



2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT



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2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

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Overview

The continued priorities for 2018 were to meet the goals of zero lost time incidents or Occupational Safety Health Act recordable incidents and no treatment plant effluent violations. This is a year in and year out objective plainly stated and firmly established throughout Veolia North America (*Veolia*). A term we apply to this end is "Zero Harm". We are very happy and proud to report that both goals were met. 2018 represents our seventh consecutive year of zero effluent violations and eighth year of zero recordable incidents. We celebrate this success with the Novato Sanitary District on its vision and commitment to the protection of water quality and the environment.

- Key areas of focus throughout the year include: Safety Training
- Regulatory Compliance
- Third Party Facility Reviews – Safety, Management Operations, and Maintenance Audits
- Reporting (internal and external)
- Records Keeping and Data Base Management
- 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
- Effective Asset Management by using Oracle Work Asset Management System (OWAM) for Maintenance Tracking, Scheduling, Inventory, and Purchasing
- Operation, Management and Oversight of Laboratory and Pretreatment Program
- Facility Energy Management Program

Treatment Plant Design Criteria

Wastewater is collected throughout the Novato Sanitary District service area and conveyed by gravity as well as mechanical means (pump stations) to the Novato Treatment Plant (*NTP*). Listed below are the descriptions of each of the processes. Table 1.0 below provides the influent design criteria.

Table 1.0

DESIGN CRITERIA		
Condition	Value	Unit
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

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Preliminary Treatment - Influent Pump Station and Headworks

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

Flow and Loading Measurement

Flow at the NTP is measured using a parshall flume and hydro ranger™ ultra-sonic level meter in combination.

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).

Primary Treatment – Primary Clarifiers

An efficient primary clarifier typically removes 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.

The NTP primary clarifiers are covered to contain air associated with raw sewage. Air is removed and discharged to odor scrubbing biofilters.

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. 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.

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.

Effluent Disposal – Bay Discharge / Reclamation / Storage

Discharge to San Pablo Bay (Bay Discharge) is prohibited beginning June 1st through August 31st. Bay discharge is permitted (with stringent effluent limits) in the months of May, September and October. Throughout the non-discharge season effluent is stored for future use, specifically for pasture irrigation.

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Effluent Reuse – Recycled Water

Recycled water was produced in 2018 for use to irrigate parks, landscaping, and golf courses. Additionally, a portion of the recycled water is provided to a car wash facility. Recycled water receives added treatment in order to comply with stringent Title 22 regulations.

Treatment Plant Performance

The tables that follow provide the summary for the plant performance, maintenance program, consumables and energy results for the period January 1, 2018 through December 31, 2018. The Annual Waste Characteristics & Loading Summary is provided below in Tables 2.0 – 8.0 and in the attachments section of this report.

Table 2.0

2018 Influent Flows and Loading Summary			
Condition	Value	Unit	Notes
Average Dry Weather Flow	3.44	MGD	Jul / Aug / Sep
Peak Wet Weather Flow (Max Day)	14.9	MGD	
Max Peak Wet Weather (1-3 Hour)	47.0	MGD	
Average BOD Loading	10,569	Lbs/D	
Average TSS Loading	11,046	Lbs/D	

Table 3.0

2018 Plant Effluent		
	Value	Unit
BOD Removal	98	%
TSS Removal	98	%

Table 4.0

2018 Plant Performance		
Total Volume of Wastewater	1569.28	Million Gallons
Total Volume of Reclaimed Water	310.29	Million Gallons
Recycled – Title 22 (included in Water Reclaimed)	165.41	Million Gallons
Flow Discharged to San Pablo Bay	1102.57	Million Gallons
Average Daily Dry Weather Flow	3.44	MGD
Maximum Daily Flow	28.96	MGD
Pounds of BOD Treated	3,952,514	Lbs
Pounds of BOD Removed	3,873,987	Lbs
Percent BOD Removal Efficiency	98	%
Pounds of TSS Treated	4,083,392	Lbs
Pounds of TSS Removed	4,017,953	Lbs

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Percent of TSS Removal Efficiency	98	%
Pounds of Bio-solids Treated	2,954,332	Lbs
Cubic Feet of Biogas Produced	24,910,100	Cu Ft
Total Number of Violations / Excursions	0	
NPDES (Bay Discharge)	0	
WDR (Reclamation)	0	

Table 5.0

2018 Consumables and Energy Summary	
Total Million Gallons	1569.28
Million Gallons Day	51.54
*Electricity – kWh / Year	3,894,254
Electricity – kWh / MG	2,481
*Natural Gas – Therms / Year	43,900
Natural Gas – Therms / MG	27
Diesel Fuel – Gallons / Year	1084
Diesel Fuel – Gallons / MGD	21

*Excludes Administration Building and Recycled Water Plant

Table 6.0

Waste Discharge Limits / Reclamation				
Parameter	Limit	Units	# Analysis	Violations
BOD Monthly Average	40	mg/L	3	0
Total Coliform – 5 Sample Median	240	mpn/100 ml	44	0
Total Coliform - Maximum	10,000	mpn/100 ml	48	0
pH – High	9.0	s.u.	66	0
pH – Low	6.0	s.u.	66	0

Table 7.0

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	3	0

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Fecal Coliform - 90 th Percentile	430	mpn/100 ml	3	0
Ammonia – Daily Maximum	21	mg/L	6	0
Ammonia - Monthly Average	6	mg/L	6	0
pH – High	8.5	s.u.	95	0
pH – Low	6.5	s.u.	95	0
Oil & Grease - Daily Maximum	15	mg/L	6	0
Oil & Grease - Monthly Average	5	mg/L	6	0

Table 8.0

NPDES Dry Season Limits - May, September, & October				
Parameter	Limit	Units	# Analysis	Violations
BOD Weekly	30	mg/L	11	0
BOD Monthly	15	mg/L	3	0
TSS Weekly	20	mg/L	11	0
TSS Monthly	10	mg/L	3	0
BOD Removal (minimum)	85	%	3	0
TSS Removal (minimum)	85	%	3	0
Enterococcus - 30 Day Geo Mean	35	Col/100 ml	4	0
Fecal Coliform - Median	140	mpn/100 ml	1	0
Fecal Coliform - 90 th Percentile	430	mpn/100 ml	1	0
Ammonia – Daily Maximum	21	mg/L	3	0
Ammonia - Monthly Average	5.9	mg/L	3	0
pH – High	8.5	s.u.	66	0
pH – Low	6.5	s.u.	66	0
Oil & Grease - Daily Maximum	15	mg/L	3	0
Oil & Grease - Monthly Average	5	mg/L	3	0

Operational Program

Throughout 2018, the majority of the treatment plant equipment operated full time with the exception of the equipment listed provided below. All of the Ignacio Transfer Pump Station (ITPS) equipment was fully operational during 2018.

