To: Liquid Waste Committee

From: Fred Nenninger, Director, Policy Planning & Analysis, Liquid Waste Services

Date: July 23, 2019 Meeting Date: September 19, 2019

Subject: **Update on Liquid Waste Sustainability Innovation Fund Projects**

The attached report titled, "Update on Liquid Waste Sustainability Innovation Fund Projects," was provided for information to:

- May 17, 2019 Climate Action Committee (Item 5.1), and;
- May 22, 2019 Metro Vancouver Regional District Board (Item I1)

and is presented here to the Liquid Waste Committee for its information.

Attachment

1. 2019 Update on Liquid Waste Sustainability Innovation Fund Projects, May 2, 2019

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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

Attachment

To: Climate Action Committee

From: Fred Nenninger, Director, Policy, Planning and Analysis
Liquid Waste Services Department

Date: May 2, 2019 Meeting Date: May 17, 2019

Subject: **2019 Update on Liquid Waste Sustainability Innovation Fund Projects**

RECOMMENDATION

That the Climate Action Committee receive for information the report dated May 2, 2019, titled "2019 Update on Liquid Waste Sustainability Innovation Fund Projects".

PURPOSE

This report provides an update on projects funded under the Liquid Waste Sustainability Innovation Funds.

BACKGROUND

The Liquid Waste Sustainability Innovation Fund was created by the Board in 2004 to provide financial support to Liquid Waste Utility projects that contribute to the region's sustainability. The GVS&DD Board adopted the *Liquid Waste Sustainability Innovation Fund Policy* on June 27, 2014, with further amendments in 2016, to guide the use and management of the Fund. The policy requires that the Climate Action Committee be updated on an annual basis on the deliverables, outcomes and measurable benefits of the projects receiving funding.

This report presents an update on projects that have not yet been reported as complete to the Climate Action Committee. The projects outlined below were approved for funding from 2016 to 2018. Projects that were approved for funding in 2019 have not been included in this report, but will be reported on in 2020, per the policy.

Project	Approval Year	Amount Approved	Status
Smart Sewers: Development of Wireless In-Situ Sensors	2016	$200,000	In Progress
High Efficiency Aeration Demonstration	2017	$750,000	In Progress
Genomics Approach to Anaerobic Digestion Optimization	2017	$460,000	In Progress
Microwave-enhanced Advanced Oxidation Process Sludge Destruction Pilot	2017	$850,000	In Progress
Capture of wastewater contaminants of concern and beneficial use of residuals	2018	$450,000	In Progress
Intelligent Water Systems - Making Use of Sensors and Big Data Analytics	2018	$200,000	In Progress
Hydrothermal Processing - Biofuel Demonstration Facility	2018	$8,250,000	In Progress

SMART SEWERS: DEVELOPMENT OF WIRELESS IN-SITU SENSORS: IN PROGRESS

The goal of this project is to develop a smart sensor capable of early detection of nuisance odours and corrosion that erodes the service life of Metro Vancouver's multi-billion dollar sewage collection network. Since funding approval in May 2016, the UBC Engineering Team from the Advanced Thermo-Fluidic Laboratory has leveraged Sustainability Innovation Funds to secure two grants from the federal Natural Sciences and Engineering Research Council, totaling $225,000 to date.

Applying advanced electro-mechanical engineering techniques, the UBC Team is applying iterative design and manufacturing of two functionally distinct types of sensor prototypes using 3D printers. The sizing of prototypes has decreased with each iteration, while recent innovations have enabled operation in explosive sewer atmospheres. Auxiliary components under development include a touchscreen graphical user interface and a multi-stage sample filtration module. Sensor testing on sewage is currently under way, with plans for pilot-testing in a continuously flowing sewer-reactor set for mid-2019.

HIGH EFFICIENCY AERATION DEMONSTRATION: IN PROGRESS

More than one-half of the energy consumed at a wastewater treatment facility can be for aerating the wastewater. A new device called the Perlemax Fluidic Oscillator has shown its ability to increase energy efficiency by 25% at small scale and this project is to evaluate the device at near-full water depths. The Perlemax device induces the formation of microbubbles using standard air diffusers to effectively increase the area of contact between oxygen and water given the same volume of air.

Since project start in 2017, Metro Vancouver has retained Perlemax as the technology provider who has provided their conceptual design, secured the Water Research Foundation as a third party independent evaluator, and staff are in the process of formalizing collaborative work with the District of Columbia Water and Sewer Authority (DC Water) at their large wastewater treatment plant. DC Water has provided in-kind contributions to the project by way of specialized test facilities and some staff time for the duration of ourcollaboration.

GENOMICS APPROACH TO ANAEROBIC DIGESTION OPTIMIZATION: IN PROGRESS

The goal of this project is to increase energy generation from existing anaerobic digestion processes used at Metro Vancouver Wastewater Treatment Plants. There are two academic teams on this project: i) environmental genomic experts at UBC's Department of Microbiology and Immunology, and ii) anaerobic digestion experts from UBC's School of Engineering, Bioreactor Technology Group. Since project approval in February 2017, the genomics team and Bioreactor Technology Group have leveraged Sustainability Innovation Funds to secure four grants from the Natural Sciences and Engineering Research Council totaling over $700,000.

The team has completed sampling of existing anaerobic digesters at the Lulu Island WWTP for baselining and grant proposal submissions. Preliminary findings show that less than 1% of microorganisms present are methanogens, those responsible for producing the methane content in biogas. Given the relatively small starting community of methanogens, even a marginal increase in this population should result in a significant increase in methane production. The genomic analysis suggests methane-limiting conditions are present such as availability of trace elements and electron donors. Ongoing work involves execution of agreements, student recruitment, laboratory set-up, and

bench testing to identify the key constraints to methane production. Insights to alleviate the constraints are informing prototype design of a potentially patentable Renewable Natural Gas Optimizer.

MICROWAVE-ENHANCED ADVANCED OXIDATION PROCESS SLUDGE DESTRUCTION PILOT: IN PROGRESS

Anaerobic digestion (AD) at Wastewater Treatment Plants is a common process to convert municipal sewage sludge into biogas that can be used as a renewable source of energy. Sludge pre-treatment processes can accelerate sludge destruction to increase AD efficiency and biogas production. At its February 24, 2017 meeting, the GVS&DD Board approved the allocation of funds from the Liquid Waste Sustainability Innovation Fund to the Microwave-enhanced Advanced Oxidation Process Sludge Destruction Pilot. The process consists of exposing secondary sludge to microwave heating after injection of hydrogen peroxide (H2O2). The combination of heat and H2O2 increases solids disintegration, making them more available for biogas production. The project is being undertaken in collaboration with academics in the Civil Engineering Department of UBC who patented this process in 2006. Leveraging contributions from the Sustainability Innovation Fund, UBC was successful in a NSERC funding award of $518,000 for this project.

The first phase of the project is underway and will be completed by end of 2019. The trailer pilot plant was designed and built. Installation at the Annacis Research Centre (ARC) is under way and commissioning will be completed in May 2019. This first phase will test the process to assess potential for methane recovery, energy consumption and life cycle costs to confirm cost effectiveness of the process. If this first phase is successful, a second phase will be considered to carry out pilot testing at one of Metro Vancouver Wastewater Treatment Plants.

