City of Lynchburg
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Addendum for Bid

Wastewater Treatment Plant Combined Sewer Overflow Reduction Improvements

15-948

Date: December 10, 2014

From: Stephanie Suter, CPPO, CPPB

RE: Addendum No. 1

The following questions provide additional information and clarification of the original RFP and should be taken into consideration when preparing proposals. The Offeror shall indicate receipt of this Addendum on the Title Page.

1. Flow and Loading Projections - can the City provide its most current future flow and loading projections for 5, 10, and/or 20-year timeframes? I.e., are loads anticipated to be similar to recent data for the foreseeable future, or not?

   The plant is regional wastewater treatment plant for the counties of Amherst, Bedford, and Campbell and the City of Lynchburg. Although there has been steady growth in the region, dry weather flows to wastewater treatment plant have remained relatively steady due to water conservation initiatives resulting in a decrease in per capita consumption. While it is anticipated that this trend will continue for the foreseeable future, the City and region continue efforts to try and attract business and industry. The dry weather capacity for flow, BOD, TSS and nutrients is a key factor in the marketing efforts. Ultimately nutrients credits may need to be purchased from the Virginia Nutrient Credit Exchange if a large discharger were to locate in the region. Under current projections for the Virginia Nutrient Credit Exchange we are planning for 10-20 thousand gallons per day increase in flows each year for the next 8 years. Impacts of the State's James River Chlorophyl-A study are unknown at this point. The Long Term Control Plan assumes that the entire 22 million gallon per day dry weather capacity will ultimately be used.

2. Is there a "Wet Weather Procedure" document available?

   Attached is the current Wet weather SOP. Please note this document is under frequent modification as after each event, if we learn new information, we modify the procedure based on that information.

3. SC Tow-Bro Performance - How have the new Tow-Bro mechanisms in the secondary clarifiers performed? Any evidence of plugging given the current headworks and level of screening?

   Based on data the Tow-Bro system is doing fine, 3 of the tanks have been taken down for unrelated work and no evidence of plugging

4. Sludge blanket control - How does the plant monitor sludge blanket in the SCs and is it controlled during wet weather and how?

   Under normal operation SC levels are checked every 4-8 hours by sludge judge. During storm events this may increase to every 1-2 hrs or as frequent as 15 minutes if a tank appears to be having a problem. During normal operation the RAS pumps are set in flow pace % from the plant flow. As levels in tanks start to differ adjustments to flow percentage is made on each tank. During wet weather events the RAS is put at fixed flow for each tank and adjusted based on increase in blanket levels. Also during wet weather events polymer may be used in the SCs

5. Centrifuge dewatering - Based on past performance of the centrifuges and the removal of the "Rock-Tenn" centrifuge, is the current dewatering capacity adequate?

   Seems to be for the immediate future, projected needs to be increased depending on sludge generated from nutrients.

6. Contact Tank solids - Do solids accumulate in the existing circular chlorine contact tanks, and if so how much or under what circumstances (approximately)?

   Yes the amount is believed to be minimal, and is unmeasured the tank drains are flushed for 15-60 minutes every 8 hours shift and may be checked with a sludge judge if concerns are noticed.

READ TERMS AND CONDITIONS AND SIGN

In compliance with the above BID, and subject to all the conditions hereof, the undersigned offers and agrees to comply with any or all of the terms and conditions contained herein, or as mutually agreed upon by subsequent negotiations. This form shall become part of the final file.

