

## Total Fugitive Emission for the Benzene Strippers in the Wastewater Treatment Unit (P025)

### Max VOC from Fugitive Piping Components

Annual Hours of Service: 8760

Component Type	Process Unit Component Count	EPA Factors (lb/hr/component) <sup>A</sup>	Factor source	For monitored components, EPA factor for Control no detect <sup>B</sup>	Assumed % leakers	Maximum Uncontrolled Emission Rate (lbs/hr)	Percent in VOC Service	Total VOC Emissions <sup>2</sup> (Tons/yr)
<b>Valves</b>								
Gas/Vapor	880	1.62E-02	Monitored. Using correlation for leakers and EPA default 0 factor for remaining.	1.72E-05	2.0%	0.2994	100%	1.31
Light Liquid								
Heavy Liquid	0	5.10E-04	Conservatively assume no monitoring of heavy liquids, so using Refinery Average emission factor		NA	0.0000	100%	0.00
<b>Pumps</b>								
Light Liquid	18	8.15E-02	Monitored. Using correlation for leakers and EPA default 0 factor for remaining.	5.29E-05	10.0%	0.1476	100%	0.65
Heavy Liquid	0	8.29E-03	Monitored. Using correlation for leakers and EPA default 0 factor for remaining.	5.29E-05	10.0%	0.0000	100%	0.00
<b>Flanges</b>								
Gas/Vapor/ Light Liquid	126	5.51E-04	Conservatively assume no monitoring of flanges, so using Refinery Average emission factor		2.0%	0.0681	100%	0.30
Heavy Liquid								
<b>Connectors</b>	19	5.51E-04	Conservatively assume no monitoring of connectors, so using Refinery Average emission factor		NA	0.0105	100%	0.05
<b>Relief Valves</b>	10	3.53E-01	Connected to flare so assuming 98% control. Using Refinery Average emission factor		NA	0.0705	100%	0.31

**Total Current VOC Fugitive Emissions (tons/yr): 2.6**

**Estimated fugitive Tons VOC/year from new Benzene Stripper components from TFO Project 0.5**

**Total estimated maximum fugitive emissions for Benzene Strippers (P025) in Tons VOC/year 3.11**

#### NOTES:

<sup>A</sup> For unmonitored stream, Average Refinery Factors from US EPA protocol Table 2-2 are used for all components. These factors are conservative.

For monitored streams, this column has the EPA correlation factor from Table 2-10 for detected leakers, and uses the default 0 factor in Table 2-14 for non-detect components. Factors are taken from EPA Document EPA-453/R-95-017, Nov. 1995.

<sup>B</sup> For monitored components, the Default 0 factors for Table 2-14 are used for components assumed to be non-detect. Factors are estimated from EPA Document EPA-453/R-95-017, Nov. 1995.

Current component count from "component count by unit equip\_scv jan09.xls" in Metal-up project file 41917214.