CAPTURE OF WASTEWATER CONTAMINANTS OF CONCERN AND BENEFICIAL USE OF RESIDUALS: IN PROGRESS

Dr. Loretta Li at the Civil Engineering Department at the University of British Columbia (UBC) has been developing a process using sewage sludge-based activated carbon (SBAC) to capture contaminants of emerging concern (CECs) in storm water and is proposing to apply her research to the capture of contaminants in municipal wastewater. On February 23, 2018, the GVS&DD Board approved funding for the project from the Liquid Waste Sustainability Innovation Fund for $450,000 over three years, starting in 2018. On December 5, 2018, a Collaborative Research Agreement (CRA) was executed between UBC, GVS&DD and KWL for the project titled "Sludge-Based Activated Carbon for Contaminants Capture". That CRA covers the work associated with the first phase of the research work at UBC aimed at demonstrating technical feasibility. Subsequent phases of the research work will be covered under a future or amended CRA, following confirmation of technical feasibility in the Phase 1 work.

A separate collaboration agreement between GVS&DD and KWL to cover KWL's scope of work was executed on January 1, 2019. KWL's scope of work includes developing a preliminary business case including SBAC material quantity requirements, production costs and market size and assessment of the commercial feasibility of the opportunity. KWL has also applied for additional funding from Mitacs Inc., a federal not-for-profit corporation that supports industrial and social innovation in Canada, to

hire researchers to work on the project with UBC. Once funding is confirmed at the end of April, UBC will hire researchers and initiate Phase 1 technical work.

INTELLIGENT WATER SYSTEMS - MAKING USE OF SENSORS AND BIG DATA ANALYTICS: IN PROGRESS

Metro Vancouver and its municipal members currently monitor and collect large amounts of data from many different sources. With the advent of new and less expensive sensor and data collection technology this trend is expected to increase exponentially. This results in the need to be able to collect, process, and analyze a large amount of data (Big Data) before it can become usable information. The process to adapt to this shift for the water industry is currently in its infancy. There is a need to identify and evaluate new and innovative tools and techniques to take advantage of this change, and this project is intended to help Metro Vancouver prepare for the coming wave of "Big Data".

The Water Research Foundation (WRF) is managing a study to help the water industry prepare for the need to manage this coming wave of data. Metro Vancouver is partnering with WRF through a $200,000 Sustainability Innovation Fund contribution and will be a key subject case study. A possible example is to explore the use of Artificial Intelligence for comprehensive quality assessment and quality control of data. Another possible example is to develop procedures to assess patterns and predict malfunctions for adapting operational rules or scheduled maintenance. Other study considerations can include the integration of various datasets, and the ability to input and process key information such as real time rainfall and flow data, land use and population data, and environmental monitoring data.

HYDROTHERMAL PROCESSING - BIOFUEL DEMONSTRATION FACILITY: IN PROGRESS

Hydrothermal Processing is a technology that has proven at bench-scale, its ability to transform Annacis Island wastewater sludge into a low carbon biocrude oil. The biocrude can be subsequently refined into liquid transportation fuels having carbon intensities that are three-fold lower than that produced from typical petroleum sources. A complete Hydrothermal Process includes two steps. This demonstration project covers Step 1 to validate operational viability of the core technology, assess its outputs for revenue-generation potential or return to treatment, and calculate greenhouse gas reductions.

In addition to contributions from the Sustainability Innovation Fund, Metro Vancouver has raised funding from external partners for this project as outlined below.

Line	Funding Source	Amount	Status
1	Province of BC, Innovative Clean Energy (ICE) Fund	$750,000	Received in 2018
2	Parkland Fuel Corporation, Part 3 Agreement	$2,475,000	Received in 2018
3	Parkland Fuel Corporation, Part 3 Agreement	$1,775,000	Future year contributions
4	Sustainability Innovation Fund	$4,000,000	Approved in 2018
	Total Project Cost	$9,000,000	

The $9 million in total funding covers the design, fabrication, implementation, as well as approximately one year of operating Step 1 of the complete Hydrothermal Process. To date, the project team has secured the demonstration site at the Annacis Island Wastewater Treatment Plant, retained rights to proprietary technology, as well as preliminary design and support from Genifuel

Corporation. The team will proceed with additional contracts for an owner's engineer, fabricator, operator, and evaluator in the coming months.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The projects summarized in this report, had funding approved by the GVS&DD Boards in 2016, 2017, and 2018. The disbursals of funds were made in accordance with the applicable *Sustainability Innovation Fund Policy* that governs the use and management of the Funds. Annually, $1,127,000 is contributed to the reserve fund. The projected 2019 reserves in the Liquid Waste Sustainability Innovation Fund total $13.6 million.

The table below outlines the funding approved and the amount spent to date for each project. Any unspent funds for completed projects remain in the Sustainability Innovation Fund reserve.

Project	Total Amount of Funding Approved	Amount Spent (as of Mar 31, 2019)
2016 Approval Year		
Smart Sewers: Development of Wireless In-Situ Sensors	$200,000	$200,000
2017 Approval Year		
High Efficiency Aeration Demonstration	$750,000	$91,871
Genomics Approach to Anaerobic Digestion Optimization	$460,000	$98,718
Microwave-enhanced Advanced Oxidation Process Sludge Destruction Pilot	$850,000	$585,000
2018 Approval Year		
Capture of wastewater contaminants of concern and beneficial use of residuals	$450,000	$103,000
Intelligent Water Systems - Making Use of Sensors and Big Data Analytics	$200,000	$0
Hydrothermal Processing - Biofuel Demonstration Facility	$8,250,000	$1,224

SUMMARY / CONCLUSION

This report has presented an update on seven projects funded under the Liquid Waste Sustainability Innovation Fund. The Sustainability Innovation Funds were created by the Board in 2004 to provide financial support to utility or Regional District projects that contribute to the region's sustainability.

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To: Liquid Waste Committee

From: Andjela Knezevic-Stevanovic, Director, Environmental Management and Quality Control, Liquid Waste Services

Date: August 22, 2019 Meeting Date: September 19, 2019

Subject: **2018 GVS&DD Environmental Management and Quality Control Annual Report**

RECOMMENDATION

That the Liquid Waste Committee receive for information the report dated August 22, 2019 titled "2018 GVS&DD Environmental Management and Quality Control Annual Report".

PURPOSE

To provide the Liquid Waste Committee with a summary of the 2018 GVS&DD Environmental Management and Quality Control Annual Report.

BACKGROUND

This report is being brought forward to satisfy annual reporting requirement under the Ministerial conditions of provincial approval of Metro Vancouver's *Integrated Liquid Waste and Resource Management Plan* (ILWRMP). The report was presented to and received for information by the Regional Engineers Advisory Committee (REAC) on July 5, 2019.

