



## MEMORANDUM

TO: MS. LAUREN WHYBREW, ENGINEER II,  
ORCAA  
FROM: MIKE JOHNSON, P.E.  
AARON PEASE, P.E. *Aaron M. Pease*  
DATE: JANUARY 17, 2024  
SUBJECT: CENTRATE HANDLING FACILITY  
ORCAA PERMIT DATA REQUEST #1  
LOTT CLEAN WATER ALLIANCE  
THURSTON COUNTY, WASHINGTON  
G&O #22246.01

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This memorandum is to provide the additional requested information per the letter dated January 3, 2024; Subject: 23NOC1624 Data Request #1.

### 1. Air Pollutant Emissions Assessment

We have calculated a Potential to Emit (PTE) for the pollutants known to exist at the Centrate Handling Facility, ammonia and hydrogen sulfide, for both before and after the Project. Currently, the Facility has multiple tanks for holding centrate fluid. Previously the tanks had also been used for primary settling of raw dewatered sewage. As part of this project, LOTT plans to rehabilitate the building structure and mechanical and electrical systems including replacing the existing odor control equipment. LOTT will also be making piping modifications to again allow some primary sewage to be stored in two of the tanks; however, this would only occur infrequently (1-2 times per year) for short durations (less than 3-4 days) during rainfall events when the primary sewage would be significantly diluted due to rainfall. During the design process, we measured gas concentrations within the Facility over the course of several days. A summary graph of this data can be found attached. A spreadsheet, titled "22246 PTE TAP Analysis," showing all our calculations based on our measurements and on the proposed design is also attached.

The average concentration of ammonia in the ambient air of the Facility was 3.4 ppm and the average concentration of hydrogen sulfide was 1.8 ppm. Existing fans within the Facility provide about 20,000 cfm of mechanical ventilation. Therefore, we estimate the existing PTE is about 4.3 pounds of ammonia per day and about 4.5 pounds of hydrogen sulfide per day.

As part of the Project, we propose to increase the amount of ventilation to about 44,000 cfm to improve the interior air quality, which would result in an increase in pollution emissions. To remedy the increase in hydrogen sulfide emissions, we propose carbon media filter equipment designed to remove at least 99% of the pollutant. The amount of centrate fluid or primary effluent moved through the Facility is not anticipated to increase as part of this Project. Assuming the gas concentrations remain the same and accounting for the filter equipment, we estimate the proposed PTE will be about 9.4 pounds per day of ammonia and about 0.1 pounds per day of hydrogen sulfide.

As a result of this Project, the Facility PTE for ammonia is anticipated to increase by about 5.1 pounds per day and the PTE for hydrogen sulfide is anticipated to decrease by about 4.4 pounds per day.

## 2. Toxic Air Pollutant Analysis

Per the previous response, the proposed Facility will have a PTE of about 9.4 pounds per day of ammonia and about 0.1 pounds per day of hydrogen sulfide. WAC 173-460-150 lists the Small Quantity Emission Rate (SQER) for ammonia and hydrogen sulfide as 37 pounds per day and 0.15 pounds per day respectively. Therefore, the Facility emissions will be less than the SQER for each pollutant.

## 3. Ambient Air Quality Analysis

Per our discussion in Item #1, the Facility emissions are anticipated to be less than the SQER for each pollutant. Therefore, an ambient air quality analysis is not required.

## 4. Site Map

Please see attached Site Map.

## 5. Process Flow Diagram

Please see attached Process Flow Diagram.

## 6. Scrubber Specifications

Please see attached carbon media scrubber manufacturer's literature, cut sheets and shop drawings.