor #1 - Email rec'd 10/12 - 2332 hours - Detecting odors this evening starting at around 11 pm. |
| Neighbor #1 - Email rec'd 10/16 - 0808 hours - We have been detecting Odors last couple of days ... classified as mild to moderate intermittent |
| Friday Morning 10/16 - around 7:00 - 8:00 am and late afternoon around 4:00 to 5:00 pm |
| Thursday Evening 10/15 - around 11:00 -12:00 pm |
| Thursday Evening 10/14 - around 11:30 - 12:00 pm |

| WEEKLY NEIGHBOR CONTACT LOG | | | | | | | | | | | | | |
|-----------------------------|-------------------------------------|------------|------------|------------|------------|------------|-----------|-------|--|--|--|--|--------------|
| October 26, 2015 | October 26, 2015 - November 1, 2015 | | | | | | | | | | | | |
| NEIGHBOR | Mon 26-Oct | Tue 27-Oct | Wed 28-Oct | Thu 29-Oct | Fri 30-Oct | Sat 31-Oct | Sun 1-Nov | | | | | | |
| | Time | Time | Time | Time | Time | Time | Time | Notes | | | | | |
| Neighbor #1 | | | 1 1 On Off | 1 3 7:00 | | | | | | | | | |
| Neighbor #2 | | | | | | | | | | | | | |
| Neighbor #3 | | | | 7 5 On Off | | | | | | | | | |
| Neighbor #4 | | | | 8 8 17:00 | | | | | | | | | Odor & Noise |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | |

Legend

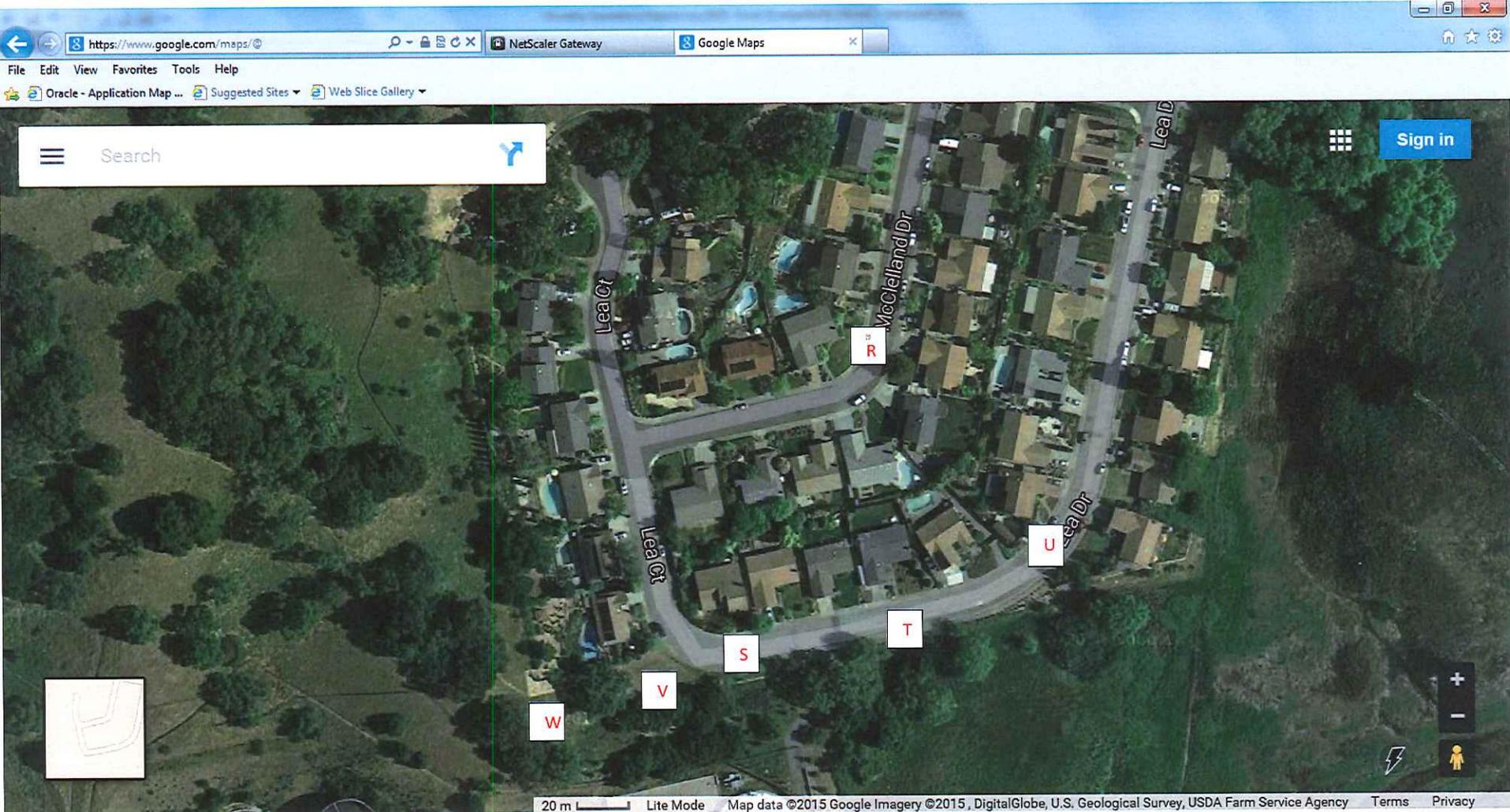
| Description | | |
|-------------------------|---|--|
| Aeration Basins | 1 | (Neighbor #1 - Email received @ 0014 hours, 10/29) - I been out working in the yard all day and evening ... detected odors on & off all day (Wednesday 10/29) starting from 10 am to midnight. Classified as Mild intermittent. (Wednesday, 10/28) - |
| Raw Sewage | 2 | (Neighbor #1 - Email received @ 0826 hours, 10/29) - Picking Odors as of 7 am this morning. Classified as mild to moderate intermittent . |
| H2S | 3 | |
| Aeration + Sewage | 4 | (Neighbor #3 - Email received @ 0849 hours, 10/29) - Yes, the saga continues...we have also been experiencing mild to strong headworks & bio-bed odors the past couple days – on/off during the day and later evening, especially. |
| Aeration, Sewage, H2S | 5 | |
| Sewage + H2S | 6 | |
| Other (see notes) | 7 | Response - Went out to meet with Neighbor on morning of 10/29. No odors at that time, Jerome indicated 0.000 at that location. All neighborhood locations 0.000 with the exception of S which was 0.007. Neighbor #1 indicated a short term odor on 10/29 that was observed in second story bedroom but not present outdoors or on ground floor. |
| Not Specified / Unknown | 8 | |
| Intensity | | |
| Mild Intermittent | 1 | (Neighbor #4 - Email received @ 1054 hours, 10/29) - We have also noticed the Odors, had company around 5 Wednesday and they were surprised by the "bad smell. |
| Mild Persistent | 2 | Also constant noise. |
| Moderate Intermittent | 3 | |
| Moderate Persistent | 4 | |
| Strong Intermittent | 5 | |
| Strong Persistent | 6 | |
| Other (see notes) | 7 | |
| Not Specified / Unknown | 8 | |