SUMMARY OF RESULTS

The Executive Summary of the 2018 GVS&DD Environmental Management and Quality Control Annual Report (Attachment 1) summarizes the regulatory and process control information gathered through the various monitoring and risk assessment programs that are in place to meet GVS&DD's commitments under the ILWRMP, including those for: wastewater treatment plant influent, effluent, odour and process streams; operation of the collection system; effluent toxicity testing; receiving and ambient environment quality; and biosolids. For additional details please refer to the 2018 GVS&DD Environmental Management and Quality Control Annual Report available through Metro Vancouver's website and through the Metro Vancouver Library.

In order to assess wastewater treatment system performance and reliability, its impact on human health and the environment, and to perform biosolids and environmental quality monitoring, the Environmental Management and Quality Control Division performed over 207,000 analyses in 2018. Major conclusions are as follows:

a) The five wastewater treatment plants (WWTPs) treated over 456 billion litres of wastewater in 2018. The quantities of biochemical oxygen demand (BOD) and total suspended solids (TSS) removed were 58,000 tonnes and 57,000 tonnes, respectively.

b) The WWTPs consistently complied with Operational Certificate requirements except in seventeen instances as detailed in the Executive Summary.

c) 16,000 tests were performed on biosolids in 2018. Metal concentrations in weekly composite samples and fecal coliform counts in biosolids were all generally below the regulatory limits outlined in the *Organic Matter Recycling Regulation* (OMRR).

d) All effluent samples from all wastewater treatment plants passed the required monthly acute toxicity test except for four Iona Island effluent samples which required oxygen in excess of that specified by the Environment and Climate Change Canada method.

e) As part of the characterization of wastewater from all five WWTPs for contaminants of emerging concern, analysis of trace organic and endocrine disrupting substances was initiated in 2014 and continued through 2018. Analyzed substances include: organochlorine pesticides (OCPs) and other types of pesticides, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), volatile organic compounds, phenolic compounds, surfactants, polybrominated diphenyl ethers (PBDEs), hormones and sterols, pharmaceuticals and personal care products (PPCPs). Results are used to inform decisions regarding the management of these substances, including source control initiatives.

f) Assessment of monitoring results from the Strait of Georgia, Burrard Inlet and Boundary Bay indicated that the applicable objectives or guidelines were met, except for dissolved oxygen and boron, for which results were consistent with typical concentrations in Canadian coastal marine waters. Monitoring results from the Annacis Initial Dilution Zone (IDZ) met the applicable objectives and guidelines, except un-ionized ammonia on occasion did not meet the CCME guideline at the IDZ boundary. However, total ammonia concentrations met the site-specific Fraser River Water Quality Objective.

g) Bacteriological water quality for primary-contact recreation was met for most bathing beaches from May through September, except for 9 beach locations detailed in the annual summary. Swimming advisories were posted by the Health Authorities at the affected areas which resulted in swimming advisory postings that lasted between 2 to 21 days.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

Ongoing environmental management, monitoring and quality control works are proceeding as required under the GVS&DD *Integrated Liquid Waste and Resource Management Plan* and the associated costs are included in the Liquid Waste Services Environmental Management and Quality Control annual operating budget.

SUMMARY / CONCLUSION

Annual reporting of the GVS&DD Environmental Management and Quality Control is a regulatory requirement under the *Integrated Liquid Waste and Resource Management Plan*. This report summarizes the compliance, process control and regional environmental quality information

gathered through various monitoring and risk assessment programs that are in place to meet GVS&DD's commitments under the ILWRMP.

As illustrated by the 2018 GVS&DD Environmental Management and Quality Control Annual Report, Metro Vancouver's wastewater treatment plants continue to meet performance expectations with respect to reduction of contaminant loadings to the receiving environment and are consistently providing ongoing benefits to the region. Various monitoring programs continue to fulfill their role of confirming that the wastewater treatment plants are operating efficiently and with no adverse effects on human health or the environment. Findings of the environmental monitoring programs confirm that regional liquid waste discharges continue to be effectively managed in a manner that is protective of aquatic life.

Attachment

1. 2018 GVS&DD Environmental Management and Quality Control Annual Report Executive Summary

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2018 GVS&DD ENVIRONMENTAL MANAGEMENT AND QUALITY CONTROL ANNUAL REPORT EXECUTIVE SUMMARY

The Greater Vancouver Sewerage and Drainage District (GVS&DD or the District) operates five wastewater treatment plants (WWTPs) in the region. Three of the five plants provide secondary treatment (Annacis Island, Lulu Island and Northwest Langley) and discharge treated effluent into the lower Fraser River. The other two wastewater treatment plants (Iona Island and Lions Gate) provide primary treatment and discharge treated effluent to Georgia Strait and First Narrows of Burrard Inlet, respectively.

Under the provisions of the Environmental Management Act, the Minister of Environment approved Metro Vancouver's Integrated Liquid Waste and Resource Management Plan (ILWRMP, or the Plan) in May 2011. The Plan has three goals: protect public health and the environment; use liquid waste as a resource; and effective, affordable and collaborative management. Metro Vancouver manages its liquid waste in accordance with the ILWRMP and WWTP specific Operational Certificates. These Certificates authorize the GVS&DD to discharge treated effluent from its WWTPs to the receiving waters. The federal Wastewater Systems Effluent Regulations (WSER) under the Fisheries Act came into effect on July 18, 2012. GVS&DD is required to monitor and report effluent quality under WSER on a quarterly basis.

The District's objective is to maintain ongoing compliance with the provincial Operational Certificates and federal WSER, and by doing so continue to protect human health and the environment. The purpose of this report is to document the performance of the collection system and WWTPs in 2018 and to summarize findings of numerous environmental management initiatives and monitoring programs.

Most of the monitoring, laboratory analytical services and data analyses upon which WWTP performance is assessed were provided by the Environmental Management & Quality Control Division of Metro Vancouver's Liquid Waste Services.

This report provides an overview of the information collected as a result of Environmental Management & Quality Control's monitoring programs for the wastewater treatment plants, including monitoring for effluent and biosolids quality, and receiving and ambient environment quality. Other programs and projects discussed in this report are in support of ongoing commitments under the ILWRMP or compliance with conditions of the Plan approved by the Minister of Environment.