*Company Name:*_____ *Address:*_____ *Date:*_____

*Authorized Signature:*_____ *Title:*_____

*Print Name:*_____ *Telephone No.:*_____ *Fax No.:*_____

Lynchburg Regional Wastewater Treatment Facility
Standard Operating Procedure
General
WWTP High Flow-Wet Weather Operation Guidelines

Created 03-07
Revised 1-09, 10-10, 3-11, 4-11, 9-11, 7-13, 9-13, 1-14

Purpose: These guidelines are to be used to assist Lynchburg Regional Wastewater Treatment Facility staff in maximizing flow through the Lynchburg Regional Wastewater Treatment Facility during situations resulting in bar screen blinding. Maximizing flow through the facility will reduce the occurrence of combined sewer overflows and prevent damage and/or upset of other WWTP systems. Be aware that each event will present different situations and challenges and no procedure will be able to address all variables that may occur. These guidelines clarify and /or replace previous verbal procedures for bar screen blinding events.

CSO Consent Order (which is part of our permit) requires the plant to maximize flows through the process during wet weather to the point the plant can handle it with out other violations or extended harm or stress to the plant. Implied in the permit is minimizing the level in the wet well prior to storm events in order to increase storage in the sewer system.

The Lynchburg regional WWTP is rated for an average flow of 22 MGD. The intent is for the plant to be able to handle an excess hydraulic flow for some period of time. Operation during excess flow periods may cause elevated TSS or BOD5 results.

To reduce CSOs, the influent pumps should be operated in a manner to keep the wet well below 503 feet if at all possible and, if not, the issues preventing it should be recorded in the log book. At times this may require additional staff and/or modification of plant set up.

During construction, upgrades and equipment outages in may be necessary to modify these guidelines. Please remain aware of ongoing situations and their potential impacts to these guidelines.

Preparation: Preparation for facility operation during high flow events includes the following:

1. Inform all operational staff of expected flows and intended mode of operation.
2. Additional information concerning elevations and their influence on WWTP operations can be found in the computer file P:\WWTP engr data collection\WWTP and CSO Elevations

Precautions and Warnings:

1. Closely monitor JRI, CSO 109, mechanical bar screens differential levels, manual bar screen status, headworks wet well levels, aeration influent splitter box level, secondary clarifiers sludge blanket levels, secondary clarifier effluent solids, and contact tank effluent solids and chlorine residuals.
2. Mechanical bar screens operate when differential is 12 inches when in “auto mode”.
3. When bar screen is in “auto mode”, if the water level upstream of the mechanical screens reaches an elevation of 503 ft both mechanical screens operate continuously until the level drops to 499 ft.
4. Bar screen rakes require approximately 3 minutes to complete a cycle.
5. When bar screen is in “timer mode”, The Plant Scada system will allow you to change the timer’s minutes. The minimum is 5 minutes and the maximum is 15 minutes. You can locate this control by going to the Bar Screen Panel. Differential Control will have no effect on this operation. Another instance where this would be used is when there would be a failure with the Differential Controls.
6. When the water level upstream of the mechanical screens reaches an elevation of 517.00 ft both mechanical screens discontinue operation.

7. When the water level upstream of the mechanical screens is 5.5 ft higher than the downstream level (66 inches differential) a high differential alarm is energized and the inside manual bar screen influent gate (slide gate 630) is opened.
8. Note: differential level sensors may give false readings if submerged or fouled, monitor closely and clean as necessary.
9. When the high differential alarm is corrected the manual bar screen influent gate (slide gate 630) must be closed manually.
10. CSO 109 will start to discharge when the water level upstream of the mechanical screens reaches elevation of 512.58 ft .
11. Water comes over top of manual bar screen influent gate (slide gate 630) when the upstream level reaches elevation 504.3 feet.
12. Water levels upstream of the mechanical bar screen may be higher than the wet well levels due to bar screen pluggage. Closely monitor differential levels, screen operation, JRI level and CSO 109. It may be necessary to operate the mechanical screens in the timer mode.
13. Closely monitor aeration influent splitter box levels. If may be necessary to open additional step feed boxes to prevent overflow of the splitter box and solids wash out.
14. Platforms and stairways may be slippery. Use caution.