JEROME METER READINGS & LOCATIONS

JEROME METER READINGS - OCTOBER 2015

| Sample Location | Min | Max | Ave | NOTES / COMMENTS |
|---------------------------------------|-------|-------|-------|------------------|
| A: Influent Pump Station | 0.000 | 0.003 | 0.002 | |
| B: Septage Dumpster | 0.000 | 0.004 | 0.002 | |
| C: Primary Clarifier #1 Odor Bed | 0.000 | 0.720 | 0.124 | |
| D: Primary Clarifier #1 | 0.000 | 0.028 | 0.006 | |
| E: Headworks | 0.000 | 0.008 | 0.003 | |
| F: Primary Clarifier #2 Odor Bed West | 0.000 | 0.007 | 0.003 | |
| G: Primary Clarifier #2 Odor Bed East | 0.000 | 0.003 | 0.002 | |
| H: Primary Clarifier #2 | 0.002 | 0.003 | 0.003 | |
| I: Influent Odor Bed | 0.000 | 0.005 | 0.002 | |
| J: Behind Aeration Basins | 0.000 | 1.200 | 0.202 | |
| K: Between Aeration Basins 3 & 4 | 0.000 | 0.003 | 0.001 | |
| L: Between Aeration Basins 1 & 2 | 0.000 | 0.006 | 0.002 | |
| M: Digester Odor Bed | 0.000 | 0.003 | 0.001 | |
| N: Digester #2 | 0.000 | 0.003 | 0.001 | |
| O: Flare Stack | 0.000 | 0.003 | 0.001 | |
| P: Digested Sludge Transfer Pit | 0.000 | 0.004 | 0.001 | |
| Q: Digester #1 | 0.000 | 0.005 | 0.002 | |
| R: McLelland | 0.000 | 0.003 | 0.001 | Neighborhood |
| S: Lea 1 | 0.000 | 0.003 | 0.001 | Neighborhood |
| T: Lea 2 | 0.000 | 0.003 | 0.001 | Neighborhood |
| U: Lea 3 | 0.000 | 0.003 | 0.001 | Neighborhood |
| V: Lea 4 | 0.000 | 0.000 | 0.000 | Neighborhood |
| W: Lea 5 | 0.000 | 0.003 | 0.001 | Neighborhood |
| Primary Clarifier #1 Headspace | 0.000 | 0.000 | 0.000 | Scrubbed Space |
| Primary Clarifier #2 Headspace | 0.003 | 0.003 | 0.003 | Scrubbed Space |
| | | | | |
| | | | | |
| | | | | |

NEIGHBORHOOD JEROME METER LOCATIONS – LEA AND McCLELLAND.



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

1.0 Background

As mentioned in prior reports, the District has 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.

