



- Pitkin Hotel OWTS design review:
- Chuck Cousino, CDPHE
- Date: 1/4/2024

#### Flow data:

- 13 room hotel x 75 gal./room = 975 gpd; This is acceptable
- Restaurant; The letter to the Pitkin BoEH indicates 35 dining seats and 10 bar seats; and a total design flow of 2000 GPD. However, the OWTS design doc (sheet 2 of 4) states 12 restaurant seats and 6 bar seats; and a total design flow of 1970 GPD. This discrepancy must be clarified and the design modified as appropriate.
- As this is a commercial facility, flows provided for “residential” laundry, lavatory, kitchen, water closet, and dishwasher on pg. 2 of 4 of the engineering report do not apply. Flows for the lavatory, kitchen and water closet are included in either the hotel flow estimates or food service estimates. Flows for the laundry and dishwasher should be determined from the flows/cycle and number of expected cycles per day relative to the equipment proposed. Those flows should then be added as appropriate.
- Relative to the flow data submitted from comparable facilities, this is allowed. However, flows must be determined from the maximum month average flow, not the average of all months. Regulation 22 guidance states:  
*When evaluating actual system flows to determine if the average daily flow has exceeded 2,000 gpd for sites with significant fluctuations in daily flow, the **maximum month average daily flow** must only consider days with reasonable flow and not minimalist days (e.g., a school with 22 days of attendance would determine the monthly average flow using flow from the teaching days, such as 22 days, not 30 days).*  
Subsequently, the engineer should confirm that the facility where the records were obtained was open 7 days/week, or adjust the flow data accordingly. Max. month data also required.
- Should the updated flow data indicate that the total peak flows for this system will remain below 2000 GPD, it would be recommended that in addition to the construction permit, the permitting agency also issue a use permit to ensure that flow data is submitted to the agency on at least a semi-annual basis. If monitoring indicates that the maximum month average flow exceeds 2000 GPD, the local agency must contact the Water Quality Control Division to determine if a State Site Approval and Design review is warranted.

#### Soil data:

- Assumed soil type R-1; from historical data
- An actual site evaluation of the soils adjacent to the proposed STA is required prior to permitting to ensure that the design of the system meets regulatory requirements.

#### Tankage:

- Sheet S1.1 specifies a, “400 gal. grease interceptor”, “or 1000 gal. grease interceptor”. The size of this tank must be determined by the design engineer to accommodate the expected necessary attenuation of grease from the food service.



- This sheet also indicates that the grease interceptor tank is the first tank in series, including the 4000 gallons of septic tank capacity. If possible, it is highly recommended to provide separate sewer lines from the kitchen and the living quarters. This will prevent additional flows from the living quarters from flushing the grease through the interceptor tank.

#### Waste strength:

- Wastewater from food service facilities will typically contain high concentrations of fats, oils, and grease (FOG), as well as an additional organic load; thus a high strength waste. Section 43.6.B.2 states that high strength waste must meet at least TL1 quality before applying to the STA. The design engineer needs to address this item either through an explanation of waste strength, or through the inclusion of additional treatment components. Table 6-4 of Reg. 43 is the reference for constituents and waste strength.

#### STA design:

- Sheet 3 of 4; item C notes an LTAR of 1.0 gal./sq.ft./day; an Eljen TL2 configuration is proposed (12" sand depth); per 43.11.C.3.b.3 of Reg. 43, the 1.0 LTAR is acceptable.
- Note that the TL2 effluent acceptance of the Eljen modules is based on the inclusion of 12" of sand depth below the modules. The TL2 quality effluent is not attained until it has passed through the 12" of sand. Table 10-1A requires a 1-foot sand filter below the application of TL2 effluent. As such, the total depth of sand required for the system would be a minimum of 2'; one ft. for the Eljen, and one ft. for the sand filter
- Sheet S1.3 notes two 12' wide beds that are separated by 12" of sand. Section 43.10.F.2.b of Reg. 43 requires a minimum of 6' sidewall to sidewall for adjacent bed system installations.
- Calculations state a design flow of 1970 GPD, with an LTAR of 1.0 gal./sq.ft./day, thus an 1970 sq.ft. STA is required. Sheet S1.3 provides a detail of the STA at 73' x 24' = 1752 sq.ft. Thus, the STA is 218 sq.ft. short of the required area.
- Detail B on sheet S1.2 specifies a 4' 6" orifice spacing for the distribution laterals. Section 43.11.C.2.b.4 of Reg. 43 notes a maximum orifice spacing of 4' (48").

#### Pump and controls:

- The Orenco System Pump Selection Sheet provided indicates that a PF3005 ½ HP pump. However, Sheet S1.3 notes a 1 ½ HP pump. Noting that the pump curve indicates that the ½ HP pump would be beyond the acceptable range, it seems that the 1 ½ HP pump would be the selected pump. To prevent confusion, this should be consistent throughout the plans.

#### General:

- The elevations of proposed components are not provided. Section 43.5.G.3.e requires an elevation or depth of infiltrative surface of the STA, septic tank and other components. Elevations or depths should be provided to ensure compliance with regulatory requirements.

Please respond to the items noted above. Feel free to contact me should you have any questions.  
Thank you,

