VERMONT

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Watershed Management Division
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Agency of Natural Resources

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July 12, 2016

Mr. Justin Rabidoux
Public Works Director
City of South Burlington
575 Dorset Street
South Burlington, VT 05403

Subject: NPDES #VT0100358, Vermont Permit #3-1284
Bartlett Bay Wastewater Treatment Facility
Compliance Evaluation Inspection

Dear Mr. Rabidoux:

I conducted a Compliance Evaluation Inspection (CEI) for the City of South Burlington, Bartlett Bay Wastewater Treatment Facility (WWTF) on Tuesday, June 21, 2016. The facility is located at 23 Bartlett Bay Road in South Burlington, Vermont. CEIs are intended to verify compliance with discharge permits, self monitoring requirements, and compliance schedules. CEIs are a relatively in-depth inspection of the WWTF, self-monitoring records and reports, and other required records. Chief Operator Mike Fortin, Water Quality Superintendent Bob Fischer, and Allison Lowry of the Wastewater Program accompanied me during the inspection.

The overall inspection rating for the Bartlett Bay WWTF for the period June 2015 through May 2016 is Excellent, which is the highest rating in our five tier rating system. There were no water quality violations for the period reviewed. The Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) removal rates were all above 99% and phosphorus effluent concentrations have been below 0.10 mg/L since December 2015. The facility is well maintained and Mike does an excellent job producing high quality effluent.

Inspection Report Summary and Recommendations

The following items are discussed in detail in the attached Inspection Report and should be addressed:

1. There was a buildup of grease in a few corners of the anaerobic selectors. The grease should be removed and the tanks should be cleaned as needed.
2. One of the filter units was not operating at the time of the inspection. I understand the operator plans to make the necessary repairs this summer and bring this unit back on line. Please contact me when this work is completed.

3. There is a hole in one panel of the sludge storage tank. I understand that this tank will be emptied, cleaned and the mixers and the hole repaired by an outside contractor this summer. Please contact me when this work is scheduled and completed.
4. Update the facility's version of the Operations, Management and Emergency Response (OM&ER) Plan to the most recent plan.

I recommend that the City review the safety and maintenance consequences of staffing this facility with only one certified operator. The South Burlington Bartlett Bay WWTF has a design flow of 1.25 MGD and was last upgraded in 1999. Maintenance increases with time, and although the facility is currently very well run, it is showing signs of age.

If you have any questions regarding this inspection, please feel free to contact me at (802) 490-6184 or david.didomenico@state.vt.us.

Sincerely,

David DiDomenico
Operations and Management Section

Enclosures: EPA Water Compliance Inspection Report
Compliance Evaluation Inspection Report

Cc: Mike Fortin, Chief Operator, Bartlett Bay WWTF (via email)
Bob Fischer, Water Quality Superintendent (via email)
Allison Lowry, Wastewater Program (via email)
Andrew Spejewski, Environmental Engineer, U.S. EPA Region 1 (via e-mail)
Mary Borg, Acting Wastewater Program Manager, Watershed Management Division, VT DEC (via email)
South Burlington Bartlett Bay Wastewater Treatment Facility Compliance File

File: Y:\WSM_Discharge\O&M_Inspectors\South Burlington Bartlett Bay\3-1284.CEI Inspection.20160621.docx

City of South Burlington Bartlett Bay WWTF Report
Compliance Evaluation Inspection
June 21, 2016

City Representatives: Mike Fortin, Chief Operator; Bob Fischer, WQ Superintendent

Previous Inspections: November 1, 2012 - Lab inspection with no rating; October 26, 2010 CEI inspection with an Excellent rating.

Facility Tour

1. The headworks consists of the following:
    - Lakeside Mechanical Screen with ½ inch screen openings. This unit should be upgraded and replaced with a fine screen. It was evident during the inspection that floating objects (syringes, etc.) were able to pass through the screen and enter the treatment process. These materials typically end up in the sludge and require more processing at the Airport Parkway facility.
    - Grit chamber. This unit is the original 1970's dual channel design. It does appear to remove most of the heavier sand type material but the pumping mechanism appears to stir some of the solids and they go back into the wastewater stream. This system should be upgraded.
2. Influent:
    - No septage is processed at this facility, only wastewater collected through the collection system which is mixed residential and commercial with little industrial.
3. Kruger A/O (Anaerobic/Oxic) Extended Air System:
    - Wastewater form the headworks enters one of three anaerobic selectors. A second selector is used to receive Return Activated Sludge (RAS) and the two waste streams mix in the third anaerobic selector. Mechanical mixing takes place in all anaerobic selectors.
    - There was a buildup of grease noted in a few areas in the anaerobic tanks that should be removed.
    - Wastewater then flows into one common aeration tank before being split into two trains. Each aerobic train consists of four separate tanks. One train was not operating at the time of the inspection.
    - Dissolved oxygen (DO) meters are used in the process. There are two DO probes that can be moved as needed.
    - Intermediate pumping is required at the facility to maintain the hydraulic profile. Pumping occurs after the second aeration tank. Three pumps along with a water level sensor are used to control flow from the first two aeration tanks to the third and fourth tank.
    - Mike indicated that they will lower the water level in the unused aeration tanks this summer, clean the tanks and check the aerators.
    - DO levels in the first two tanks were approximately 1.7 mg/L and approximately 4.5 mg/L in the second two tanks.