In addition, Veolia staff continues to maintain the on-going operation of the odor control facilities. Similarly, District staff continues to work on the landscaping, especially at the fence-line area next to the Lea Drive neighborhood, and at the northeast portion of the Novato Treatment Plant (NTP) site.

2.0 Odor control

Activities related to maintenance of the odor control facilities in October included:

- The District's odor consultant Mr. David McEwen of Brown and Caldwell is reviewing data from the test period for a pilot odor control unit. As discussed in the September report, operations staff assisted Mr. McEwen in installing a pilot odor control system at the Headworks area. The system utilized a chemical system to feed a mist of sodium hypochlorite and sodium hydroxide. The chemicals were fed at a controlled rate into the headspace of the headworks area to neutralize odor causing compounds. The test was conducted for about a week (two weeks including mobilization/demobilization), and other than operations staff time and small amounts of power and water, was entirely funded by Brown and Caldwell under one of their innovative technology grant programs.
- Operations staff continued to monitor media in the large odor control bed between primary clarifiers #1 & #2. The media for this bed, as well as all for the other odor beds, was topped off in the summer, and all seem to be functioning well.
- In response to Board member comments at the October 26, 2015 Board meeting, Veolia Water operations staff reviewed and revised the methodology for reporting odor contacts received from the neighborhood. The revised reports are presented in the Treatment Facilities Monthly Operations report from Veolia Water. Operations staff also continued to take additional Jerome meter readings in the neighborhood as requested by the Committee earlier in the summer. Staff also continued to use the Aqua-Fog system continues as needed (from a prior recommendation by Mr. McEwen).
- Pre-chlorination: Sodium hypochlorite continues to be added as an oxidizer on an as-needed basis to the influent flow, with operations staff monitoring performance (from another prior recommendation by Mr. McEwen).

3.0 Landscaping

District staff continues to work with its landscaping contractor Cagwin and Dorward (C&D) on an as-needed/as-directed basis on the landscaping and vegetation at the District's fence-line on Lea Drive, and at the northeast corner area of the NTP. The redwood trees in the northeast corner of the plant site, and the site vegetation continue to be irrigated with recycled water. Staff will be reviewing possible additional oleander plantings with the landscape contractor in response to a neighborhood compliments and request for more Oleander plantings.

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

1.0 General:

An equivalent of about six (6) full time employees (FTE) worked in the Collection System Department during the month of October. The breakdown of staff time for the month in terms of equivalent full-time employee hours utilized, works out approximately as follows:

- 1.8 FTE field workers for Sewer Maintenance (main line cleaning)
- 1.1 FTE field workers for Pump Station Maintenance
- 0.6 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, or special activities (for e.g. smoke testing of mainlines), and
- An equivalent of 1.0 FTE field workers for vacation, holiday or sick leave.

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 344 work orders were generated for October by the ICOM3 Computerized Maintenance Management System (CMMS). Staff completed 319 work orders leaving twenty-five (25) work orders outstanding. The 319 maintenance work orders completed in October resulted in 62,391 feet of sewer pipelines cleaned by staff.

CCTV Performance:

The District's CCTV van was in the field for 12 working days inspecting 88 line segments totaling 10,957 feet. Staff also televised 16 line segments totaling 3,074 feet using the Push Cam, with 12 of the line segments totaling 2,649 feet performed in lieu of hand rod work.

CCTV Findings:

- Infrastructure related: The October CCTV identified 4 line segments that will require spot repairs or replacement, which will be appropriately prioritized under the District's Annual Collection System Repairs Project, Account No. 72805. Three of these line segments will be abandoned when the City of Novato's Novato Boulevard Improvement Project is completed in the next few years.

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

- O&M related: The October 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 213 lift station inspections this month. 89 of the inspection visits were generated through the District's JobsCal Plus CMMS system. There are 14 outstanding work orders for the month, 7 corrective and 7 preventive. A Collection Systems (Pump Stations) Work Order Statistics summary is attached.

In addition to normal maintenance activities, District staff performed the following:

- Staff received training on a new Programmable Logic Controller (PLC) that was installed this month. This PLC will provide real-time data to staff remotely.
- Staff re-installed Pump No. 2 at the Olive Ridge Pump Station after it was returned from the repair shop.
- Staff responded to two planned power outages at Bahia Pump Station No. 1.
- Staff responded to a power outage at Olive Street Pump Station. The power failure was caused by PG&E equipment failure on the power pole feeding the pump station.

4.0 Air Relief/Vacuum Valves (ARVs):

Staff completed maintenance inspections on 8 air relief/vacuum valves.

5.0 Safety and Training:

General:

Collection System staff attended 4 safety tailgate meetings.

Specialized training:

- One staff member attended CWEA's Safety Day in Woodland.
- All staff members received training on Fire Prevention & Hot Work.
- Management staff received training on Cal OES's Incident Command System.
- All staff members received training and were drilled on bypass pumping of a small pump station (Photo 1).
- All staff members attended a safety luncheon that included a Wellness Program update by Dale Thrasher, the Safety Coordinator for the District.