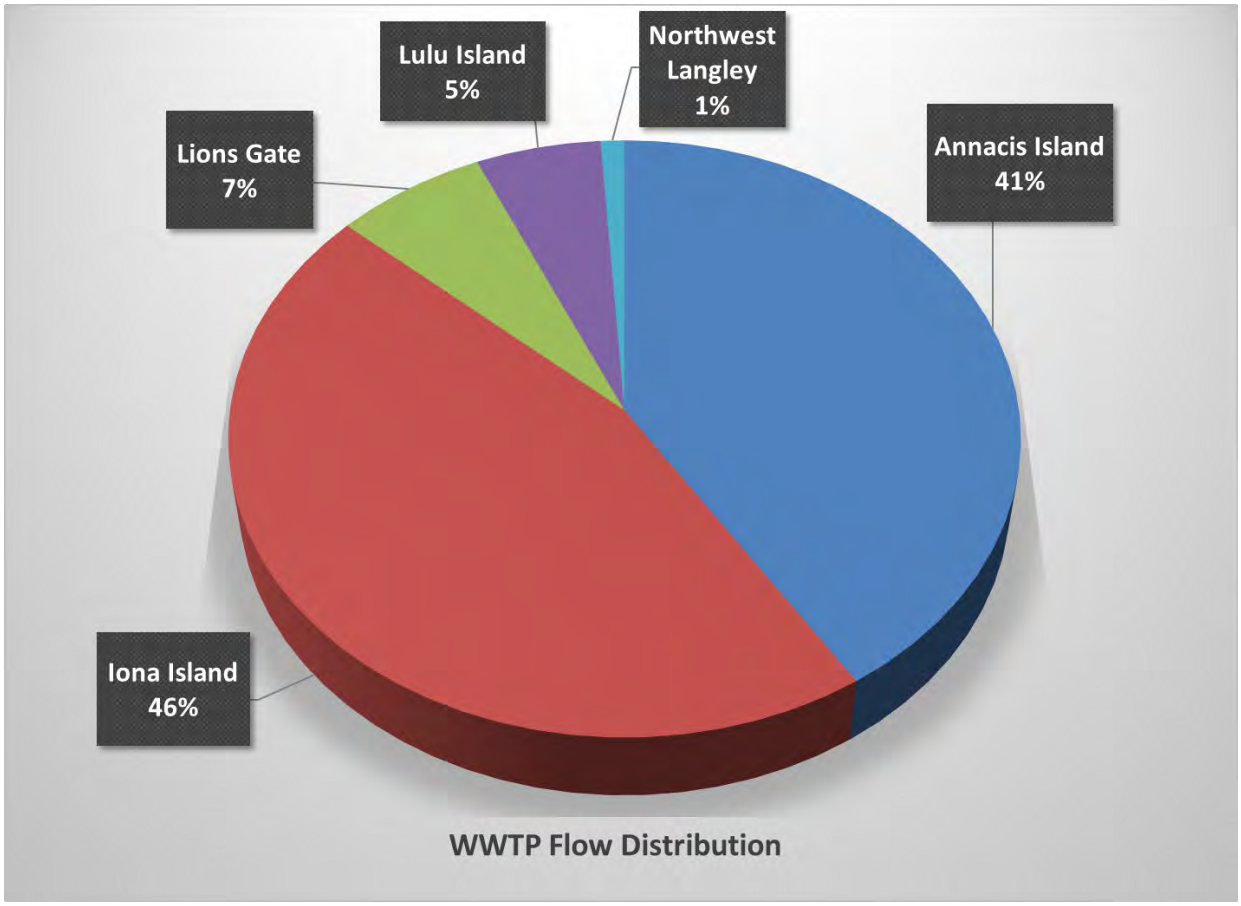
WASTEWATER TREATMENT PLANTS

Operational Certificates

The Operational Certificates (OCs) issued by the Ministry of Environment (MOE) under the provisions of the Environmental Management Act include daily compliance levels for flow and daily loadings for Biochemical Oxygen Demand (BOD) (or Carbonaceous Biochemical Oxygen Demand (cBOD), where applicable) and Total Suspended Solids (TSS). The loading parameters listed as "maximum daily discharge loadings" are used to calculate the annual discharge authorization fees as required by the Permit Fees Regulation and are based on a calendar year.

Among other OC conditions, requirements are listed for disinfection of the effluent at all WWTPs except Iona Island, so that fecal coliform water quality objectives for the receiving water body are met at the edge of the initial dilution zone as defined by the Municipal Wastewater Regulation. When chlorine is used for disinfection, it must be removed from the effluent before discharge to the receiving waters.

In 2018, about 456 billion litres of wastewater were treated at the GVS&DD's five wastewater treatment plants. Of this total, over 239 billion litres received primary treatment (at Iona Island and Lions Gate) with the remaining 217 billion litres treated at the three secondary wastewater plants (at Annacis Island, Lulu Island and Northwest Langley). Individual treated effluent flows for each wastewater treatment plant and quantities of BOD and suspended solids removed in 2018 are summarized below:



Total for 2018	Annacis Island WWTP	Iona Island WWTP	Lions Gate WWTP	Lulu Island WWTP	Northwest Langley WWTP	Total
Effluent Flow, ML	186,392	207,898	30,916	25,486	4,853	455,545
BOD, Tonnes Removed	34,561	13,046	1,553	6,938	1,508	57,966
Suspended Solids, Tonnes Removed	30,748	16,820	3,191	5,251	1,218	57,227

Treatment Plant Performance Review

The overall performance of the GVRD's five wastewater treatment plants was good. BOD and TSS operational certificate requirements were generally met throughout 2018. The following table summarizes the average reduction in BOD and TSS loadings for all plants.

Wastewater Treatment Plant	% BOD Reduction	% TSS Reduction
Iona Island *	45	61
Lions Gate*	41	67
Annacis Island **	94	91
Lulu Island **	97	96
Northwest Langley**	95	93

* Reduction for primary plants expected to be about 30% for BOD and 60% for TSS

** Reduction for secondary plants expected to be about 90% for both TSS and BOD

In 2018, GVS&DD reported 17 events to the Ministry of Environment. These events can be grouped into 2 categories.

Category 1 (8 events) includes instances of disinfection or dechlorination system interruptions, plant bypasses, controlled discharges and spills. Probable causes and potential environmental effects are discussed in the table below.

Description	Plant	Date	Quantity Discharged	Duration	Probable Cause	Mitigation Measures	Potential Environmental Effects (Determined based on dilution dispersion modelling of downstream concentrations)
Controlled discharge of trickling filter effluent	Annacis Island	Jan 29	1.3 to 1.9 million litres	10.67 hours	Wet weather caused high influent flows	Not Applicable	Trickling filter effluent was contained in a construction excavation area located within the boundaries of Annacis Island WWTP.
Disinfection System Interruption*	Annacis Island	Apr 16	6.96 million litres	10.97 minutes	BC Hydro power interruption	Not Applicable	The applicable Health Canada Recreational Water Quality Guidelines were predicted to have been met at designated recreation areas. The applicable BC MOE Water Quality Guidelines for fecal coliforms were predicted to have been met at known registered water licence diversion points. The applicable BC MOE Water Quality Guidelines for chlorine were expected to have been met in the Fraser River.
Disinfection System Interruption*	Lulu Island	April 23	0.10 million litres	2.35 minutes	BC Hydro power interruption	Not Applicable	The applicable BC MOE Water Quality Guidelines for chlorine were expected to have been met in the Fraser River.
Disinfection System Interruption*	Lions Gate	June 20	0.03 million litres	32 seconds	BC Hydro power interruption	Not Applicable	The applicable Health Canada Recreational Water Quality Guidelines were predicted to have been met at designated recreation areas. The applicable BC MOE Water Quality Guidelines for chlorine were expected to have been met in Burrard Inlet.
Disinfection System Interruption*	Annacis Island	July 25	1.15 million litres	4.07 minutes	Power interruption to chlorination equipment	Not Applicable	The applicable Health Canada Recreational Water Quality Guidelines were predicted to have been met in the Fraser River. The applicable BC MOE Water Quality Objectives for fecal coliforms were predicted to have been met in the Fraser River.