Novato Treatment Plant - Equipment Out of Service – Due to Planned Servicing, Maintenance, or Replacement

- Aeration Basin #1 & #3 (standby)
- Primary Clarifier #1 (standby)
- Secondary Clarifier #1 (standby)

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Environmental Services Program

Wildlife Pond and Reclamation Activities

Samples and weekly/monthly observations at the Wildlife Pond were taken according to the WDR (Order No. 92-065) throughout the year. Monthly irrigation wet well samples were monitored during the irrigation season.

NPDES and WDR Permit Monitoring Program

The monthly, quarterly, semi-annual, and annual monitoring and reporting requirements (Electronic Self-Monitoring Report (eSMR), Electronic Discharge Monitoring Report (DMR), Pretreatment Program, Pollution Prevention and Waste Minimum, Recycled Water Reports) were submitted as required. The Biosolids, Pasture, and Reclamation reports were submitted on behalf of the Novato Sanitary District.

Pasture Soil Sampling and Inspection

Soil sampling and analysis from the pastures was completed in September. The results were included in the 2018 Triennial Irrigated Pasture Report.

Stephanie Larson PhD, Director of University of California Cooperative Extension, Sonoma conducted a tour and inspection of the irrigated pasturelands with Jeff Boheim, Novato Sanitary District Field Services Manager and Liz Falejczyk, Veolia Water Environmental Services Supervisor. Similar to prior occasions, Dr. Larson issued a findings and recommendations report which was also included in the 2018 Triennial Irrigated Pasture Report.

Public Education

Throughout 2018, Liz Falejczyk, Kurt Hawkyard, Veolia Water Laboratory Technician, and Julie Hoover, Novato Sanitary District Administrative Secretary participated in one or all of the activities listed below.

- Demonstration of wastewater processes and tour of the treatment plant for San Marin High School Applied Chemistry and Biotechnology classes; approximately 40 students participated.
- Microsoft® Power Point slide presentation was created to show how a wastewater treatment operates for use at public education days at the Novato local library.
- Marin County wastewater treatment plant's public education committee activities and meetings.
- Watershed Week for STRAW (Students and Teachers Restoring A Watershed) event sponsored by Point Blue Conservation Science.
- Marin County wastewater agencies public education committee juggler show at the Lu Sutton elementary school.
- North Bay Science Discovery Day.
- After school public awareness presentation at the Novato Public Library for the importance of not using the toilet as a trash can.

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- Vintage Oaks Shopping Center businesses and Novato High School; purchase of awareness signage for posting in public restrooms to educate the public to reduce trash being flushed down the toilets.

Training

Liz Falejczyk (34.7 contact hours) and Kurt Hawkyard (22.5 contact hours) attended the training sessions listed below.

- Liz attended the State of California Environmental Laboratory Accreditation Program TNI 2016 Standard Training Series/Sessions 3, 4 and 5 of 6 trainings.
- Kurt attended the State of California Environmental Laboratory Accreditation Program TNI 2016 Standard Training Series/Session 1, 2 and 3 of 6 trainings.
- The Veolia operated laboratory welcomed a summer intern from a local high school. The internship includes training for basic laboratory safety and techniques.
- Liz attended HACH WIMS™ user group training at the Napa Sanitation District.
- Kurt attended a *Tool Belt Training* in Windsor, CA presented by the California Water Environment Association Pretreatment, Pollution Prevention, Stormwater (P3S) Committee. This training focused on strategies for effective field inspections.

Whole Effluent Toxicity Testing

Quarterly Acute (96 hours) and Chronic (7 days) Toxicity testing is required during Bay Discharge season. Testing was performed in January, April, September and December in 2018. All tests were performed by Aqua Science (Davis, CA), and results reported in compliance with the NPDES permit. The Acute Toxicity testing results yielded 100% survival. The Chronic Toxicity test results for survival and growth were reported as <1.0 TUc. Table 5.0 below provides the 2016-2018 results.

Table 4.0 Historical Toxicity Testing 2016-2018

Test Date	1/16	4/16	11/16	1/17	4/17	6/17	10/17	1/18	4/18	9/18	12/18
EC ₂₅ (%)	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100	>100
NOEC (%)	100	100	100	100	100	100	65	100	100	100	100
TUc(100/E C ₂₅)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Abbreviations	
EC ₂₅ (%)	Effect Concentration 25 Percent
NOEC (%)	No Observed Effect Concentration
TUc (100/EC ₂₅)	Toxic Unit-Chronic (100/Effect Concentration 25 Percent)

Proficiency Testing

U.S. EPA DMR-QA 38 Proficiency Testing Study was conducted in 2018 and 100% acceptable results were achieved. This was a collaborative effort between Kurt Hawkyard, Liz Falejczyk and Jessica Bena-Nommsen, North Marin Water District Chemist I for the NSD Laboratory. The Certificates of Excellence are provided below. In addition the DMR-QA studies performed by all contract laboratories that routinely perform or support self-monitoring analyses required by National



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Pollution Discharge Elimination System permit were evaluated for proficiency and submitted to the State Water Board Quality Assurance Officer/State DMR-QA Coordinator.

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CERTIFICATE OF EXCELLENCE

In recognition of the quality of your laboratory in proficiency testing for
WP-278

Novato Sanitary District Laboratory

is issued this certificate of achievement by ERA. This laboratory has been recognized as a Laboratory of Excellence for achieving 100% acceptable data in this study which included 1004 participating laboratories. This achievement is a demonstration of the superior quality of the laboratory in evaluation of the standards listed below.

Demand	Hardness
Minerals	pH
Simple Nutrients	Total Residual Chlorine
Turbidity	WasteWatR™ Coliform
	MicroBE™
WasteWatR™ Coliform	
MicroBE™ - SM 9221	



Matthew Seebeck
Quality Officer

168301

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CERTIFICATE OF EXCELLENCE

In recognition of the quality of your laboratory in proficiency testing for
WS-261

Novato Sanitary District Laboratory

is issued this certificate of achievement by ERA. This laboratory has been recognized as a Laboratory of Excellence for achieving 100% acceptable data in this study which included 736 participating laboratories. This achievement is a demonstration of the superior quality of the laboratory in evaluation of the standards listed below.

Heterotrophic Plate Count
WS SourceWatR™
MicroBE™



Matthew Seebeck
Quality Officer

168301

California Environmental Laboratory Accreditation Program

The ELAP certification for the NSD Laboratory was renewed, maintaining all certifications that were in place and adding one method under Field of Testing (FoT) 108 Inorganic Chemistry of Wastewater and one new FoT 101 Microbiology of Drinking Water which enables the laboratory to perform the IDEXX Method for Total Coliform for Recycled water in-house.