Photo 1- Bypass pumping drill at Deer Island Pump Station

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

Safety performance:

There were no lost time accidents this month for a total of 1,693 accident free days since the last lost time accident.

6.0 Minor Projects:

- A contractor replaced a rod inlet in an easement adjacent to 851 Hayden Avenue.
- The Olive Avenue Roof Replacement Project was completed this month (Photo 2).



Photo 2 - New roof access hatch at Olive Street Pump Station

7.0 Standard Operating Procedures (SOPs):

No new core SOPs were identified, and as development of lower priority SOPs is being balanced against workload priorities, department staff did not generate any new SOPs in October.

Also, the recently completed draft Core Competency Checklist continues to be used to track the initial training of a recently hired employee, and lessons learned will be incorporated in the final version, which will be used to track the training of all department employees. Staff will also develop a similar draft checklist to use for tracking annual checks of Collections Department employees to determine where annual training is necessary.

8.0 Sanitary Sewer Overflows (SSOs):

There were no (zero) SSOs in October.

**Novato Sanitary District
Collection System Monthly Report For October 2015 (as of October 31, 2015)**

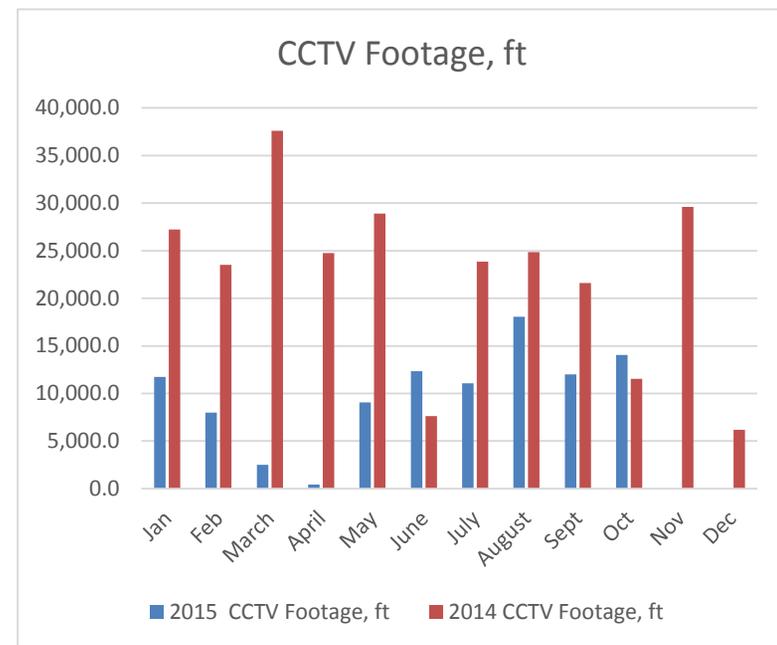
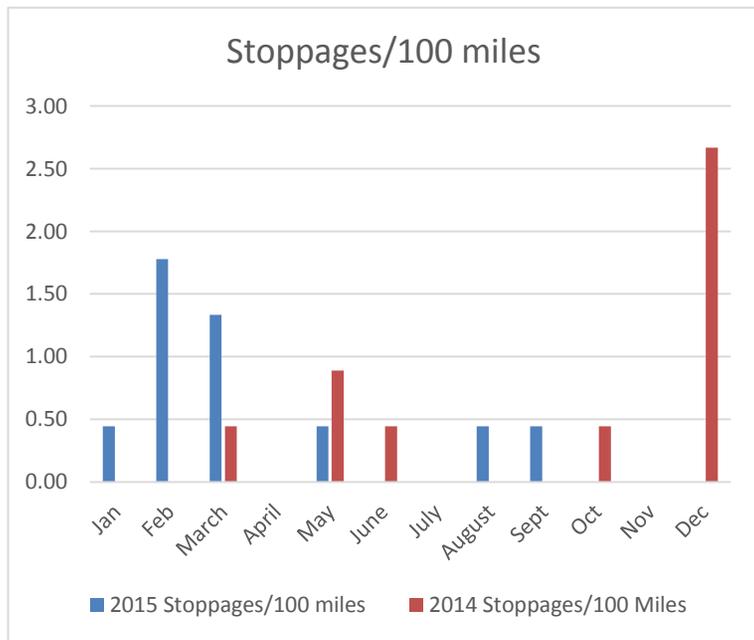
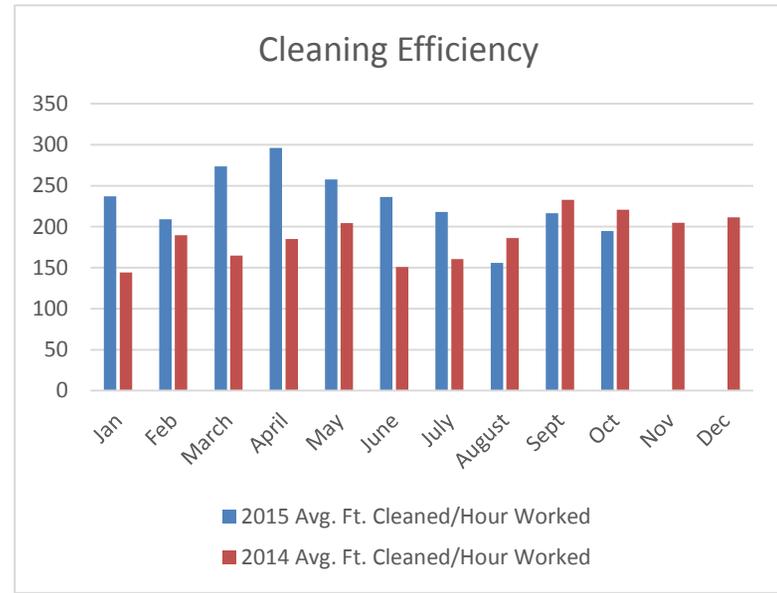
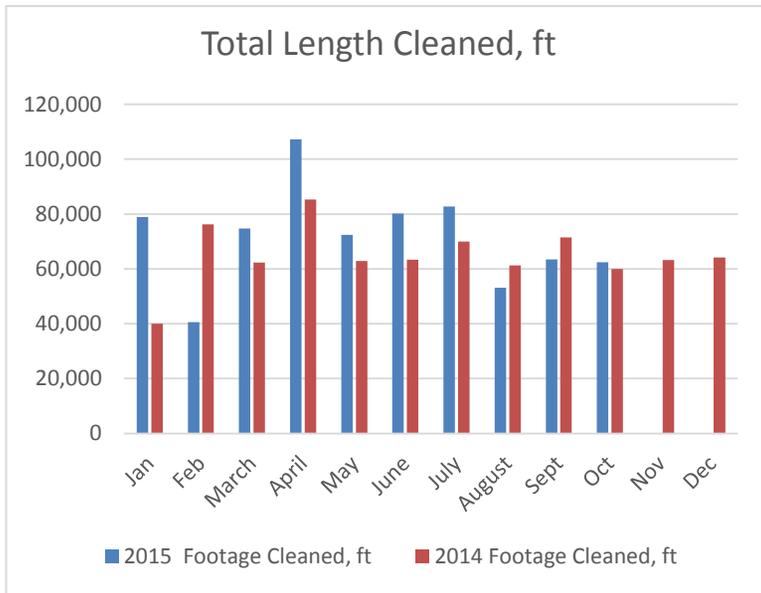
| | Jan | Feb | March | April | May | June | July | August | Sept | Oct | Nov | Dec | Total Year to Date | Average Year to Date |
|---|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|-----|-----|--------------------|----------------------|
| A. Employee Hours Worked | | | | | | | | | | | | | | |
| Number of FTEs (main line cleaning), hrs. | 1.9 | 1.2 | 1.5 | 2.2 | 1.7 | 1.9 | 2.1 | 2.0 | 1.6 | 1.8 | 0.0 | 0.0 | NA | 1.5 |
| Number of FTEs (other) | 1.6 | 2.1 | 1.8 | 2.0 | 1.9 | 2.1 | 2.4 | 2.3 | 2.8 | 2.1 | 0.0 | 0.0 | NA | 1.8 |
| Number of FTEs (CCTV) | 0.1 | 0.2 | 0.0 | 0.0 | 0.4 | 0.4 | 0.2 | 0.4 | 0.5 | 0.6 | 0.0 | 0.0 | NA | 0.2 |
| Total, FTEs | 3.6 | 3.5 | 3.4 | 4.2 | 4.0 | 4.5 | 4.7 | 4.7 | 5.0 | 4.5 | 0.0 | 0.0 | NA | 3.5 |
| Regular Time Worked, (main line cleaning), hrs | 333 | 194 | 273 | 363 | 281 | 339 | 380 | 341 | 293 | 321 | | | | |