Description	Plant	Date	Quantity Discharged	Duration	Probable Cause	Mitigation Measures	Potential Environmental Effects (Determined based on dilution dispersion modelling of downstream concentrations)
Disinfection System Interruption and Plant Bypass*	Lulu Island	Sept 13	Disinfection Interruption: 6.67 million litres Plant Bypass: 1.04 million litres	Disinfection Interruption: 2.62 hours Plant Bypass: 0.43 hour	Loss of power to one of the plant Power Distribution Centers	Not Applicable	There was potential for exceeding the applicable Health Canada and BC MOE Recreational Water Quality Guidelines at Garry Point Park. There was potential for exceeding the applicable BC MOE Water Quality Guidelines for fecal coliforms at known registered water license diversion points. The applicable BC MOE Water Quality Objectives for TSS and dissolved oxygen were expected to have been met in the Fraser River. The applicable BC MOE Water Quality Guidelines for chlorine were expected to have been met in the Fraser River.
Treated Primary Effluent Spill to ground	Lions Gate	Nov 27	0.003 million litres	1.0 hour	High tide levels combined with high effluent flow conditions	Not Applicable	Soil chemistry results indicated the concentrations of arsenic, copper and zinc above the Canadian Environmental Quality Guidelines and Canadian Soil Quality Guidelines for industrial land use. E. Coli was also detected in the soil at a relatively high concentration. There is no standard for E. Coli in soil. Water chemistry results indicated the concentrations of cadmium, copper, lead and zinc above the BC Water Quality Guidelines, Canadian Surface Water Quality Guidelines and Federal Interim Groundwater Guidelines for industrial land use and marine life. E. Coli was also detected in the water at a relatively high concentration. There is no standard for E. Coli in water.
Secondary Treatment Bypass*	Lulu Island	Dec 20	21.157 million litres	5.73 hours	Loss of power from BC Hydro	Not Applicable	The applicable BC MOE Water Quality Objectives for TSS and dissolved oxygen were expected to have been met in the Fraser River.

* Event was reported to the MOE and their assessment determined that conditions and requirements under *Emergency Procedures* clause of the Operating Certificate were met. Plant was deemed to be in compliance with its Operating Certificate.

Category 2 (9 events) were the results of daily discharge loadings for suspended solids or cBOD above the maximum load limits as well as daily rate of effluent discharge above the maximum limits. These events typically have no significant environmental effect.

Description	Plant	Date	Quantity Discharged	Duration	Probable Cause	Mitigation Measures	Potential Environmental Effects (Determined based on dilution dispersion modelling of downstream concentrations)
Suspended Solids Loading	Annacis Island	March 26	20.4 tonnes/day	Not Applicable	Wet weather caused high influent flow conditions	No remedial action required	The applicable BC MOE Water Quality Objective for TSS was expected to have been met in the Fraser River.
Suspended Solids Loading	Annacis Island	April 3	20.1 tonnes/day	Not Applicable	Elevated final effluent TSS due to poor settling characteristics of the solids	Polymer was added to enhance secondary clarification until settling characteristics returned to typical.	The applicable BC MOE Water Quality Objective for TSS was expected to have been met in the Fraser River.
Suspended Solids Loading	Annacis Island	April 5	22.5 tonnes/day	Not Applicable	Elevated final effluent TSS due to poor settling characteristics of the solids	Polymer was added to enhance secondary clarification until settling characteristics returned to typical.	The applicable BC MOE Water Quality Objective for TSS was expected to have been met in the Fraser River.
cBOD Loading	Northwest Langley	Oct 18	0.506 tonnes/day	Not Applicable	High soluble CBOD fraction in the Trickling Filter Effluent	The number of trickling filter units in service was increased by 33%	The applicable BC MOE Water Quality Guideline for dissolved oxygen was expected to have been met in the Fraser River.

Description	Plant	Date	Quantity Discharged	Duration	Probable Cause	Mitigation Measures	Potential Environmental Effects (Determined based on dilution dispersion modelling of downstream concentrations)
cBOD Loading	Northwest Langley	Nov 1	0.508 tonnes/day	Not Applicable	Wet weather caused high influent flow conditions.	No remedial action required.	The applicable BC MOE Water Quality Guideline for dissolved oxygen was expected to have been met in the Fraser River.
Suspended Solids Loading	Annacis Island	Dec 13	21.1 tonnes/day	Not Applicable	Wet weather caused high influent flow conditions.	No remedial action required.	The applicable BC MOE Water Quality Objective for TSS was expected to have been met in the Fraser River.
Daily Authorized Rate of Effluent Discharge	Iona Island	Dec 13	1,591 million litres	Not Applicable	Wet weather caused high influent flow conditions.	No remedial action required.	The applicable BC MOE Water Quality Guideline for TSS was expected to have been met in the Strait of Georgia. The applicable BC MOE Water Quality Guideline for Dissolved Oxygen was expected to have been met in the Strait Georgia.
cBOD Loading	Lulu Island	Dec 20	3.81 tonnes per day	Not Applicable	Loss of power from BC Hydro	No remedial action required.	The applicable BC MOE Water Quality Objectives for dissolved oxygen were expected to have been met in the Fraser River.
Suspended Solids Loading	Annacis Island	Dec 20	22.3 tonnes/day	Not Applicable	Loss of power from BC Hydro	No remedial action required.	The applicable BC MOE Water Quality Objective for TSS was expected to have been met in the Fraser River.
Suspended Solids Loading	Annacis Island	Dec 28	20.5 tonnes/day	Not Applicable	Wet weather caused high influent flow conditions.	No remedial action required.	The applicable BC MOE Water Quality Objective for TSS was expected to have been met in the Fraser River.

A summary of events associated with clauses of the Operational Certificates reported to the MOE in the last six years is shown in the tables below. The number of events is shown against a total number of tests or data collected during the period.

Iona Island WWTP Operational Certificate ME 00023 – issued April 23, 2004

Parameter	2013	2014	2015	2016	2017	2018
Max. Daily Discharge (Exceeded)	0	0	0	0	0	1 (of 365)
Biochemical Oxygen Demand (BOD)	0	0	2 (of 105)	0	0	0
Suspended Solids	0	0	0	0	0	0
BOD Daily Loading	0	0	0	0	0	0
Suspended Solids Daily Loading	0	0	0	0	4 (of 364)	0
Plant Bypass	0	1 (of 365)	0	0	0	0

Lions Gate WWTP Operational Certificate ME 00030 – issued April 23, 2004

Parameter	2013	2014	2015	2016	2017	2018
Max. Daily Discharge (Exceeded)	0	0	0	0	0	0
Biochemical Oxygen Demand (BOD)	1 (of 112)	0	0	0	0	0
Suspended Solids	0	0	0	0	0	0
BOD Daily Loading	0	0	0	0	0	0
Suspended Solids Daily Loading	0	0	1 (of 360)	0	1 (of 365)	0
Chlorine Residual*	0	0	0	0	0	1** (of 160)
Disinfection Interruption	0	0	0	1 (of 157)	0	0
Fecal Coliform	0	0	0	0	0	0

* Measured during disinfection season only – after dechlorination

** Event was reported to the MOE and their assessment determined that conditions and requirements under *Emergency Procedures* clause of the Operating Certificate were met. Plant was deemed to be in compliance with its Operating Certificate.