Monitoring Wells

On November 1, 2018, sampling and data collection of the Designated Land Disposal (DLD) site, and former Ignacio Sludge Lagoons groundwater monitoring wells was conducted by Jessica Bena-Nommsen, and Kurt Hawkyard.

Marin County Stormwater Pollution Prevention Program (MCSTOPPP)

Liz Falejczk attended the quarterly Community Advisory Committee for the MCSTOPPP where she serves as a wastewater advisory member.

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Bay Area Clean Water Agency (BACWA)

- January-December 2018, Liz Falejczk attended BACWA Pretreatment, Permits and Laboratory Committee meetings.
- Liz attended BACWA Laboratory Committee Meetings and Nutrient Optimization/Upgrade Study Draft Report Review.
- Liz also attended the 2018 San Francisco Estuary Institute's Regional Monitoring Program Annual Meeting in Berkeley, California.

Coordination of Environmental Services with NSD Staff

Working closely with District staff on the implementation of the Industrial Pretreatment Program in 2018, communication and coordination of activities focused on the goals and objectives below:

- Engineering-coordination of inspections and file review
- Finance-invoicing and tracking of payments
- Public education-support for staffing and emphasizing specific pollutants
- Collections-targeting problem areas for FOG

Mutual Assistance

Liz Falejczyk participated on interview panels for open laboratory positions at the City of Mill Valley/Sewerage Agency of Southern Marin, Central Marin Sanitation Agency, and the Town of Windsor, CA.

Asset Management Program

Computerized Maintenance Management System (CMMS)

Key components of an Oracle Work Asset Management (OWAM) software program include:

- OWAM is a robust multi-layered asset management system which provides modules for purchasing, inventory control, asset life cycle cost, as well as the typical scheduling and maintenance tracking tools.
- Preventive maintenance (PM) is a scheduled maintenance activity generally tied to equipment runtime or time periods (weekly/quarterly).
- Equipment inventory is crucial to all phases of Asset Management. Equipment at the NTP has been entered into the OWAM data base.
- The Criticality Assessment is typically performed every 5 years.

The next scheduled assessment is scheduled for 2019. The assessment will evaluate the processes and equipment and develop a rating for the relative importance. The results of the assessment are used in developing the priorities for equipment replacement and preventive maintenance.

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2018 MAINTENANCE ACTIVITIES OVER \$10,000.00 – DISTRICT FUNDED

January 2018	Equipment	Activity
	Dry Weather Pump #4	Rebuilt pump and motor

April 2018	Equipment	Activity
	Wet Weather Pump #1	Replaced control unit
	Ignacio Grinder	Replaced cutter cartridge

May 2018	Equipment	Activity
	Digested Sludge Pumps	Replenished stock - rotor and stator

June 2018	Equipment	Activity
	Odor Bed #2	Removal and replacement of woodchip media

August 2018	Equipment	Activity
	UV Transmittance Analyzer	Replaced analyzer

2018 MAINTENANCE ACTIVITIES OVER \$10,000.00 – VEOLIA FUNDED

April 2018	Equipment	Activity
	Polymer Tote area	Installed shelter to provide sun/rain protection for totes

May 2018	Equipment	Activity
	Odor Bed #1	Removal and replacement of woodchip media

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2018 MAINTENANCE ACTIVITIES UNDER \$10,000.00

January 2018	Equipment	Activity
	Emergency Generator #3	Replaced fuel lines
	Blower Building	Replaced condensate motor on HVAC-blower side
	Dodge Truck – Operations	Repair work
	Ignacio – Headworks	Cleaned and vactored headworks – gravel and debris
	Screw Conveyor	Replaced liner
	Aeration Basin Mixer 2C	Replaced mechanical seal
	WAS Pump #1	Replaced impeller

February 2018	Equipment	Activity

March 2018	Equipment	Activity
	Boiler	Replaced UV scanner and UV amp card, actuator and gas valve
	Septage Receiving Station	Replaced motor
	Blower #1	Replaced contactor/main breaker
	Sludge Transfer Pump #1	Replaced stator and motor
	Ignacio Uninterruptable Power Supply	Replaced battery pack

April 2018	Equipment	Activity
	Maintenance Truck	Replaced steering gearbox
	Flare	Temporary modifications to damper
	Jerome Meter	Annual calibration

May 2018	Equipment	Activity
	Digester #2	Replaced gas pressure transmitter
	Gravity Belt Thickener	Replaced HMI (human machine interface)
	Primary Clarifier #1	Replaced drive motor
	Novato WWTP & Ignacio Fire Extinguishers	Annual service/recharge
	Novato WWTP Cranes & Hoists	Annual inspection & certification

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June 2018	Equipment	Activity
	Emergency Generators and Wet Weather pumps–Novato WWTP	Annual fuel filter sampling
	Ignacio Emergency Generator	Annual fuel filter sampling
	Novato WWTP & Ignacio	Annual flow meter calibrations
	HVAC & Roof Top Fans – Novato and Ignacio	Semi-annual service & replace time relay in electrical building
	Dodge Truck - Operations	Service air conditioner
	Novato WWTP & Ignacio	Annual flow meter calibration
	SCADA UPS – Operations Area	Replaced batteries
	Blower #1	Replaced contactor/breaker
	Emergency Generator #3	Repaired voltage regulator
	Boiler	Annual boiler inspection

July 2018	Equipment	Activity
	Emergency Generators and Wet Weather Pumps – Novato WWTP	Annual service
	Emergency Generator – Ignacio	Annual service
	Ignacio Supply Fan	Replaced contactor
	Forklift	Annual service

August 2018	Equipment	Activity
	Emergency Generator #2	Replaced air filters & batteries
	Emergency Generator #3	Replaced air filters & batteries
	Ignacio Emergency Generator	Replaced batteries
	Boiler	Replaced hot water circulation pump motor
	Novato WWTP & Ignacio	Annual thermography
	UV Control Panel	Replaced power supply

September 2018	Equipment	Activity
	Boiler	Replaced modutrol motor (transformer)
	Sludge Recirculation Pump #4	Replaced mechanical seal
	Digester #2 Thermostat	Replaced thermostat
	Novato WWTP & Ignacio	Annual electrical

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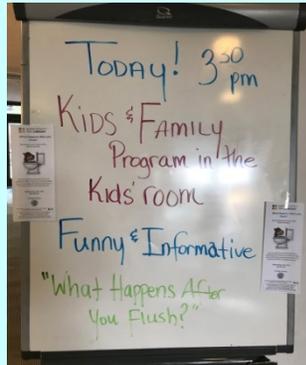
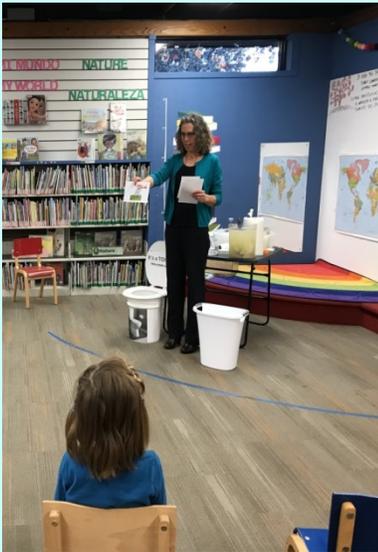
October 2018	Equipment	Activity
	Replaced Mag Pickup on	Replaced mag pickup on
	Ignacio Emergency Generator Diesel Fuel Tank	Diesel fuel polishing
	Day Tank – Emergency Generator #2 & #3	Diesel fuel polishing
	UV Transmittance Meter	Replaced control board

