Appendix C – Summary of Storage Tanks Emissions Calculation

Appendix C, Table C-1
Potential to Emit (PTE) Annual POC Emissions for Altered Storage Tanks in Flexibility Service
(Tanks allowed to store petroleum-based and renewable-based materials)
(throughputs and emissions below are imposed as enforceable permit condition limits)
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Source #	Post-Project Status	Tank Number		POC Emissions[1]						
			Period	Roof Type	Vapor Control Efficiency	Stock	Avg. TVP (psia)	Throughput (bbl/yr)	POC Emissions (lb/yr)	POC Emissions (ton/yr)
122	Altered	Tank 167	NA[3]	EFRT	0%	Gasoline TVP 11.00	11.00	2,000,000	8,190.29	4.095
125	Altered	Tank 170	NA[4]	EFRT	0%	Renewable Naphtha	5.70	3,000,000	3,563.22	1.782
126	Altered	Tank 172	NA[3]	IFRT	0%	Gasoline RVP 9	9.00	594,845	3,364.00	1.682
139	Altered	Tank 204	Jul 2021 - Jun 2022	FixedRoof	98%	Light Coker Gas Oil	2.55	962,972	6,412.16	3.206
140	Altered	Tank 205	Sep 2015 - Aug 2016	FixedRoof	98%	Light Slop Oil	6.02	630,575	5,245.87	2.623
150	Altered	Tank 241	Jun 2018 - May 2019	EFRT	0%	Heavy Gas Oil	6.23	519,471	3,625.36	1.813
195	Altered	Tank 501	Mar 2021 - Feb 2022	FixedRoof	0%	Water Treatment Sludge	0.20	97,928	1,912.24	0.956
254	Altered	Tank 1001	Apr 2007 - Mar 2008	EFRT	0%	Gasoline	6.20	7,257,233	4,080.51	2.040
256	Altered	Tank 1003	Jun 2009 - May 2010	EFRT	0%	Diesel	0.30	4,024,700	606.29	0.303
257	Altered	Tank 1004	Sep 2020 - Aug 2021	IFRT	0%	CARB Diesel	0.30	3,568,973	355.26	0.178
341	Altered	Tank 208	NA[3]	EFRT	0%	Gasoline TVP 3.00	3.00	1,819,583	2,760.00	1.380
342	Altered	Tank 209	NA[3]	EFRT	0%	Diesel TVP 0.50	0.50	2,407,700	787.00	0.394

Notes:

1. Tank parameters, stock properties, and meteorological data used to calculate these emissions are available in the TankESP database and TanksESP Output Report.
2. Tanks 204 (S-139) and 205 (S-140) are on on vapor recovery to the fuel gas system.
3. Throughputs for Tanks 167 (S-122), 172 (S-126), 1010 (S-261), 107 (S-334), 108 (S-340), 208 (S-341), 209 (S-342), 110 (S-440), and 1007 (S-448) are based on permit condition limits and are thus modeled on a representative 12-month period. Throughputs and vapor pressures for other tanks are based on historical measured Pi tag data. Emissions for S-122 are from Application 13424. Emissions for S-126, S-341, and S-342 are from Application 27954.
4. Annual throughput and corresponding emissions for S-125 imposed as enforceable permit condition limits are based on 3,000,000 bbl/yr of renewable naphtha per Phillips 66's request. This limit is less than the annual throughput (of 6,687,105 bbl/yr) corresponding to the historical highest annual emissions. Daily throughput and emissions limits are based on historical highest daily emissions.

Appendix C, Table C-2
Potential to Emit (PTE) Annual TAC Emissions for Altered Storage Tanks in Flexibility Service
(Tanks allowed to store petroleum-based and renewable-based materials)
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Source #	Tank Number	Stock	TAC Emissions (lb/yr)[1]										
			Benzene	Cresol	Ethyl benzene	Hexane (n-)	Hydrogen sulfide	Naph thalene	Phenol	Propyl ene	Styrene	Toluene	Xylene (total)
122	Tank 167	Gasoline TVP 11.00	6.89	--	3.36	30.2	--	0.06	--	--	--	33.10	18.30
125	Tank 170	Renewable Naphtha	0.01	--	0.03	84.6	--	0.00	--	--	--	0.11	0.02
126	Tank 172	Gasoline RVP 9	1.31	--	0.80	5.7	--	0.02	--	--	--	6.89	4.44
139	Tank 204	Light Coker Gas Oil	0.67	--	0.13	--	0.87	0.00	--	--	--	0.18	0.19
140	Tank 205	Light Slop Oil	6.95	0.03	0.71	31.1	--	0.00	0.00	218.33	0.53	9.88	2.74
150	Tank 241	Heavy Gas Oil	5.03	--	1.67	22.6	--	0.01	--	--	--	21.13	8.75
195	Tank 501	Water Treatment Sludge	0.01	0.32	0.00	349.4	--	0.05	0.04	2,435.84	5.95	0.01	0.00
254	Tank 1001	Gasoline	6.98	--	6.66	28.3	--	0.17	--	--	--	46.06	37.70
256	Tank 1003	Diesel	0.02	0.05	0.77	0.4	0.36	0.83	0.82	--	--	4.85	3.92
257	Tank 1004	CARB Diesel	0.04	--	0.18	0.1	0.06	0.12	--	--	--	0.16	0.49
341	Tank 208	Gasoline TVP 3.00	0.50	--	1.10	1.7	--	1.10	--	--	--	4.50	6.20
342	Tank 209	Diesel TVP 0.50	0.40		1.00	1.5		1.00		--	--	4.10	5.60

Notes:

1. TAC emissions are calculated using TanksESP and are presented in TankESP Output Report. Emissions for S-126, S-341, and S-342 are from Application 27954.