Safety Systems: Safety systems include the following:

1. Telephones located throughout the facility.
2. Portable radios to be carried by all personnel.
3. E- 911 system at Lyncom.
4. Stationary and portable gas monitoring equipment.
5. Safety harness located in grounds storage area.
6. Retrieval equipment located at manual bar screen area.

WWTP High Flow-Wet Weather Operation

Raw Side Operation:

1. Check mechanical bar screens and gates for proper operation and/or settings. Check manual bar screen for blinding issues. Arrange for cleaning if necessary (See Headworks/Bar Screen Raking Guidelines).
2. Ensure inside manual bar screen influent gate is closed at start of event. This gate will open when mechanical bar screen differential levels are 66 inches or more.
3. From SCADA controls, select the number of raw pumps desired.
4. Adjust chlorine feed as needed for additional flow. The targeted Cl2 residual may need to be increased by 0.25-0.5 mg/l to provide a margin of safety.
5. Rotate grit pumps on an hourly basis to reduce the possibility of pluggage.
6. Closely monitor JRI, and CSO 109 levels. Rising JRI/CSO 109 levels without a corresponding rise in wet well level may indicate bar screen blinding issues.
7. Monitor mechanical bar screen differential readings. Normal differential readings are 0 – 12 inches. The influent gate to the inside manual bar screen opens at a differential reading of 66 inches and generates an alarm on the SCADA and opens inside manual bar screen influent gate.
8. It may be necessary to arrange for the inside manual bar screen to be raked using the proper procedure and safety precautions (See Headworks/Cleaning Interior Manual Bar Screen). It may be necessary to reassign staff or contact additional staff in order to accomplish this.
9. It may also be necessary to begin usage of and raking of the outside manual bar screen using the proper procedure and safety precautions (See Headworks/Cleaning Exterior Manual Bar Screen). It may be necessary to reassign staff or contact additional staff in order to accomplish this.
10. If wet well levels are >503 feet rakes run continuously in “auto mode”. Begin observing the Milestone camera that is fixed on the bar screen discharge belt.
11. Adjust bar screen rake operation (auto/timer and minutes) as needed to minimize blinding issues without excessive rake cycling.
12. If JRI, CSO 109 and wet well levels continue to rise, operation of additional raw pumps may become necessary to prevent CSO 109 overflow.

13. Begin diverting a portion of primary clarifier influent flow to spare clarifier when flow begins to overtop scum baffles and scum pit (approx. 37-38 MGD).
14. After spare primary clarifier is full and elevated flows are causing operational problems it may be necessary to reduce the influent flow by reducing pump speeds and number of pumps in use.
15. Check mechanical and manual bar screens regularly.

Primary Side Operation:

1. Closely monitor weather forecast.
2. Begin feeding polymer to the secondary clarifiers approximately 30 minutes before expected flow increase.
3. Open available step feed boxes #6 to full open approximately 30 minutes before expected flow increase.
4. Closely monitor primary clarifier saw tooth weir, aeration influent splitter box, and secondary clarifier sludge blanket levels. Monitor secondary clarifier effluent and contact tank effluent for solids discharge.
5. When primary clarifier effluent covers saw tooth weir divert some portion of primary clarifier influent flow towards other primary clarifier in order to prevent primary effluent from overtopping saw tooth weir, scum baffle and scum trough.
6. Closely monitor aeration influent splitter box level for overflow. It may become necessary to reduce plant influent flow rate in order to prevent overflow of aeration influent splitter box.
7. Closely monitor secondary clarifier sludge blankets. If blankets begin to get out of control, increase RAS pumping rate on corresponding secondary clarifiers. It may be necessary to operate 2 RAS pumps per clarifier.
8. Closely monitor entire WWTP and make necessary adjustments.
9. After spare primary clarifier is full and elevated flows are causing operational problems it may be necessary to reduce the influent flow by reducing the speed and/or number of raw pumps.
10. After flow rates return to normal and no further flow increases are expected, return to normal operational mode.