November 2018	Equipment	Activity
	Flare	Damper modifications
	Flygt Pumps – Novato WWTP	Annual service
	Headworks	Annual service
	Aeration Basin Mixer 2B	Replaced mechanical seal

December 2018	Equipment	Activity
	Flygt Pumps - Ignacio	Annual service
	Novato & Ignacio – HVAC & Roof Top Fans	Semi-annual service
	Odor Bed #3 – Fan #2	Replaced motor

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Veolia Safety Week and Outreach 2018



Above Left – John O'Hare, John Bailey, and Lynda Famery promoting Veolia's safety week

Above Right – Liz Falejczk participating in the North Bay Science Discovery Day

Lower – Julie Hoover and Liz Falejczk presenting to participants at the Novato Public Library – The toilet is not a trash can!

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Community Outreach Activities 2018

Veolia is proud to be a member of the Novato community and we are committed to supporting local activities. The following are events and organizations supported by Veolia in 2018.

- School Fuel – Tour of Novato – donation of bottled water for participants & Booth Member
- Rotary Club Novato Sunrise (RCNS)
- Member – Novato Chamber of Commerce
- Margaret Todd Senior Center Monthly Birthday Celebrations
- Senior Pharmaceutical Collection
- Senior Health Fair Booth
- North Bay Leadership Council - Algebra Academy
- North Bay Science Fair Booth

Safety and Training 2018

GOAL ZERO
Leading Safety Together

VEOLIA

Always Safe Rules - the Path to Goal Zero

Management

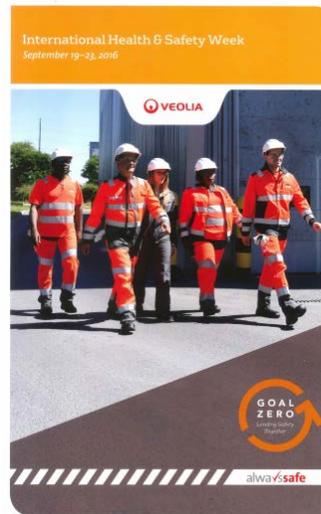
- ALWAYS comply with all occupational health and safety rules & regulations.
- ALWAYS lead by example to openly demonstrate exemplary commitment to health and safety as a company value.
- ALWAYS ensure that health and safety is the primary consideration in work scheduling and production.
- ALWAYS ensure that personnel have the proper safety training and the authorization to perform the assigned task or activity.
- ALWAYS take all reasonable steps to identify and correct any known hazards before allowing personnel to proceed with a work-related task or activity.
- ALWAYS address risk management through a hierarchy of controls (engineering controls such as alterations or controlled use, administrative controls such as signage and warning), with personal protective equipment as a last defense.
- ALWAYS empower employees with the authority and responsibility to correct and/or report all unsafe situations, acts, or conditions observed in the workplace – up to and including STOPPING a job when necessary.
- NEVER ask anyone to perform an unsafe act.

All Employees

- ALWAYS comply with all applicable regulatory, company and client occupational health and safety rules, regulations, work instructions, policies, procedures, best practice, and industry standards.
- ALWAYS wear the required personal protective equipment.
- ALWAYS perform tasks and activities with proper qualifications, authorization, and pre-task planning.
- ALWAYS comply with the responsibility and obligation to stop any unsafe behavior or activity, to report the issue promptly to management, and work together with management toward a safe resolution.
- ALWAYS work in fit condition – free from the effects of fatigue, drugs, and alcohol.
- ALWAYS report all work-related injuries/illnesses, unsafe conditions, unsafe work practices, near-miss incidents and hazards.
- NEVER compromise any own health and safety or those around us for profit, production, comfort, or convenience.

Five Pillars of our Occupational H&S Culture

Management Commitment & Leadership | Employee Involvement | Competence & Training | Risk Assessment & Management | High Performance Standards & Goals



Veolia Water 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. Veolia Water is committed to providing its employees a healthful and safe place of employment. To that end, Veolia Water provides the proper training, materials, and equipment so that work can be performed safely and in compliance with the Occupational Safety and Health Administration (OSHA) Regulations and other applicable standards.

Veolia Water has had no incidents from June 1, 2010 to present at the NTP. This report reflects January – December 2018. In recognition of this achievement - each employee received a cash incentive reward from Veolia Water for 8 years no loss time incidents as a team.

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Safety topics referred to as *5-minute Safety Moments* are reviewed and discussed during morning meetings. Subjects range from personal to job related safety topics. Formal monthly training of worksite relevant safety topics are conducted by the Project Manager or Safety Coordinator. Also, on-line training is included in this program. The formal training is conducted based on OSHA standards which includes a final quiz. Below are the monthly and quarterly specific training topics.