| Regular Time Worked on Other, hrs (1) | 281 | 329 | 320 | 341 | 312 | 382 | 433 | 392 | 505 | 391 | | | | |
| Regular Time Worked on CCTV (2) | 15 | 36 | 4 | 0 | 71 | 72 | 45 | 67 | 86 | 117 | | | | |
| Total Regular time, worked, hrs | 628 | 559 | 597 | 703 | 663 | 793 | 857 | 800 | 884 | 828 | 0 | 0 | 7,309 | 609 |
| Total Vacation/Sick Leave/Holiday, hrs | 403 | 356 | 271 | 277 | 307 | 239 | 181 | 180 | 193 | 183 | | | 2,586 | 259 |
| Vacation/Sick Leave/Holiday, FTEs | 2.3 | 2.2 | 1.5 | 1.6 | 1.8 | 1.3 | 1.0 | 1.1 | 1.1 | 1.0 | 0.0 | 0.0 | 14.9 | 1.2 |
| Overtime Worked on Coll. Sys., hrs | 3 | 0 | 16 | 3 | 7 | 4 | 6 | 9 | 3 | 15 | | | 64 | 6 |
| Overtime Worked on Other, hrs (1) | 14 | 45 | 31 | 19 | 15 | 29 | 39 | 31 | 15 | 53 | | | 289 | 29 |
| Overtime Worked on CCTV (2) | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 2 | | | 9 | 1 |
| Total Overtime, hrs | 17 | 45 | 46 | 22 | 25 | 33 | 45 | 43 | 18 | 69 | NA | NA | 362 | 36 |
| B. Productivity | | | | | | | | | | | | | | |
| 1. Line Cleaning | | | | | | | | | | | | | | |
| Rodder Work Orders generated | 90 | 31 | 42 | 23 | 11 | 46 | 69 | 43 | 40 | 15 | | | 410 | 41 |
| Rodder 3208 ft. cleaned | 15,611 | 6,776 | 7,657 | 3,885 | 2,857 | 8,033 | 12,373 | 7,451 | 7,679 | 3,568 | | | 75,890 | 7,589 |
| Rodder - outside services, ft cleaned | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| Flusher Work Orders generated | 340 | 183 | 388 | 543 | 455 | 396 | 351 | 324 | 305 | 329 | | | 3,614 | 361 |
| Truck 3205V ft. cleaned | 107 | 4,165 | 2,352 | 22,584 | 18,806 | 1,100 | 4,618 | 0 | 4,349 | 26,527 | | | 84,608 | 8,461 |
| Truck 3206V ft. cleaned | 63,145 | 29,612 | 64,665 | 80,792 | 50,753 | 70,998 | 65,731 | 45,661 | 51,433 | 32,296 | | | 555,086 | 55,509 |
| Flusher - outside services, ft. cleaned | 1,349 | 553 | 0 | 127 | 0 | 0 | 0 | 8,990 | 2,506 | 0 | | | 13,525 | 1,352 |
| Total Footage cleaned(3) | 78,863 | 40,553 | 74,674 | 107,261 | 72,416 | 80,131 | 82,722 | 53,112 | 63,461 | 62,391 | NA | NA | 715,584 | 71,558 |
| Work Orders completed | 416 | 198 | 397 | 551 | 449 | 413 | 405 | 367 | 340 | 319 | | | 3,855 | 386 |
| Work Orders backlog | 14 | 16 | 33 | 15 | 17 | 29 | 15 | 0 | 5 | 25 | NA | NA | 169 | 17 |
| 2. Closed Circuit Television (CCTV) | | | | | | | | | | | | | | |