- PAC is added in two locations; first at the effluent of the aeration tanks and again at the effluent of one clarifier. That water then mixes with the effluent of the second clarifier prior to entering the filter building.

4. Secondary Clarifiers:
   - Both clarifiers were operating at the time of the inspection.
   - Mike keeps the sludge blanket at approximately six to ten inches.
   - The clarifier arms are equipped with brushes which help reduce algae buildup on the weirs.
   - There was material on the surface of the clarifiers that should have been removed at the headworks, but wasn't due to large screen openings. It did not appear to interfere with the process.
5. Filters:
   - There are three Cloth Media Disk Filters (CMDF) units. The filter is 10 microns and is approximately four years old. Filter life expectancy is approximately five years. Airport Parkway WWTF will be testing a five micron filter this year to determine whether it is advantageous to replace the existing filters with five micron filters when needed.
   - One of the three units was not operational at the time of the inspection. The backwash system was not operating properly, filling the tank too high (activated by high float rather than the normal bubbler operation) before starting the backwash cycle. The operator plans to repair it this summer.
6. Disinfection:
   - There are two Ultraviolet (UV) units in series.
   - Mike notes bulb changes on the monthly reports as required.
   - The UV system is one of the priorities of the next facility upgrade. The facility uses the Trojan 3000 serious UV system which is no longer supported by the manufacturer.
7. Effluent:
   - Effluent flow checks are performed by inserting a metal plate at a known depth below the sensor. This is an acceptable method for a flow check. In addition, the sensor is calibrated annually by an outside contractor.
   - Our records show that percent removal for Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) are typically 99 to 100%. This is an excellent compliance record. In addition, phosphorous removal has been excellent over the past six months with effluent concentrations ranging from 0.10 mg/L to 0.03 mg/L.
   - The Bartlett Bay WWTF effluent discharges to Lake Champlain, approximately one mile to the west. We did not inspect the discharge point.
8. Sludge Handling:
   - Sludge accumulated from wasting from the secondary clarifiers goes to the above ground 280,000 gallon aerated storage tank. The tank does have a mixing mechanism as well but it is not operational at this time.
   - Typically, three truckloads of sludge are hauled to Airport Parkway WWTF Monday through Friday for processing and disposal.
   - There is a small hole in the side of the sludge storage tank.

- This summer, the sludge storage tank is scheduled to be emptied, clean internally, the hole repaired and the mixing mechanism fixed. Please contact me when this work is complete.

9. Blowers / Chemical Feed
   - The three blowers used for the aeration tanks are approaching 20 years and do not have variable frequency drives (VFDs). This is one of the priorities for a future upgrade at the facility. New blowers equipped with VFDs and tied to DO sensors throughout the aeration tanks will provide greater process control and energy savings.
   - Chemical Use includes Poly-Aluminum Chloride (PAC) is applied to the wastewater at two points in the process at a rate of approximately 60 gallons/day. Sodium Hydroxide is also used for pH control on an as needed basis. This was not in use at the time of the inspection.
   - The four Reduced Pressure Zone Backflow Preventer (RPZBFP) present at the facility were professionally tested on March 2, 2016.
10. Sampling locations:
    - Automatic flow paced sampling is used to collect a 24-hour composite sample. The effluent sample collection system was inspected and found to be in compliance. There was a thermometer in the refrigerator that read 3 degrees Celsius.
    - The sample hose was clean and appeared in very good condition. No sags or obstructions were noted.
    - The effluent sampling location was acceptable.
11. Laboratory:
    - Daily process control and pH analyses are completed at the Bartlett Bay facility. Monthly analyses are performed at the Airport Parkway WWTF by the certified lab director at that facility.
    - pH buffers used in calibrating the pH meter were adequate and within the expiration dates.
12. Safety Aspects:
    - The City has started a new safety program with a committee of employees from various City groups. They conduct inspections of all City facilities. A walk through has been conducted at this facility and they are primarily adding signage in response to the findings.
    - The City also utilizes the Vermont League of Cities and Towns safety program.
    - There is only one operator at this facility the majority of the operating day. This facility has a design flow of 1.25 MGD and is classified as a 3 Domestic (of 5) facility. It is nearing 20 years of operation since it's last major upgrade and does require more maintenance to continue to operate at a high level. The City should review staffing and safety needs at this facility and consider increasing the number of operators.
    - Lock Out/Tag Out procedures are used at the facility.

