

Technical Memorandum

Date: September 22, 2017

To: Eric Hansen, City of Stevenson

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Project: General Sewer Plan Update

Project Number: 135-48600-16001

Subject: Pretreatment and Source Control Alternatives - Addendum

This addendum documents revisions to the TM issued December 1, 2016, specifically to the load calculations for the high strength wastewater sampling program conducted in Stevenson during September 2016. These revisions were made based on input received at meetings with the high load dischargers, and were included in the July 2017 draft of the General Sewer Plan.

The primary revision was the addition of a consumption factor in calculating flows. Breweries and similar commercial water users consume or package a significant percentage of the water they receive; the Brewers Association Water and Wastewater Manual states that the average brewery discharges 70% of its incoming water as wastewater. In comparison, most homes and businesses discharge nearly all incoming water as wastewater. For each high strength sampling location, a consumption factor was selected and flows were multiplied by this factor for use in calculating loading. The reasoning for each location is summarized below.

- Skamania Lodge: flow data based on water meter. Minimal consumption expected; consumption factor of 1.0 was selected.
- Jester & Judge Cider / LDB Beverage: flow data based on water meter. LDB provided 60 days of data during which 57% of metered water was sent to sewer. Consumption factor of 0.60 was selected.
- Waterfront Bldg / Backwoods Brewing / Skunk Brothers Spirits: flow data based on wastewater, metered at onsite pump station. Consumption is already accounted for; consumption factor of 1.0 was selected.
- Walking Man Brewery: flow data based on water meter. Location has a brewery, with consumption expected to be approximately 0.70 based on Brewers Association Manual, and a restaurant, with consumption factor expected to be closer to 1.0. An intermediate consumption factor of 0.85 was selected.

Applying the selected consumption factors resulted in lower flows for the two sampling locations and as a result lower loads as well. Table 2 is an updated version of the table contained in the December 2016 TM.

Table 2. High Strength Wastewater Sampling Results - Loading

Sampling Location	Average BOD (ppd)	Average COD (ppd)	Average TSS (ppd)	Average NH3-N (ppd)	Average TP (ppd)	Average Total FOG (ppd)	Average Flow (gpd)
Skamania Lodge	223	411	101	9.3		33	61,043
Jester & Judge Cider / LDB Beverage	105	247	34				5,187
Waterfront Bldg / Backwoods Brewing / Skunk Brothers Spirits	69	139	11				2,646
Walking Man Brewery	51	124	5	0.1	0.2		2,195
Wastewater Treatment Plant	903		831				115,000

One other minor revision was made to the December 2016 calculations, which left out one day of sampling for the Waterfront Bldg / Backwoods Brewing / Skunk Brothers Spirits location.

Table 3 from the December 2016 TM was also modified to account for the revised loads.

Table 3. Flow and Load Contributions by Source at WWTP					
Flow/Load Source	Skamania Lodge	Jester & Judge Cider / LDB Beverage	Waterfront Bldg / Backwoods Brewing / Skunk Brothers Spirits	Walking Man Brewery	All Other Sources
Flow Contribution	47 – 61%	3 – 7%	2 – 3%	2 – 3%	27 – 47%
BOD Load Contribution	22 – 38%	7 – 14%	6 – 10%	4 – 11%	27 – 60%
TSS Load Contribution	11 – 20%	5 – 16%	1 – 2%	1 – 2%	60 – 82%