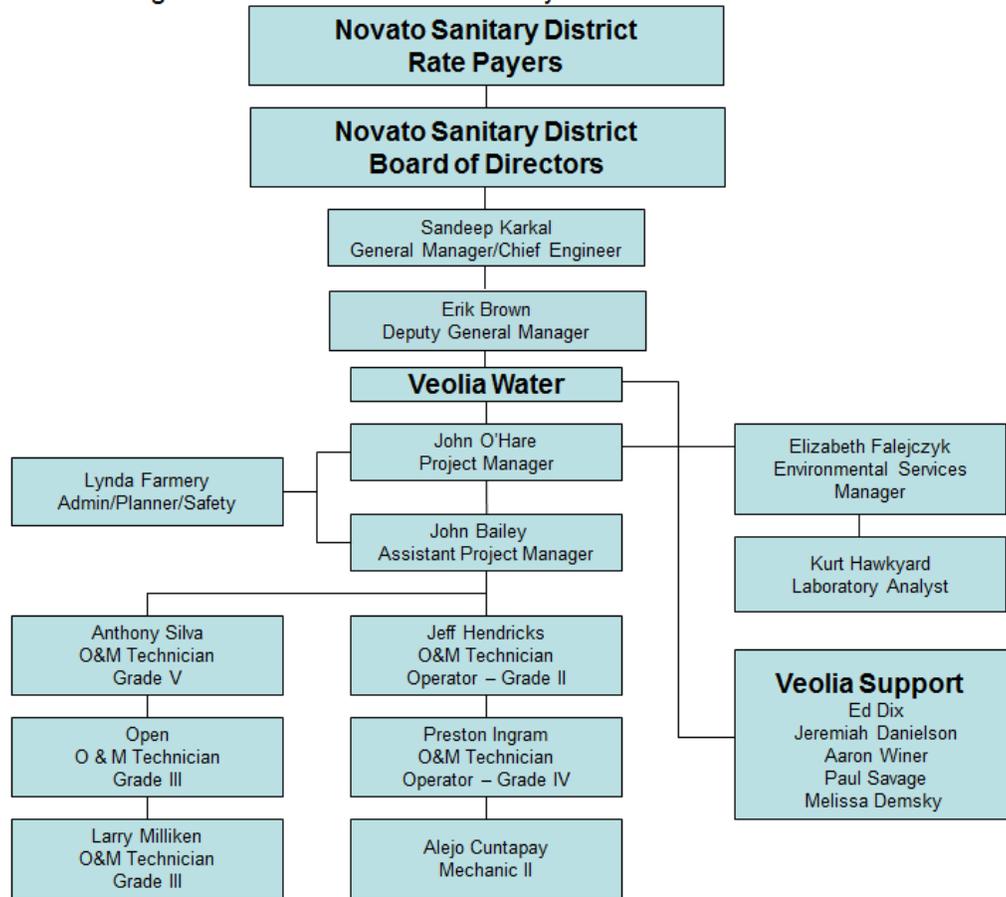
2018 Safety Training:

January:	HazCom – What You Need To Know
February:	Fire Safety – Extinguishing The Risk EH&S Action Alert - Prevent Injuries with Proactive Measures
March:	Ladder Safety Slip, Trip and Falls Hazards Hearing Protection
April:	Lockout / Tagout VNA EH&S Action Alert - Our Safety Culture VNA EH&S Action Alert - Crushed by Concrete VNA EH&S Alert - Driving Safely
May:	Personal Protective Equipment – Employee Essentials
June:	Confined Spaces – Dangerous Places VNA EH&S Alert - Mental Safety Assessment
July:	NFPA 70E Refresher Training Heat Stress Fall Protection VNA EH&S Action Alert Heat Stress Prevention
August:	NFPA 70E Initial Training Ladder Safety
September:	Respiratory Training
October:	Scaffolding Safety for General Industry
November:	Wellness & Fitness Drug Free Workplace
December:	Bloodborne Pathogens Spill Prevention Control and Countermeasure Plan Ignacio & Novato

2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

Staffing and Organization

Appendix A
Organization Chart – Novato Sanitary District/Veolia Water



2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

STAFFING & CERTIFICATION STATUS (Current)

John P. O'Hare – Project Manger

Grade V California Wastewater Treatment Plant Operator #10669, June 30, 2021

John Bailey – Assistant Project Manager

Grade V California Wastewater Treatment Plant Operator #4123, December 31, 2018

Lynda Farmery – Administrative Assistant/Planner/Scheduler/Safety Coordinator

Anthony M. Silva – Operator III

Grade V California Wastewater Treatment Plant Operator #10973, December 31, 2020

Grade II Collection System Maintenance Technician, #354, January 31, 2020

Larry Milliken – Operator III

Grade IV California Wastewater Treatment Plant Operator #41483, August 12, 2020

Preston Ingram – Operator III

Grade IV California Wastewater Treatment Plant Operator #10277, June 30, 2020

Jeffrey D. Hendricks – Operator II

Grade II California Wastewater Treatment Plant Operator #II-28377, December 31, 2020

Grade I Plant Maintenance Technologist, #070750011, July 31, 2020

Grade I Collection System Maintenance, #801210049, January 31, 2020

Alejo Cuntapay – Maintenance Technician II

Elizabeth G. Falejczyk – Environmental Services Supervisor

Operator III California Wastewater Treatment Plant Operator #6334, August 17, 2021

Kurt Hawkyard – Laboratory Technician/Pretreatment Programs Inspector

Laboratory Analyst Grade I, #130931002, June 30, 2019

Industrial Waste Grade II, #1308211129, June 30, 2019

Environmental Compliance Inspector, Grade II, 130821437, March 31, 2019

Additional Support

Paul Savage – Vice President of Operations

Aaron Winer, Northern California District Manager

Matt Nausin – Maintenance Supervisor, Richmond Project

Dennis Flosi – Instrumentation and Controls Specialist, Richmond Project

Dave Coffman – Asset Manager, West Region

Ed Dix – Technical Director / Technical Support, West Region

Jeremiah Danielson – Director of Health and Safety, Veolia Municipal and Commercial

Art Fagerström, PE, BCEE, Technical Manager, Corporate Technical Support

2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

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

The Amended and Restated Novato Operations and Maintenance Service Agreement adopted February 18, 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

Fiscal Year 2018/19 service fee adjustment was 2.725%.

Title 22 – Recycled Water Production Report for 2018

All water produced by the Novato Sanitary District (NSD) Recycled Water Facility was distributed by the North Marin Water District (NMWD).

In 2018, compliance testing for coliform was performed at the NMWD laboratory, NMWD is a State of California Environmental Laboratory Accreditation Program certified facility.

Recycled Water Table 6.0 below provides a summary of the quantity and quality of recycled water produced by NSD.

2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

Table 6.0 Recycled Water

Novato Sanitary District 2018 Recycled Water Production Data							
Month	Water Delivered (Million Gal)	Effluent Turbidity (NTU)		Effluent CT Value (mg min/L)		Effluent Coliform (mpn/100 ml)	
Criteria	1.7 mgd	<2		>450		<2.2	
		Max	Ave	Min	Ave	Max	7Med
January	0.691	1.2	1.1	>450	>450	<1	<1
February	2.142	1.5	1.2	>450	>450	<1	<1
March	0.613	1.2	1.2	-	-	-	-
April	5.084	1.8	1.4	>450	>450	<1	<1
May	16.318	1.8	1.1	>450	>450	<1	<1
June	22.371	1.5	0.9	>450	>450	<1	<1
July	26.860	1.6	0.9	>450	>450	<1	<1
August	28.965	1.6	1.0	>450	>450	<1	<1
September	27.617	1.3	0.7	>450	>450	4	<1
October	15.051	1.5	0.6	>450	>450	<1	<1
November	10.115	1.1	0.6	>450	>450	<1	<1
December	0.587	1.2	0.7	>450	>450	<1	<1
TOTAL	165.414						