Appendix C, Table C-3, Tank107 Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: 2Dec 2019 AP-42 revisions H/D ratio calculated

Tank ID	Atmospheric Pressure (psia)	Ann - Shell Heat Transfer Coeff	Ann - Insulation R-value (hr-ft2-degF/Btu)	Ann - Overall Shell Rin (ft)	Ann - Overall Roof Heat Transfer Coeff	Ann - Will Vent Qty	Ann - vent pressure	Roof Overall Temperature (deg R)	Protection from Sunlight (yes/no)	Protection Factor	Permeability	Deck Welded (yes/no)	Deck Welded Fraction	Deck Seams Loss (lb/yr)	Radio No	Effective Diameter (ft	Effective Fitting Number	Effective Fixtures Number	Effective Insulated Roof (yes)	Effective Roof Radius (ft)	Effective Insulation (in)
1101	14.7365	59.98182953	20	20	60.99055163	5.0173825	5.28958901	60.99055163	0	0.0000		510.9103388		0	0	0	0	1	0	0	0
1102	14.7365	59.98182953	20	20	64.99355163	5.0173825	5.28958901	62.66229755	0	0.0000		197.7301077		0	0	0	0	1	0	0	0
1103	14.7365	59.98182953	20	20	64.99355163	5.0173825	5.28958901	62.66229755	0	0.0000		197.7301077		0	0	0	0	1	0	0	0
1104	14.7365	59.98182953	20	20	64.99355163	5.0173825	5.28958901	62.66229755	0	0.0000		197.7301077		0	0	0	0	1	0	0	0
1105	14.7365	59.98182953	20	20	65.03955163	7.43801723E7	5.28958901	62.11261319	0	0.0000		320.1851099		0	0	0	0	1	0	0	0
1107	14.7365	59.98182953	20	20	64.91955163	11.3021514	5.28958901	61.97052803	0	0.0231		1856.466789		0	0	0	0	1	0	0	0
1108	14.7365	59.98182953	20	20	64.91955163	5.9773614	5.28958901	61.97052803	0	0.0231		620.4796189		0	0	0	0	1	0	0	0
1109	14.7365	59.98182953	20	20	64.91955163	5.9773614	5.28958901	61.97052803	0	0.0231		620.4796189		0	0	0	0	1	0	0	0
1050	14.7365	59.98182953	20	20	64.99355163	0.29999546	5.28958901	62.66229755	0	0.0231		62.7195842		0	0	0	0	1	0	0	0
1055	14.7365	59.98182953	67.3333333	20	62.92631783	0.29916352316	5.28958901	61.16395313	0	0.0231		56.16521785	105.02	0	0	0	0	1	0	0	66.6333333
1067	14.7365	59.98182953	33.8221957	20	62.12108427	10.9992744	5.28958901	61.16395313	0	0.0231		11823.18512	896.33	0	0	0	0	1.1	0	0	1.82259127
1107	14.7365	59.98182953	20	20	64.99355163	5.9773614	5.28958901	62.66229755	0	0.0231		620.4796189		0	0	0	0	1	0	0	0
1108	14.7365	59.98182953	20	20	64.99355163	5.9773614	5.28958901	62.66229755	0	0.0231		620.4796189		0	0	0	0	1	0	0	0
1109	14.7365	59.98182953	20	20	65.03955163	7.43801723E7	5.28958901	62.11261319	0	0.0231		320.1851099		0	0	0	0	1	0	0	0
1110	14.7365	59.98182953	20.5	20.5	65.03142163	10.8699627	5.28958901	62.13328313	0	0.0231		1004.193161		0	0	0	0	1	0	0	0
1111	14.7365	59.98182953	107.333333	111	67.31778753	0.29916352316	5.28958901	61.16395313	0	0.0231		3956.7966783	105.02	0	0	0	0	1	0	0	56.3333333
2000	14.7365	59.98182953	25.05975	231	62.5418579592	9.19133620569	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.245975
2002	14.7365	59.98182953	25.05	231	62.5418579592	9.19133620569	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.25
2003	14.7365	59.98182953	29.05975	265	62.5168719169	2.51295965614	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	2.195975
2004	14.7365	59.98182953	21.05975	191	62.5168719169	2.51295965614	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.295975
2008	14.7365	59.98182953	28	28	64.89538958	0.5003784	5.28958901	61.95809821	0	0.0231		811.1816549		0	0	0	0	1	0	0	0
2009	14.7365	59.98182953	28	28	64.89538958	0.5003784	5.28958901	61.95809821	0	0.0231		93 123675		0	0	0	0	1	0	0	0
2105	14.7365	59.98182953	20.25	28	62.1019972137	0.99217271	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.25
2101	14.7365	59.98182953	23	271	65.05438708	6.22997666	5.28958901	62.05201343	0	0.0231		678.91599		0	0	0	0	1	0	0	0
2102	14.7365	59.98182953	23.5	271	65.05438708	6.22997666	5.28958901	62.05201343	0	0.0231				0	0	0	0	1	0	0	0
2772	14.7365	59.98182953	31.5925	363	62.19952613	9.65018825271	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.5925
2360	14.7365	59.98182953	25.5925	294	62.6173877R	0.99217271	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.5925
2361	14.7365	59.98182953	25.5925	294	62.6173877R	0.99217271	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.5925
2362	14.7365	59.98182953	31.5925	363	67.21738753	9.65018825271	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.5925
2363	14.7365	59.98182953	31.5925	363	62.19952613	9.4999213	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	1.5925
910	14.7365	59.98182953	7.48445804	111	62.58012143	0.19633152N9	5.28958901	61.16395313	0	0.0231		21	21	0	0	0	0	0	0	0	0.56858003