| Camera Work Orders generated | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| CCTV Truck 3126T, ft. videoed | 3,998 | 6,622 | 1,795 | 303 | 7,211 | 7,037 | 6,793 | 3,396 | 7,687 | 10,957 | | | 55,799 | 5,580 |
| CCTV (hand cam), ft. videoed | 6,378 | 806 | 706 | 0 | 1,842 | 5,303 | 4,279 | 5,161 | 1,805 | 3,074 | | | 29,354 | 2,935 |
| CCTV Inspection - outside services, ft. videoed | 1,349 | 553 | 0 | 127 | 0 | 0 | 0 | 9,496 | 2,506 | 0 | | | 14,031 | 1,403 |
| Total CCTV footage(3) | 11,725 | 7,981 | 2,501 | 430 | 9,053 | 12,340 | 11,072 | 18,053 | 11,998 | 14,031 | NA | NA | 99,184 | 9,918 |
| C. Sanitary Sewer Overflows (SSOs) | | | | | | | | | | | | | | |
| Minor (Category III) | 1 | 4 | 3 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | | | 11 | NA |
| Major (Category II) | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | | | 6 | NA |
| Major (Category I) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | NA |
| Major (Category I) | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 5 | NA |
| Overflow Gallons | 126 | 2,419 | 1,603 | 0 | 5 | 0 | 0 | 15 | 8 | 0 | | | 4,176 | NA |
| Volume Recovered | 0 | 0 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 98 | NA |
| Percent Recovered | 0% | 0% | 6% | NA | 0% | NA | NA | 0% | 0% | NA | NA | NA | 2% | NA |
| D. Service Calls (non-SSO related) | | | | | | | | | | | | | | |
| Service calls, normal hours, # | 10 | 11 | 7 | 2 | 5 | 6 | 6 | 4 | 10 | 5 | | | 66 | 7 |
| Normal hours S.C. response time, mins (avg.) | 22 | 20 | 15 | 10 | 25 | 45 | 24 | 30 | 20 | 30 | | | 241 | 24 |
| Service Callouts, after hours, # | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 2 | 0 | | | 9 | 1 |
| After Hours S.C. response time, mins (avg.) | 33 | 35 | 40 | 7 | 40 | 45 | 0 | 45 | 20 | 0 | | | 265 | 27 |
| E. Benchmarks | | | | | | | | | | | | | | |
| Average Ft. Cleaned/Hour Worked | 237 | 209 | 274 | 296 | 258 | 236 | 218 | 156 | 217 | 195 | NA | NA | NA | 229 |
| Total Stoppages/100 Miles | 0.4 | 1.8 | 1.3 | 0.0 | 0.4 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 4.8 | NA |
| Average spill response time (mins) | 28 | 5 | 22 | 0 | 55 | 0 | 0 | 0 | 10 | 0 | | | NA | 12 |
| Callouts/100 Miles | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.0 | 0.4 | 0.9 | 0.0 | 0.0 | 0.0 | 3.9 | 0.3 |
| Overtime hours/100 Miles | 1 | 0 | 7 | 1 | 3 | 2 | 3 | 4 | 1 | 6 | 0 | 0 | 28.44 | 2 |
| Overflow Gallons/100 Miles | 55 | 1052 | 697 | 0 | 2 | 0 | 0 | 7 | 3 | 0 | 0 | - | 1,816 | 151 |