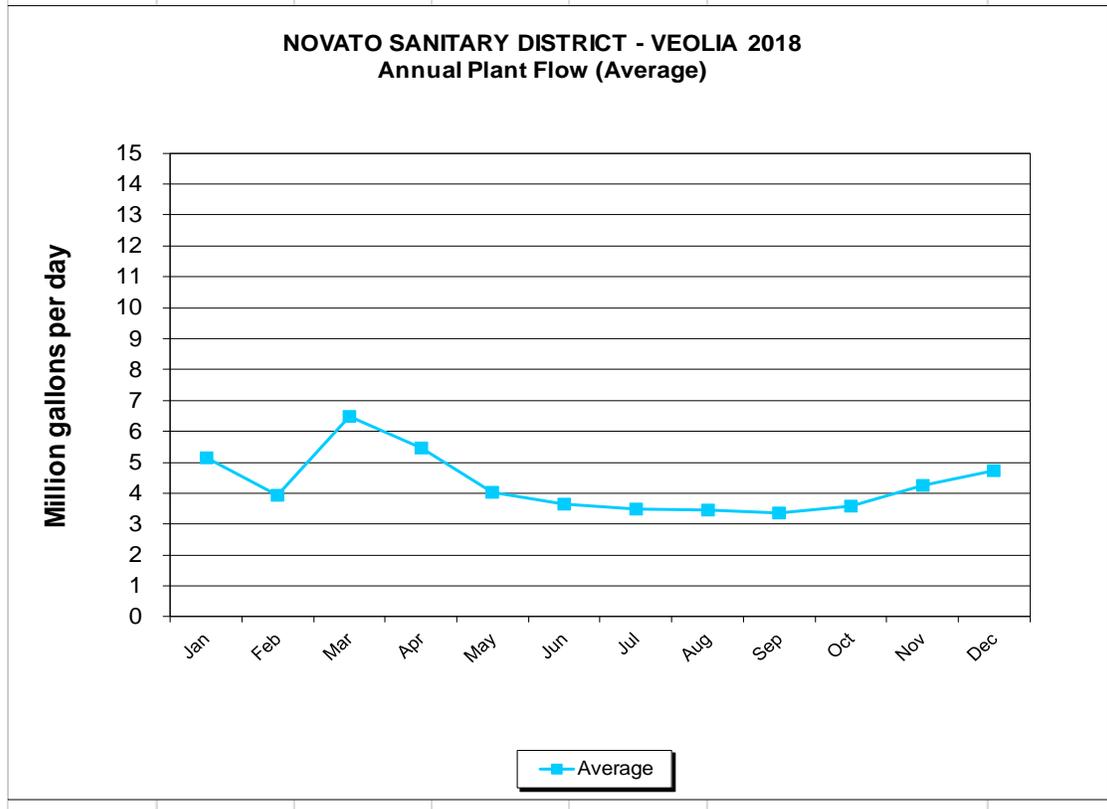
2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

Attachments

Annual Waste Characteristics & Loading Summary

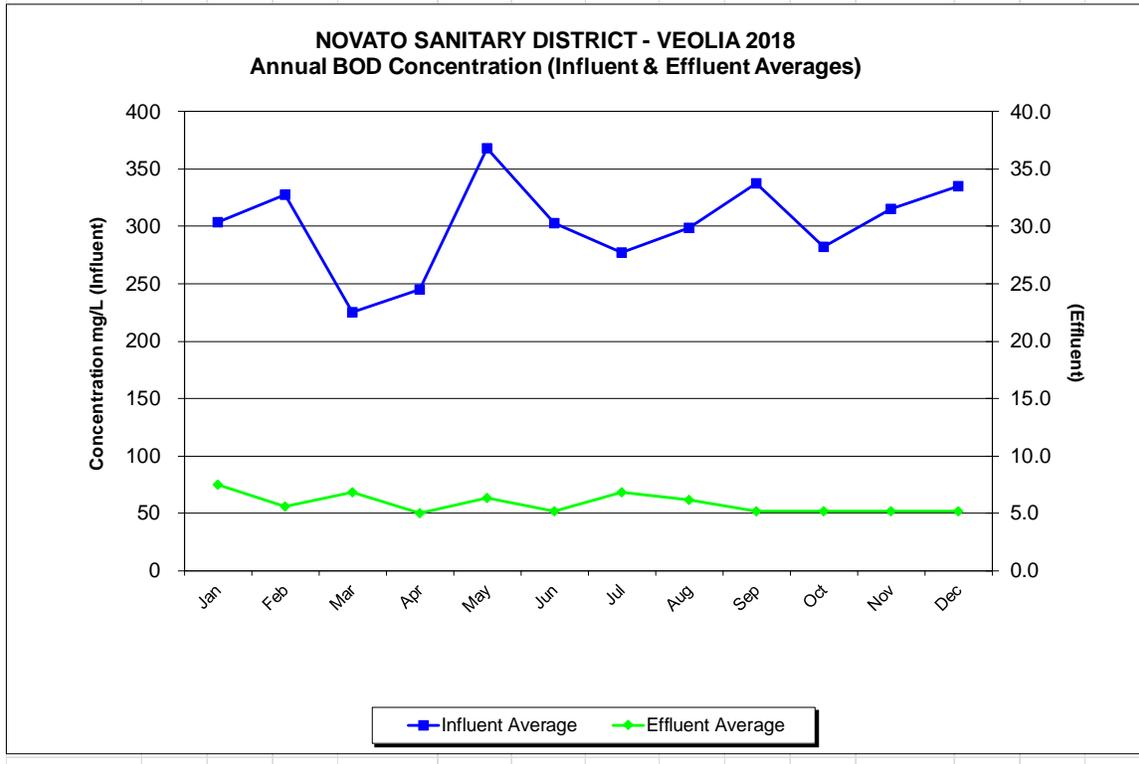
2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

NOVATO SANITARY DISTRICT - VEOLIA					
PLANT FLOW					
Annual Waste Characteristics & Loading Summary					
(IN GALLONS TIMES 1,000,000)					
YEAR: 2018			PRINT DATE: 28-Mar-2019		
	Total Flow	High	Low	Average	
January	159.21	14.59	3.47	5.14	
February	109.84	4.99	3.08	3.92	
March	200.92	14.22	4.36	6.48	
April	163.58	13.78	3.66	5.45	
May	124.84	4.64	3.60	4.03	
June	109.20	3.94	3.28	3.64	
July	108.59	4.68	2.84	3.50	Three month dry weather averages:
August	107.19	3.70	3.26	3.46	3.50
September	100.90	3.85	3.11	3.36	3.46
October	111.09	5.41	3.04	3.58	3.36
November	127.45	9.09	3.23	4.25	
December	146.47	7.37	3.40	4.72	
ANNUAL TOTAL	1569.28				
ANNUAL MAX.	200.92	14.59			Max. 3.50
ANNUAL MIN.	100.90		2.84		Min. 3.36
ANNUAL AVG.	130.77			4.30	Avg. Dry Weather Flow 3.44