Preventative Maintenance Program

- The facility has a backup generator that runs the entire facility in the case of a power outage. The generator is tested every week and has performed well during the recent power outages.

- Run times for pumps and blowers are tracked on the Supervisory Control and Data Acquisition (SCADA) system. Routine maintenance is performed based on hours of operation.

Record Review – The following were on site and well organized:

- Copy of permit – Expired December 31, 2010.
- Copy of OM&ER Plan – dated March 2008. There is a newer plan dated April 2009 that should be kept at the facility. Pleas update your version.
- Copy of Power Failure Plan – dated February 2006
- WR-43 for past 3 years
- Daily bench sheets for past 3 years
- Contract lab reports for past 3 years
- Effluent flow checks for past 3 years
- A review of WR-43 reports and associated bench sheets for the months June 2015 through May 2016 was conducted. All parameters were reported as required and all values matched for the days checked.

Collection System:

- The City of South Burlington has one WWTF operator that is primarily responsible for approximately 20 pump stations, seven of which are located within the Bartlett Bay collection system. The public works department is responsible for the maintenance of the collection system.
- Flows into the Bartlett Bay WWTF average 0.62 MGD from June 2014 through May 2016.
- According to Bob and Mike, there are I/I problems within the collection system. Some of these areas are discussed in a February 19, 2016 Hoyle Tanner Report regarding the Hadley Road Sanitary Service Area. This particular report focused on a piece of the collection system that currently flows to the Burlington Main WWTF, but it does provide an insight into the system as a whole. I may schedule a collection system inspection during our next inspection year.
- Bob is currently updating the collection system using GPS for the entire City. That work should be completed in the next several months. We discussed performing a collection system inspection sometime after October 2016 of the South Burlington collection system.

Miscellaneous:

- Bob mentioned that the City has retained Hoyle, Tanner and Associates to evaluate the facility. Some of the priorities include that headworks (in particular the mechanical screen), upgrading the aeration blowers and adding VFDs and DO sensors, and upgrading the UV system.

United States Environmental Protection Agency
Washington, D.C. 20460

Water Compliance Inspection Report

Section A: National Data System Coding (i.e., PCS)

Transaction Code	NDPES	yy/mm/dd	Inspection Type	Inspector	Fac Type
1 N	2	3 VT0100358 11	12 160621 17	18 C	19 S 20 1

Inspection Type Description

Remarks

21 Vermont Permit: 3-1284 66

Inspection Work Days	Facility Self-Monitoring Evaluation Rating	B1	QA	Reserved
67 . 69	70 5	71 N	72 N	73 74 75 80

Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number)	Entry Time/Date	Permit Effective Date
Bartlett Bay WWTF **23 Barlett Bay Road** **South Burlington, Vermont**	9:15 AM 6/21/2016	12/22/2005
	Exit Time/Date	Permit Expiration Date
	1:00 PM	12/31/2010

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)

Mike Fortin, Chief Operator and Bob Fischer, Water Quality Superintendent
(802) 658-7964

Other Facility Data

Name, Address of responsible Official/Title/Phone and Fax Number.
Justin Rabidoux, Public Works Director
575 Dorset Street
South Burlington, VT 05403

Contacted: [ ] Yes [X] No

Section C: Areas Evaluated During Inspection (Check only those areas evaluated)

[X] Permit	[X] Self-Monitoring Program	[ ] Pretreatment	[ ] MS4
[X] Records/Reports	[X] Compliance Schedules	[ ] Pollution Prevention	
[X] Facility Site Review	[X] Laboratory	[ ] Storm Water	
[ ] Effluent/Receiving Waters	[X] Operations & Maintenance	[ ] Combined Sewer Overflow	
[X] Flow Measurement	[ ] Sludge Handling/Disposal	[ ] Sanitary Sewer Overflow	

Section D: Summary of Findings/Comments (Attach additional sheets of narrative and checklists as necessary)

SEV Codes	SEV Description

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
David DiDomenico	**State of Vermont, Agency of Natural Resources** **Department of Environmental Conservation** **(802) 490-6184**	6/
Signature of Management QA Reviewer	Agency/Office/Phone and Fax Numbers	Date