(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



Novato Sanitary District

Pump Station Monthly Report For October 2015 (as of October 31, 2015)

| | Jan | Feb | March | April | May | June | July | August | Sept* | Oct* | Nov | Dec | Total Year to Date | Average Year to Date |
|--------------------------------------|-----|-----|-------|-------|-----|------|------|--------|-------|------|-----|-----|-----------------------|----------------------------|
| Employee Hours Worked | 210 | 286 | 260 | 245 | 205 | 246 | 276 | 242 | 201 | 233 | 0 | 0 | 2,402 | |
| Number of Employees (FTEs) | 1.2 | 1.3 | 1.2 | 1.2 | 1.1 | 1.2 | 1.3 | 1.2 | 1.0 | 1.1 | 0.0 | 0.0 | | 1.0 |
| Regular Time Worked on Pump Sta | 176 | 206 | 201 | 200 | 187 | 215 | 232 | 204 | 170 | 196 | | | 1,985 | |
| Overtime Worked on Pump Sta | 34 | 80 | 59 | 45 | 18 | 31 | 44 | 38 | 32 | 37 | | | 417 | |
| After Hours Callouts | 6 | 20 | 12 | 13 | 9 | 1 | 3 | 4 | 1 | 3 | | | 72 | |
| Average Callout response time (mins) | 30 | 33 | 30 | 24 | 30 | 25 | 20 | 45 | 50 | 45 | | | 332 | 33 |
| Lift Station Inspections | | | | | | | | | | | | | | |
| Number generated in month | | | | | | | | | | | | | | |
| Number closed in month | | | | | | | | | | | | | | |
| Work Orders | | | | | | | | | | | | | | |
| Number generated in month | 125 | 117 | 180 | 144 | 143 | 182 | 236 | 165 | 120 | 103 | | | 1515 | 152 |
| Number closed in month | 121 | 112 | 167 | 126 | 121 | 160 | 236 | 150 | 107 | 89 | | | 1389 | 139 |
| Backlog | 4 | 5 | 13 | 18 | 22 | 22 | 0 | 15 | 13 | 14 | 0 | 0 | 126 | 11 |

**COLLECTION SYSTEM (Pump Stations)
WORK ORDER STATISTICS
October 1, 2015 - October 31, 2015**

| | Open Work Orders Due Prior to 10/1/2015 | Open Work Orders 10/1/2015 - 10/31/2015 | Total Open Work Orders |
|--------------|--|--|-----------------------------------|
| Preventive | 7 | 148 | 155 |
| Corrective | 7 | 0 | 7 |
| Total | 14 | 148 | 162 |

| | Closed Work Orders 10/1/2015 - 10/31/2015 |
|--------------|--|
| Preventive | 148 |
| Corrective | 0 |
| Total | 148 |

| | |
|---|-----------|
| Total Outstanding Work Orders as of 10/31/2015 | 14 |
|---|-----------|

**NOVATO SANITARY DISTRICT
Wastewater Operations Committee Meeting
Reclamation Facilities Report
October 2015**

1.0 Summary:

The rancher tended to his cattle this month in preparation of moving off site. A new irrigation control program was installed in the controller at Site 2. Parcels were irrigated on all Sites without any reportable issues. Sludge from a project at the old Ignacio Treatment Plant was deposited in the Dedicated Land Disposal site.

2.0 Ranch Operations:

The rancher continued to spend most of his time tending to the cattle preparing to move them off site in the coming months and performing sprinkler head repair & replacement.

3.0 Irrigation Parcels:

District staff continues to check the control systems at each site every few weeks to ensure they are functioning as expected. As reported last month, staff found the controller for Site 2 not working properly at the end of the month. Staff found that the controller reverted back to an old program for a 21-day schedule. The program for a 28-day schedule was reloaded and appears to be working properly.

4.0 Irrigation Pump Station:

Approximately 84.05 MG of treated water was used for irrigation this month. Irrigation times were increased to accommodate less tertiary recycled water production at the treatment plant.

5.0 Sludge Handling & Disposal:

Approximately 750 yards of remnant sludge from a project at the old Ignacio Treatment Plant Sludge Lagoons was hauled to the Dedicated Land Disposal (DLD) and deposited there (Photo 1).