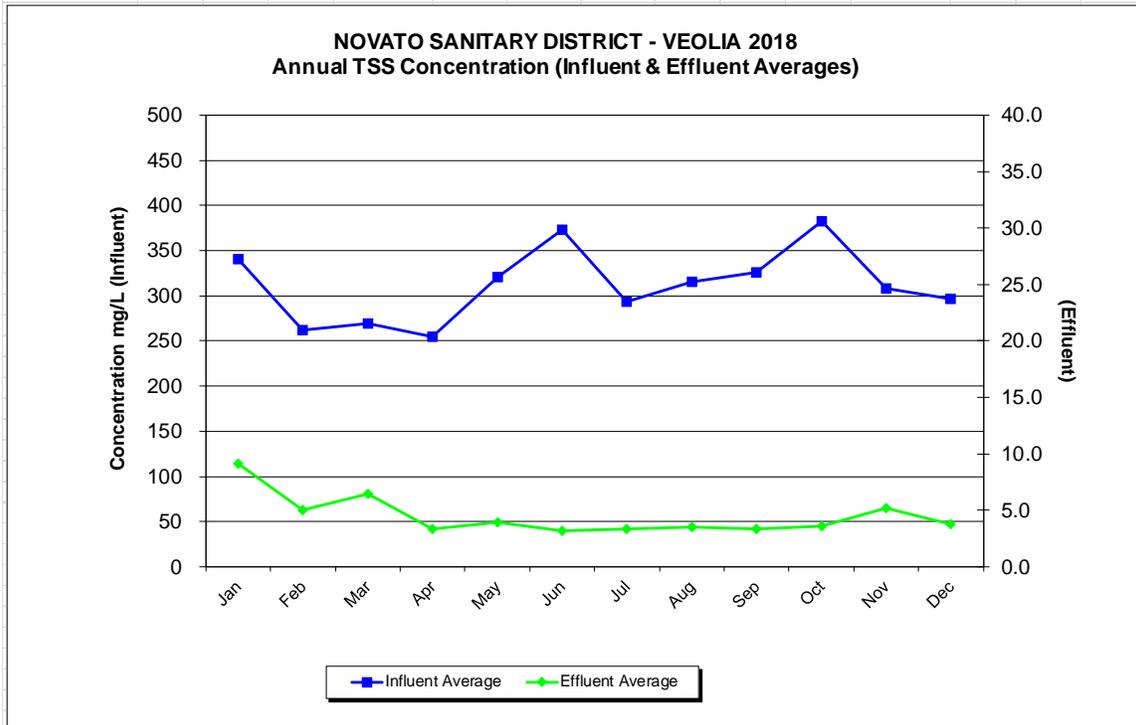
2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

NOVATO SANITARY DISTRICT - VEOLIA														
BOD (Influent & Effluent)														
Annual Waste Characteristics & Loading Summary														
YEAR: 2018										PRINT DATE: 28-Mar-2019				
	INFLUENT							EFFLUENT						
	Concentration (mg/L)			No. of Samples	Loading (lb/day)			Concentration (mg/L)			No. of Samples	Loading (lb/day)		
	High	Low	Average		High	Low	Average	High	Low	Average		High	Low	Average
January	450	210	304	5	18670	8887	13520	11.0	5.0	7.5	6	978	178	404
February	360	260	328	4	11890	8348	10391	7.0	5.0	5.6	5	409	209	267
March	300	160	225	4	18081	7514	12462	13.0	5.0	6.8	5	1469	194	471
April	280	220	245	4	11780	8202	10503	5.0	5.0	5.0	4	254	185	215
May	510	280	368	5	17694	9901	12488	10.0	5.0	6.4	11	347	157	226
June	320	270	303	4	10222	8557	9322	6.0	5.0	5.2	12	182	144	158
July	300	240	278	4	8882	5685	7591	15.0	5.0	6.8	12	465	137	199
August	375	260	299	5	10727	7806	8723	15.0	5.0	6.2	15	408	138	179
September	370	320	338	4	10553	8860	9496	6.0	5.0	5.1	7	171	138	145
October	310	230	282	5	8687	7099	8236	6.0	5.0	5.2	10	201	139	154
November	400	250	315	4	18953	8332	11871	8.0	3.0	5.2	5	606	94	225
December	420	260	335	4	13696	10148	12225	6.0	5.0	5.2	5	225	163	195
ANNUAL HIGH	510	320	368	5	18953	10148	13520	15.0	5.0	7.5	15	1469	209	471
ANNUAL LOW	280	160	225	4	8687	5685	7591	5.0	3.0	5.0	4	171	94	145
ANNUAL AVG.	366	247	302	4	13320	8278	10569	9.0	4.8	5.9	8	476	156	237



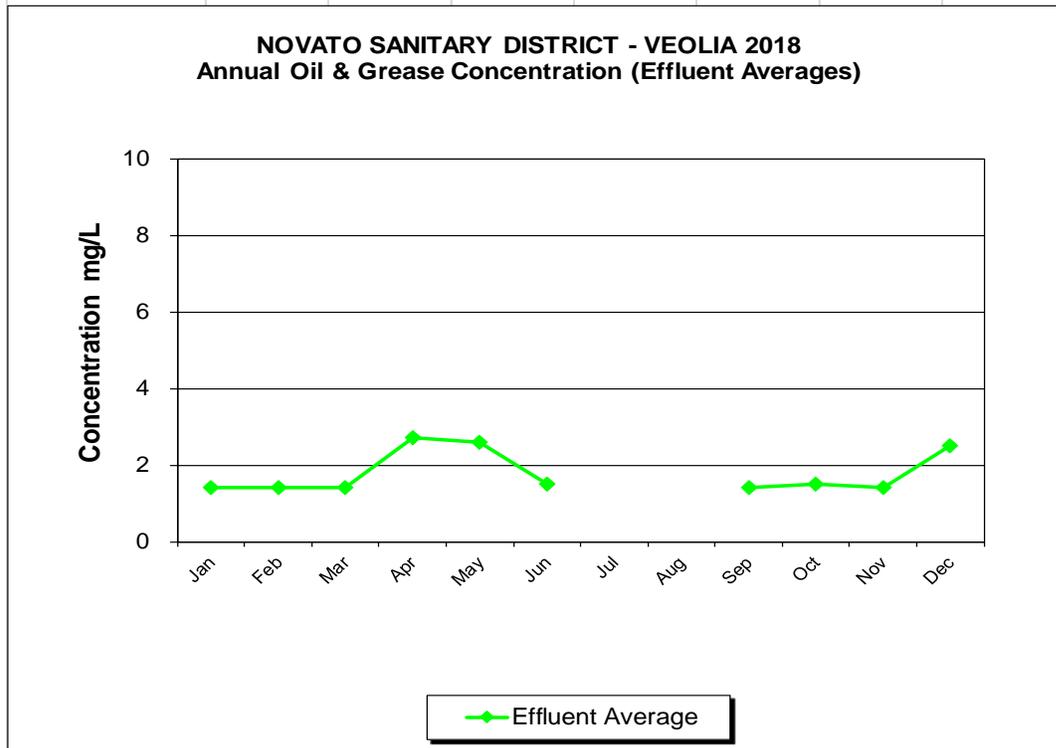
2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