Northwest Langley WWTP Operational Certificate ME 04339 – issued December 21, 2017

Parameter	2013	2014	2015	2016	2017	2018
Max. Discharge Rate (Exceeded)	0	0	0	0	0	0
Carbonaceous Biochemical Oxygen Demand (cBOD)	0	0	0	0	0	0
Suspended Solids	0	0	1 (of 361)	0	0	0
cBOD Daily Loading	0	0	0	0	0	2 (of 156)
Suspended Solids Daily Loading	1 (of 365)	3 (of 364)	4 (of 361)	1 (of 366)	0	0
Chlorine Residual *	1 (of 154)	n/a	n/a	0	0	0
Disinfection Interruption	0	0	0	0	0	0
Fecal Coliform	0	0	0	0	0	0

* Measured during disinfection season only – after dechlorination

Annacis Island WWTP Operational Certificate ME 00387 – issued April 23, 2004

Parameter	2013	2014	2015	2016	2017	2018
Max. Daily Discharge (Exceeded)	0	0	0	0	0	0
Carbonaceous Biochemical Oxygen Demand (cBOD)	0	0	0	0	0	0
Suspended Solids	0	0	0	0	0	0
cBOD Daily Loading	0	1 (of 166)	0	0	0	0
Suspended Solids Daily Loading	0	1 (of 365)	0	1 (of 366)	0	6 (of 365)
Chlorine Residual*	0	0	0	0	2** (of 241)	0
Disinfection Interruption	0	0	0	1 (of 216)	0	2** (of 219)
Fecal Coliform	0	0	0	0	0	0
Plant Bypass	0	0	0	0	0	0
Secondary Bypass	0	0	0	0	0	0
Primary Effluent During Secondary Bypass						
Biochemical Oxygen Demand (BOD)	0	0	0	0	0	0
Suspended Solids	0	0	0	0	0	0

* Measured during disinfection season only – after dechlorination

** Event was reported to the MOE and their assessment determined that conditions and requirements under *Emergency Procedures* clause of the Operating Certificate were met. Plant was deemed to be in compliance with its Operating Certificate.

Parameter	2013	2014	2015	2016	2017	2018
Max. Daily Discharge (Exceeded)	0	0	0	0	0	0
Carbonaceous Biochemical Oxygen Demand (cBOD)	0	0	0	0	0	1** (of 156)
Suspended Solids	0	0	0	0	1** (of 364)	0
cBOD Daily Loading	0	0	0	0	0	1 (of 156)
Suspended Solids Daily Loading	0	0	0	0	0	0
Chlorine Residual *	0	0	0	0	1** (of 216)	1** (of 220)
Disinfection Interruption	1 (of 215)	1 (of 220)	1 (of 221)	0	4** (of 218)	1** (of 214)
Fecal Coliform	0	0	0	0	0	0
Plant Bypass	0	0	0	0	1**(of 365)	1** (of 365)
Secondary Bypass	0	0	0	0	1** (of 365)	1** (of 365)
Primary Effluent During Secondary Bypass						
Biochemical Oxygen Demand (BOD)	0	0	0	0	1** (of 1)	0
Suspended Solids	0	0	0	0	0	0

* Measured during disinfection season only – after dechlorination

** Event was reported to the MOE and their assessment determined that conditions and requirements under *Emergency Procedures* clause of the Operating Certificate were met. Plant was deemed to be in compliance with its Operating Certificate.

Integrated Liquid Waste and Resource Management Plan (ILWRMP)

The ILWRMP also commits GVS&DD to operate the secondary wastewater treatment plants to meet the National Performance Standards for effluent specified by the Canada-wide Strategy for the Management of Municipal Wastewater Effluent (CWS-MMWE):

Carbonaceous Biochemical Oxygen Demand (cBOD)	Total Suspended Solids (TSS)
Average	Average
≤ 25 mg/L	≤ 25 mg/L

A summary of average cBOD and TSS concentrations with the CWS – MMWE specified averaging period of monthly for Annacis Island and Lulu Island WWTPs and quarterly for Northwest Langley WWTP is shown in the table below.

Secondary Treatment Plants	Annacis Island WWTP		Lulu Island WWTP		Northwest Langley WWTP	
Parameters	TSS	cBOD	TSS	cBOD	TSS	cBOD
January	20	13	10	10		
February	18	13	10	10		
March	24	16	10	12	19	16
April	24	16	7	7		
May	15	12	9	9		
June	14	11	7	6	17	17
July	11	9	5	6		
August	11	9	5	6		
September	10	9	6	7	23	15
October	13	10	6	6		
November	14	10	6	7		
December	23	16	7	10	17	20

Wastewater Systems Effluent Regulation (WSER)

Quarterly monitoring reports were submitted through Environment and Climate Change Canada's Effluent Regulatory Reporting Information System (ERRIS) in 2018. As required by WSER, the effluent monitoring

data reported were: number of days that effluent was deposited; total volume of effluent deposited in m^3; average effluent cBOD in mg/L; and the average effluent concentration of suspended solids in mg/L. In addition, reporting of effluent acute lethality for secondary treatment plants is required on a quarterly basis for Annacis Island and Lulu Island WWTPs and on an annual basis for the Northwest Langley WWTP.

A summary of events when the parameters regulated by WSER for the District's secondary wastewater treatment plants were not met in 2018 is shown in the following table:

Parameter	Annacis Island WWTP	Lulu Island WWTP	Northwest Langley WWTP
Suspended Solids	0	0	0
Carbonaceous Biochemical Oxygen Demand (cBOD)	0	0	0
Un-ionized Ammonia	0	0	0
Total Residual Chlorine	0	0	0*
Acute Lethality	0	0	0

* Peracetic acid (PAA) is used as the primary disinfectant for Northwest Langley WWTP

GVS&DD's primary treatment plants (Iona Island and Lions Gate) were issued transitional authorizations under WSER on September 5, 2014. A summary of events when the parameters regulated by the transitional authorizations for the District's primary wastewater treatment plants were not met is shown in the following table:

Parameter	Iona Island WWTP	Lions Gate WWTP
Suspended Solids	0	0
Carbonaceous Biochemical Oxygen Demand (cBOD)	0	0
Un-ionized Ammonia	0	0

BIOSOLIDS MONITORING PROGRAM

Process Requirements and Biosolids Management

The Organic Matter Recycling Regulation (OMRR) governs the management of biosolids and compost as soil amendments in the Province of British Columbia. Under this regulation, sampling frequencies and criteria values for fecal coliforms and metals as specified for Class A and Class B biosolids are based on several parameters including: type of treatment process (pathogen reduction requirements, vector attraction reduction); the amount of dry solids produced on a monthly basis; and the intended use of the

biosolids. The GVS&DD's biosolids management program ensures that any biosolids not meeting class specifications are identified, tracked and managed appropriately.