Photo 1 – Sludge from decommissioned Ignacio Treatment Plant Sludge Ponds in DLD before spreading.

NOVATO SANITARY DISTRICT
Reclamation Facility - Monthly Statistics for Calendar Year 2015, as of September, 2015

| | January | February | March | April | May | June | July | August | September | October | November | December | Total Year to Date | Annualized Monthly Average |
|---|---------|----------|-------|-------|------|-------|-------|--------|-----------|---------|----------|----------|-----------------------|----------------------------------|
| Irrigation Pump Station | | | | | | | | | | | | | | |
| Plant flow to ponds (MG) | | 0 | 0 | 0 | 0 | 90.64 | 88.64 | 80.12 | 84.31 | 96.26 | | | 440.0 | 36.66 |
| Irrigation (MG) | | 0 | 0 | 0.0 | 0.09 | 7.86 | 59.2 | 91.59 | 62.45 | 58.24 | 84.05 | | 363.5 | 30.29 |
| Irrigation Pump 1 Hours | | | | 0.3 | 17.2 | 100.2 | 125.6 | 88.6 | 91.6 | 121.9 | | | 545.4 | 45.45 |
| Irrigation Pump 2 Hours | | | | 0.1 | 16.7 | 102.4 | 121.1 | 96.7 | 93.7 | 127.3 | | | 558.0 | 46.50 |
| Irrigation Pump 3 Hours | | | | 0.1 | 15.2 | 99.6 | 127.9 | 88.5 | 88.2 | 122.2 | | | 541.7 | 45.14 |
| Washdown Water Pump Hours | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | - | 0.00 |
| Wildlife Feed Pump Hours | | | 331.5 | 51.6 | 0 | 626.8 | 740.5 | 743.4 | 743.8 | 722.8 | | | 3,960.4 | 330.03 |
| Water Circulated through Wildlife Pond (MG) | 0 | 0 | 20.88 | 3.25 | 0 | 39 | 47 | 47 | 47 | 46 | 0 | 0 | 249.5 | 20.79 |
| Strainer No. 1 Hours | | | | 0.2 | 6.3 | 38 | 45.9 | 33.7 | 33.6 | 45.7 | | | 203.4 | 16.95 |
| Strainer No. 2 Hours | | | | 0 | 6.3 | 39.8 | 45.9 | 33.7 | 33.6 | 46.1 | | | 205.4 | 17.12 |
| Pond 1 Gauge @ Beginning of Month | 5.4 | 5.4 | 5.6 | 5.4 | 5.4 | 4.9 | 5.3 | 3.6 | 3.8 | 5.1 | | | | |
| Pond 1 Gauge @ End of Month | 5.4 | 5.6 | 5.4 | 5.4 | 4.9 | 5.3 | 3.6 | 3.8 | 5.1 | 4.7 | | | | |
| Pond 1 Gallons Stored @ End of Month(MG) | 39.2 | 41 | 39.2 | 39.2 | 35.2 | 38.4 | 24.8 | 26.4 | 36.1 | 33.6 | | | | |
| Pond 2 Gauge @ Beginning of Month | 5.5 | 5.5 | 5.7 | 5.5 | 5.5 | 5 | 5.5 | 3.7 | 3.9 | 5.2 | | | | |
| Pond 2 Gauge @ End of Month | 5.5 | 5.7 | 5.5 | 5.5 | 5 | 5.5 | 3.7 | 3.9 | 5.2 | 4.7 | | | | |
| Pond 2 Gallons Stored @ End of Month(MG) | 52 | 54 | 52 | 52 | 47 | 52 | 33 | 35 | 49 | 43.4 | | | | |
| Total Irrigation Water Stored | 91.2 | 95 | 91.2 | 91.2 | 82.2 | 90.4 | 57.8 | 61.4 | 85.1 | 77 | 0 | 0 | | |
| Drainage Pump Station No. 3 | | | | | | | | | | | | | | |
| Drainage Pump No. 1 Hours | 0 | 133.1 | 2.4 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Drainage Pump No. 2 Hours | 0 | 0 | 2.1 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Drainage Pump No. 3 Hours | 100.3 | 127.1 | 0.6 | 2.7 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Total Gallons Stormwater Pumped (MG) | 30.09 | 78.06 | 1.53 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110.88 | 9.24 |
| Drainage Pump Station No. 7 | | | | | | | | | | | | | | |
| Drainage Pump No. 1 Hours | 331.6 | 46.2 | 13.3 | 0.2 | 0.1 | 0 | 0 | 0 | 0 | 0 | | | | |
| Drainage Pump No. 2 Hours | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| Drainage Pump No. 3 Hours | 0 | 1.5 | 2.7 | 7.5 | 0.1 | 0 | 0 | 0 | 0 | 0 | | | | |
| Total Gallons Stormwater Pumped (MG) | 149.22 | 21 | 7 | 3.47 | 0.09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 181.44 | 15.12 |