NOVATO SANITARY DISTRICT - VEOLIA															
SUSPENDED SOLIDS (Influent & Effluent)															
Annual Waste Characteristics & Loading Summary															
YEAR: 2018												PRINT DATE: 28-Mar-2019			
	INFLUENT							EFFLUENT							
	Concentration (mg/L)			No. of Samples	Loading (lb/day)			Concentration (mg/L)			No. of Samples	Loading (lb/day)			
	High	Low	Average		High	Low	Average	High	Low	Average		High	Low	Average	
January	487	271	341	5	24093	11331	15540	15.0	5.0	9.2	5	1334	178	508	
February	322	180	262	4	9695	5720	8298	7.0	3.0	5.0	4	222	98	159	
March	380	192	269	4	21697	8708	14998	12.0	3.0	6.5	4	1356	109	413	
April	294	205	255	4	13854	9581	10883	5.0	3.0	3.4	4	185	112	144	
May	347	256	321	5	12039	9053	10892	6.0	3.0	3.9	5	208	93	132	
June	475	290	373	4	15054	9208	11496	4.0	3.0	3.2	4	118	89	97	
July	378	230	293	4	10183	6585	7941	6.0	3.0	3.4	4	181	81	98	
August	379	274	315	5	11379	7998	9222	6.0	3.0	3.6	5	175	83	103	
September	384	248	326	4	10632	7074	9139	4.0	3.0	3.4	4	111	85	96	
October	418	325	383	5	15444	9568	11349	6.0	3.0	3.6	5	222	76	110	
November	366	264	308	4	20014	8171	11841	8.0	3.0	5.2	4	606	94	225	
December	376	257	297	4	14456	9294	10959	5.0	3.0	3.8	4	187	98	143	
ANNUAL HIGH	487	325	383	5	24093	11331	15540	15.0	5.0	9.2	5	1356	178	508	
ANNUAL LOW	294	180	255	4	9695	5720	7941	4.0	3.0	3.2	4	111	76	96	
ANNUAL AVG.	384	249	312	4	14878	8524	11046	7.0	3.2	4.5	4	409	100	186	



2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

NOVATO SANITARY DISTRICT - VEOLIA							
OIL & GREASE (Effluent)							
Annual Waste Characteristics & Loading Summary							
YEAR: 2018				PRINT DATE:	28-Mar-2019		
EFFLUENT							
	Concentration (mg/L)			No. of Samples	Loading (lb/day)		
	High	Low	Average		High	Low	Average
January	1.4	1.4	1.4	1	72	72	72
February	1.4	1.4	1.4	1	46	46	46
March	1.4	1.4	1.4	1	54	54	54
April	2.7	2.7	2.7	1	116	116	116
May	2.6	2.6	2.6	1	45	45	45
June	1.5	1.5	1.5	0	41	41	41
July*	No Sample			0	No Sample		
August*	Reclamation			0	Reclamation		
September	1.4	1.4	1.4	1	37	37	37
October	1.5	1.5	1.5	1	36	36	36
November	1.4	1.4	1.4	1	44	44	44
December	2.5	2.5	2.5	1	101	101	101
ANNUAL HIGH	2.7	2.7	2.7		116	116	116
ANNUAL LOW	1.4	1.4	1.4		36	36	36
ANNUAL AVG.	1.8	1.8	1.8		59	59	59



2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

NOVATO SANITARY DISTRICT - VEOLIA							
pH (Effluent)							
Annual Waste Characteristics & Loading Summary							
YEAR: 2018			PRINT DATE: 28-Mar-2019				
	High	Low	Average	Number of Samples			
January	7.0	6.8	6.9	23			
February	7.2	7.0	7.0	20			
March	7.1	6.7	6.9	22			
April	7.1	6.9	7.0	21			
May	7.1	6.9	7.0	23			
June	7.2	6.9	7.0	21			
July	7.1	6.9	7.0	22			
August	7.1	6.9	7.0	23			
September	7.0	6.8	6.9	20			
October	7.0	6.8	6.9	23			
November	7.0	6.8	6.9	22			
December	7.1	6.8	7.0	21			
				Number of Samples Total =		261	
ANNUAL MAX.	7.20	7.00	7.03				
ANNUAL MIN.	7.00	6.70	6.92	1st Qtr.	65	2nd Qtr.	65
ANNUAL AVG.	7.08	6.85	6.97	3rd Qtr.	65	4th Qtr.	66

NOVATO SANITARY DISTRICT - VEOLIA 2018
Annual pH Values (Effluent - Averages)

Month	Average pH (SU)
Jan	6.95
Feb	7.02
Mar	6.92
Apr	6.99
May	6.98
Jun	7.01
Jul	6.97
Aug	6.99
Sep	6.94
Oct	6.94
Nov	6.94
Dec	6.96

2018 ANNUAL OPERATIONS AND MAINTENANCE REPORT FOR THE NOVATO SANITARY DISTRICT

NOVATO SANITARY DISTRICT - VEOLIA							
TEMPERATURE (Effluent)							
Annual Waste Characteristics & Loading Summary							
YEAR: 2018			PRINT DATE: 28-Mar-2019				
	High	Low	Average	Number of Samples			
January	19.7	16.4	18.3	23.0			
February	19.7	16.9	18.3	20.0			
March	19.0	16.2	17.7	22.0			
April	20.3	17.9	18.9	21.0			
May	22.7	19.5	21.0	23.0			
June	23.6	21.9	22.8	21.0			
July	25.3	22.7	24.3	22.0			
August	24.9	23.7	24.2	23.0			
September	24.9	23.0	23.8	20.0			
October	24.3	22.1	23.0	23.0			
November	23.4	18.7	21.2	22.0			
December	20.0	18.3	19.2	21.0			
				Number of Samples Total = 261			
ANNUAL MAX.	25.3	23.7	24.3				
ANNUAL MIN.	19.0	16.2	17.7	1st Qtr.	65	2nd Qtr.	65
ANNUAL AVG.	22.3	19.8	21.0	3rd Qtr.	65	4th Qtr.	66

NOVATO SANITARY DISTRICT - VEOLIA 2018
Annual Temperature (Effluent - Average)

Month	Average Temperature (Degrees C°)
Jan	18.3
Feb	18.3
Mar	17.7
Apr	18.9
May	21.0
Jun	22.8
Jul	24.3
Aug	24.2
Sep	23.8
Oct	23.0
Nov	21.2
Dec	19.2