Thermophilic digestion at Annacis Island WWTP consistently meet requirements for pathogen reduction and vector attraction reduction to produce Class A biosolids. Lulu Island WWTP mesophilic digesters and Lions Gate WWTP thermophilic digesters are operated to produce Class B biosolids.

Iona Island WWTP mesophilic digesters produce digested sludge, which is further processed via lagoon stabilization and land-drying to produce a Class B biosolids product with soil-like consistency. These biosolids are currently used as a soil enhancement product. Northwest Langley WWTP aerobic digesters are no longer operated and thickened waste secondary sludge is trucked to Annacis Island WWTP for digestion.

Biosolids Quality

About 15,700 tests were performed on biosolids in 2018. The results showed that metals concentrations were generally well below the criteria value limits specified by OMRR.

In 2018, fecal coliform counts in biosolids were within the Class A or Class B criteria for Annacis Island, Lulu Island and Lions Gate WWTPs.

ENVIRONMENTAL PROGRAMS

Environmental monitoring programs form a major part of the Metro Vancouver's integrated approach to managing liquid waste. The purpose of monitoring is to characterize environmental conditions of relevant water bodies in the region in order to understand the relative contribution and significance of discharges from the regional and municipal systems, determine if the applicable regulatory requirements are being met, and to warn of possible environmental issues.

Overflow Quality Monitoring and Risk Assessments

Combined Sewer Overflows

In 2018, the Combined Sewer Overflow (CSO) Monitoring Program characterized the overflow water quality for seven selected CSO locations: Angus Drive, Cassiar, Clark Drive, English Bay, Glenbrook, Heather, and Macdonald. In addition, a receiving environment monitoring program report was completed for Clark Drive CSO and field work was completed for Borden CSO receiving environment monitoring program.

Sanitary Sewer Overflows

Metro Vancouver continued monitoring the receiving environment water quality after each sanitary sewer overflow and provided results to regulatory agencies and municipalities.

Whole Effluent Toxicity Monitoring.

In 2018, all effluent samples from all wastewater treatment plants passed the required monthly acute toxicity test using Environment and Climate Change Canada test protocols except for four samples of Iona Island WWTP effluent. Each of these Iona Island effluent samples required oxygen in excess of that specified by the Environment and Climate Change Canada method.

Periodically, some chronic toxicity of effluent, as well as some background toxicity in the Fraser River upstream from the influence of Metro Vancouver's WWTP discharges was observed. Additional testing and investigation to determine if there is a pattern to the observed variability, and subsequently to identify potential sources of apparent chronic toxicity has been conducted. A formal tiered toxicity identification evaluation (TIE) for chronic toxicity was initiated in 2018 and will continue through 2019 with the objective to identify the causes of the observed toxicity.

Environmental Monitoring in the Regional Waterbodies

In previous annual reports, Metro Vancouver reported separately on WWTP receiving environment monitoring (REM) and ambient environment monitoring (AEM) programs. Metro Vancouver has modified its programs to a more holistic water body approach and in 2018 conducted pilot studies which amalgamated receiving and ambient environment monitoring programs for Burrard Inlet water and sediment quality, and for Fraser River fish health. Additional environmental monitoring work in support of WWTP upgrades for Annacis Island and Northwest Langley was also conducted. Summary of the monitoring program findings for the regional water bodies is provided below.

Strait of Georgia

In 2018 Iona Island WWTP Deep Sea Outfall monitoring program included an annual sediment effects survey, a demersal fish survey and an effluent plume delineation study. Work continued on a multi-year collaboration with UBC to better understand the transport and deposition of substances of interest in the Strait of Georgia. Reports are under preparation. The assessment of the 2017 monitoring results completed in 2018 indicate that the applicable objectives or guidelines were met, except for dissolved oxygen and boron, for which results were consistent with typical concentrations in Canadian coastal marine waters.

Burrard Inlet

The 2018 water and sediment quality monitoring portions of the Burrard Inlet environmental monitoring program were an amalgamation of the previous Lions Gate WWTP receiving environment monitoring program and the Burrard Inlet ambient monitoring program into common water and sediment programs within Burrard Inlet. In 2017, site specific water quality objectives at the boundary of the initial dilution zone (IDZ) for the Lions Gate WWTP were met with the exception of dissolved oxygen and boron, which were also not met elsewhere in Burrard Inlet. The lower dissolved oxygen concentrations may be related to regional changes, while boron concentrations are consistent with those in Canadian coastal waters. Sediment monitoring results were similar to prior years and indicated some changes. Further assessment is expected to clarify whether these changes may be: outfall related; due to regional long-term fluctuations in oceanographic conditions; or due to a combination of these and other confounding factors. Reports are under preparation.

Fraser River

In 2018, water quality was monitored at the Annacis Island IDZ boundary, and the Fraser River ambient water quality monitoring was completed. All measured parameters at all ambient monitoring sites met the applicable objectives or guidelines.

Assessment of the 2017 monitoring results for Annacis Island IDZ completed in 2018 indicated that all measured parameters met the applicable objectives and guidelines, except un-ionized ammonia, which on occasion did not meet the CCME guideline. However, total ammonia concentrations met the site-specific Fraser River Water Quality Objective.

In 2018, the Fraser River fish health monitoring program was modified to focus on exposure zones of the Fraser River WWTPs. The Fraser River Fish Community Monitoring Program involved collecting fish from an up-river reference location in the main arm of the Fraser River; exposure areas for the Northwest Langley, Annacis Island and Lulu Island WWTPs; and from the north arm of the Fraser River. Fish sampling was completed and the report is under preparation.

In support of the Annacis Island WWTP Stage V Outfall Upgrade Project, a sediment monitoring study was carried out in the Fraser River in the vicinity of the proposed outfall. The purpose of this work in 2018 was to improve the spatial resolution of pre-construction baseline sediment data collected in 2016 and 2017, in areas surrounding the proposed outfall) and to inform design of a post-outfall construction sediment monitoring program.

In 2018, a pilot study at Northwest Langley WWTP was continued. This work is intended to identify if the plant effluent plume could be detected and to determine if the proposed sampling methodology was logistically possible. Sediment samples were collected within a zone of probable plume influence and water quality samples were collected using a grid pattern. The report is under preparation.

In 2018, summer water quality monitoring was carried out at the sites upstream and downstream of Northwest Langley WWTP, to provide high river flow water quality data for studies related to expansion of the plant. The data obtained will also provide pre-construction baseline data.

Boundary Bay

In 2018, work was conducted to further analyze and interpret the previously generated biota results. Assessment of 2017 water monitoring results completed in 2018 indicated that the applicable objectives or guidelines were mostly met. Exceptions were dissolved oxygen and boron, for which results were consistent with typical concentrations in Canadian coastal marine waters. Measured levels of copper, chromium (VI) and zinc on at least one occasion at one site, did not meet the applicable guidelines or objectives.

