City of Tacoma
Environmental Services/ Science & Engineering
Artificial Intelligence to Optimize Performance of Wastewater Treatment Plant Operations

RFI Specification No. ES21-0639F

QUESTIONS and ANSWERS

All interested parties had the opportunity to submit questions in writing by email to Dawn DeJarlais by 12/29/2021. The answers to the questions received are provided below and posted to the City's website at www.TacomaPurchasing.org: Navigate to *Current Contracting Opportunities* / *Services / Supplies* and then click *Questions and Answers* for this Specification. This information IS NOT considered an addendum. Respondents should consider this information when submitting their proposals.

Question 1: Can companies from outside the United States submit an RFI?

Answer 1: Yes

Question 2: Do companies need to come to the United States for meetings?

Answer 2: For the RFI no. If an RFP is issued the firm may need to be onsite for install/configuration depending on the solution selected.

Question 3: Can the tasks be performed ouside the United States (related to RFP)?

Answer 3: Yes, as long the firm can be onsite for install/configuration depending on the solution selected if needed.

Question 4: Can the proposals be submitted via email?

Answer 4: Yes per the instructions posted on the RFI

Question 5: What instrumentation is being used within the plants and where?

Answer 5: The Central Treatment Plant has instrumentation for its primary and secondary treatment processes, dual digestion, and dewatering process equipment throughout the facility which includes (but are not limited to): flow meters, flow indicators, level switches and transmitters, valve positioners, pressure switches, pressure indicators, pressure differential indicating transmitters, temperature elements and transmitters, vibration transmitters, LEL analyzers, DO analyzers, oxygen purity analyzers, TSS analyzers, pH analyzers, position switches, density analyzers, turbidity analyzers, ORP Analyzers, and ORP/pH analyzers.

Question 6: What chemicals are being used within the plants and where?

Answer 6: At the Central Treatment Plant the following locations use chemicals.Disinfection System: bulk sodium hypochlorite. Dissolved Air Flotation Odor Scrubber: bulk sodium hypochlorite and caustic. Dewatering: polymer. UNOX Facility: LOX. Peak Wet Weather Facility: ferric chloride (coagulant) and polymer

Question 7: Is laboratory testing done in house or with a contract lab?

Answer 7: Majority is being done in house, but some work goes to a contract lab

Question 8: What type of sludge thickening/and or dewatering technology is being used?

Answer 8: Dissolved Air Flotation Thickener (DAFT) is used for thickening. Dewatering is completed with screw presses.

Question 9: What type of disinfection treatment is being used?

Answer 9: Sodium hypo dosing

Question 10: Are AI systems that can provide optimization of the full wastewater cycle, from collection through treatment being envisioned, or is the scope limited to only enabling AI within the treatment plant only?

Answer 10: At this point, the scope is limited to the treatment plant only. Future projects may expand this to the collection system, but that is not planned to be part of this scope.

Question 11: Does the Department or City have prior experience using AI systems?

Answer 11: Not within the wastewater section.

Question 12: What real-time control does the plants use now?

Answer 12: Rockwell Automation FactoryTalk (FT) suite of software provides operator and maintenance interface into the control system for real time process monitoring, control, alarms and events. Historian and real time process data can be displayed on screens at the same time for side by side comparison. Additional software integrated with FT software suite includes VantagePoint: VantagePoint is a graphical reporting generation software with multi-database integration and analytical tools that can be used for ad-hoc or canned reporting.AssetCentre: AssetCentre is a control system asset management software with security access management. The software tracks new devices and changes to the existing control system. Scheduled backup of the entire system and equipment upgrade notices are another feature of AssetCentre. Multiple operator interface terminals (OITs) are located throughout the Central Treatment Plant (CTP) and North End Treatment Plant (NETP) for convenient access to control system applications.

Question 13: Do the plants have existing TIN, energy, or optimization plans in place?

Answer 13: TIN: no, but Ecology recently released the Puget Sound Nutrients General Permit which has TIN optimization requirements.Energy: yes, there are goals for energy reduction strategies at CTP.o Optimization: Operations is constantly optimizing the plant. One current strategy is to optimize the DAFT.

Question 14: Can you please clarify the average MGD for each facility?

Answer 14: The Central Treatment Plant average annual flow is 21.2 MGD. The North End Treatment average annual flow is 4.5 MGD. Both facilities have diurnal flow patterns as well as infiltration and inflow peak flow rates

Question 15: Can you please clarify the average RAS flow for each facility?

Answer 15: The average annual RAS flow is 7.37 MGD

Question 16: How many oxygenation tanks are in service during dry weather and wet weather?

Answer 16: T2 tanks are online during the dry season and 4 during peak wet weather and storm events.

Question 17: How many ditches are typically in service, 1 or 2?

Answer 17: We do not have any ditches at either facility.

Question 18: What is the estimated E&C cost for each facility?

Answer 18: What is E&C?

Question 19: Is there a centralized control room that operates both facilities, or does each facility have their own control room?

Answer 19: Each facility has its own Control Room. The Central Treatment Plant is also able to control the North End Treatment Plant remotely

Question 20: How far back do the historical data records go?

Answer 20: Varies by point, but roughly 2015

Question 21: How are the maintenance logs currently kept?

Answer 21: Maintenance logs are maintained in SAP.

Question 22: Do you have an existing computerized maintenance management system? If so, what product do you use and which vendor implemented it?

Answer 22: Yes, SAP maintenance module.

Question 23: How many data points are currently being archived in the historian?

Answer 23: 8300 points for CTP (Historian) 9800 alarms (A&E)

Question 24: How many total data points are available?

Answer 24: Need more clarification. What points beyond historian and alarms?

Question 25: How long is the data stored in the data historian?

Answer 25: Currently not limited, except by storage capacity

Question 26: What are the recording frequencies per data point (once a day, when the data changes out of tolerance, every five minutes, etc.)?

Answer 26: Average of .00495 Exception and .0098 compression with a scan class of 1 second.

Question 27: How is the data from the historian accessed? Can an API be utilized or does the data file need to be manually downloaded?

Answer 27: API can be used locally on private network. No direct cloud connection