Recreational Water Quality

Metro Vancouver monitored the bacteriological quality of recreational waters in the region at 113 sampling sites from 41 locations. In 2018, the bacteriological water quality for primary-contact recreation was met for most bathing beaches from May through September, except for 9 beach locations (i.e., English Bay, Kitsilano, Sunset Beach, Whytecliff Park, Sandy Cove, Ambleside, Kitsilano Point, Jericho Beach and Barnet Marine Park). Swimming advisories were posted by the Health Authorities at the affected areas which resulted in swimming advisory postings that lasted between 2 to 21 days.

To: Liquid Waste Committee

From: Larina Lopez, Division Manager, Corporate Communications, External Relations

Date: August 29, 2019 Meeting Date: September 19, 2019

Subject: **2019 Regional "Wipe It, Green Bin It" Campaign Update**

RECOMMENDATION

That the Liquid Waste Committee receive for information the report dated August 29, 2019, titled "2019 Regional "Wipe It, Green Bin It" Campaign Update".

PURPOSE

To update the Liquid Waste Committee on the upcoming regional "Wipe It, Green Bin It" campaign to reduce the household disposal of fats, oils and grease (FOG) into the sewer system.

BACKGROUND

The disposal of FOG into the regional sewer system is an ongoing problem that can cause clogs and sewer overflows into homes, businesses and the environment. As a region, Metro Vancouver spends an estimated $2.7 million every year to deal with FOG-related issues in the wastewater system. In 2017, Metro Vancouver conducted its first regional grease campaign, which built on pilot projects in Surrey (2015) and Richmond (2016). The 2019 campaign will focus on problem areas ('hot spots') in four municipalities and will highlight additional foods (fats and oils) that cause clogs, using the 'Wipe It, Green Bin It' call to action.

This report provides an overview of the main components of the 2019 FOG campaign plans, as identified in the 2019 Liquid Waste Committee Work Plan.

2019 REGIONAL FOG CAMPAIGN

The 2019 campaign will target residents to encourage the correct disposal of fats, oils and grease into the green bin. The campaign will take place in two main phases, with the first phase running around Thanksgiving (September 16 – October 27) and a second phase around Christmas (December 2 - 29). The campaign will include region-wide promotion and will also work with specific members who have expressed an interest in engaging in a more targeted approach. This approach involves a baseline measurement for a specific 'hot spot' area of their municipality and on-going efforts to measure effectiveness throughout the campaign. Four members have self-identified: Coquitlam, Delta, Langley Township and Richmond; Richmond will have two locations as the Metro Vancouver pump station will also be included. This will allow the campaign to more effectively focus resources in areas with ongoing grease issues. New creative materials will be used to expand the campaign's messaging to include additional food types.

Campaign Elements and Approach

In addition to grease, the 2019 campaign will emphasize other foods that contribute to sewer clogs: fats (dairy products, margarine, etc.) and oils (cooking oils, sauces, salad dressing, etc.). The findings

from previous campaigns and focus groups show that while most people know that grease (e.g. bacon grease) should not go down the sink, many are unaware that other types of foods – like fats and oils – are also problematic. The campaign will aim to reach residents at times when they are purchasing food or thinking about food preparation, such as in grocery stores prior to major holidays. The main campaign elements include:

- digital and social media, including YouTube pre-roll ads, images and videos depicting a range of foods, promoted via Facebook, Twitter and Instagram, Google banners and search words;
- transit shelter ads;
- advertising in grocery stores (checkout grocery bars and grocery carts);
- campaign website page further explaining the issue of fats, oils and grease;
- direct mail to residents in the four municipalities that have identified 'hot spot' areas; and
- in-person outreach in grocery stores and other locations to provide campaign branded spatulas to residents who engage with campaign representatives

The regional component will primarily involve messaging on various social media platforms and online banner ads.

New creative materials have been developed to better address the additional foods profiled in the campaign. The materials feature yogurt, bacon grease and salad dressing, with the 'Wipe It, Green Bin It' call to action (see Attachment). Focus group testing confirmed that the addition of the drain helped to clarify that the message is about more than just composting food scraps and that there are issues related to putting products down the drain.

Collaboration with Members

All members were invited to take part in the campaign, including the more targeted approach, by identifying suitable grease 'hot spot' areas. As a result, four members - Coquitlam, Delta, Langley Township and Richmond have been conducting ongoing monitoring of grease levels in pump stations since December 2018 and have met periodically to share findings and discuss any issues. Their communications staff have helped identify approaches and local channels to reach residents in their hot spot areas. All members will be provided with social media and other materials that they can share on their channels during the campaign.

Evaluation

Metrics that will be used to evaluate the campaign include social media uptake, website traffic, in-person outreach and grease measurement results. Grease monitoring results may vary due to changing conditions in the sewer system, most significantly heavy rainfall events, and should be considered as a general indicator only; it may be more useful to look at trends over time.

The four municipalities involved in the more targeted approach are smaller 'hot spots' and will require different evaluation approaches than previous campaigns. Metro Vancouver is also exploring ways to directly survey residents within the 'hot spot' areas.

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The budget for the regional FOG campaign is $170,000. These costs are included in the 2019 Liquid Waste Communications Program Budget managed by the External Relations Department.

SUMMARY / CONCLUSION

Metro Vancouver and its members spend an estimated $2.7 million every year to deal with the improper disposal of fats, oils and grease (FOG), which can lead to sewer clogs and overflows into homes, businesses and the environment. Metro Vancouver will be launching a campaign in 2019 to target residential sources of FOG, using the Wipe It, Green Bin It tagline to ask residents to put FOG in their green bins. Now in its third year, the 2019 regional campaign will use new creative materials to highlight fats and oils, in addition to grease (see Attachment). The campaign will take place in two phases: 1) a six-week phase in September/October around Thanksgiving; and 2) a four-week phase before Christmas. The campaign will have a regional component through social media, and a more targeted approach with members that have identified aa specific 'hot spot' area of their municipality. This approach will more effectively focus resources in targeted areas with ongoing grease problems. The campaign's 'hot spot' areas are located in four municipalities: Coquitlam, Delta, Langley Township and Richmond (two locations). Municipalities have been monitoring grease levels in pump stations since December 2018 and communications staff have helped identify channels to reach residents in 'hot spot' catchment areas. Campaign elements include: promotion on social media (Facebook, Twitter, Instagram), YouTube videos, online banner ads and Google search, advertising and in-person outreach in grocery stores, direct mail and a campaign website. Social media uptake, website traffic, in-person outreach results, grease monitoring and other metrics will be used to evaluate the campaign.

Attachment:

Sample of Campaign Artwork

Reference:

Campaign website

31598516

Sample of Campaign Artwork


metrovancouver
oil doesn't go down your drain
WIPE IT GREEN BIN IT
Oil clogs pipes. Learn more at wipeitgreenbinit.ca


metrovancouver
grease doesn't go down your drain
WIPE IT GREEN BIN IT
Grease clogs pipes. Learn more at wipeitgreenbinit.ca