Appendix C, Table C-3, Tank637P Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

Tank ID	Effective wind speed	Perforated cleaning factor (No)	Perforated landing seal factor (No)	Perforated deck fitting factor (No)	Perforated seal factor (No)	Perforated seal Perm ultiplier (NoM)	Work Day Stabilization (No)	Work Day Min factor (No)	Weather cond Production factor	Weather Wind Adj	Weather Wind Adj	Weather Wind Adj	Weather condition factor	AVFT Factor	Weather cond fac	Weather condition factor (no fact constant) (No.)	Weather adjustment factor (NF	Weather adjustment (NF	Weather adjustment (NF
1102		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1103		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1104		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1105		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1106		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1107		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1108		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1050		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1051		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1052		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1053	0	0	0	0	0	0	0	0	121.07	0	0.6	0.2	121.07	0.5	0	0	0	0	0
1067	0	0	0	0	0	0	0	0	766.19	0	0.6	0.2	766.19	0.5	0	0	0	0.68875	0
1117		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
1118		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1119		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1120		0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
1121	n	n	n	n	n	n	n	n	82.64	n	0.6	n	82.64	n	n	n	n	n	n
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.38525	25.69975
2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.74	26.24
2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.38125	26.09875
2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.74	24.06
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0.74	25.26
2021	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0	n	0	n	n	n	n	n	n
2023	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	0	0
2060	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	4.9875	25.5625
2061	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	4.9875	25.5625
2062	0	0	0	0	0	0	0	0	0	0	0	n	0	n	n	n	n	n	n
2063	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	4.9875	25.5625
1101	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0.5	0	0	0	1.03125	7.96875

Appendix C, Table C-3, Tank107 Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

| Tank ID | Includes a Sandtred Seal? | Is a Deck a Leak-Resistant? | Is Roof Welded? | Is a Column-Supported Fixed-Roof Tank? | Ro | Rr | Rs | RFactor (Welded) units | RFactor (Bolted) units | Ro | Rr | Rs | Liquid Bottom Sediment Content (%) | Liquid Bottom Sediment Content (%) | Is Tank Heated (Y/N)? | Actual Storage Temperature (°F) | Average Liquid Surface Temperature (°F) | Average Liquid Surface Temperature (°R) | Maximum Liquid Surface Temperature (°F) | Maximum Liquid Surface Temperature (°R) | Daily Liquid Surface Temperature (°R) | Daily Average Ambient Temperature (°F) | Atmospheric Pressure (psia) | Vapor Pressure at Daily Average Liquid Surface Temperature (psia) | Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia) | Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia) | Vapor Molecular Weight (lb/lb-mole) | Vapor Molecular Weight (lb/lb-mole) | Daily Maximum Liquid Surface Temperature (°F) | Daily Minimum Liquid Surface Temperature (°F) | Net working loss throughput (bbl) | Annual net throughput (gal/yr.) | Annual turnovers (turnovers/yr) | Turnover Factor | Maximum Liquid Volume (gal) | Maximum Liquid Height (ft) | Tank Diameter (ft) | Working Loss Product Factor | Vapor Space Expansion Factor | Vapor Space Outage (ft) | Working Loss (lb) | Vapor Density (lb/ft³) | Vapor Space Volume (ft³) | Tank Shell Height (ft) | Shell Clingage Factor (bbl/1000 sq ft) | Average Liquid Height (ft) | Roof Outage (ft) | Roof Outage (Dome Roof) | Roof Outage (Cone Roof) | Shell Clingage (bbl

Appendix C, Table C-3, Tank/EP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

| | | |

Appendix C, Table C-5: TankESP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

| | Throughput (bbl/yr) | | | | | | | | Vapor Control Efficiency | | | | | | | |

Appendix C, Table C-3, Tank319 Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

| | | | Benzene | | |

Appendix C, Table C-3: Tank EP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

| Tank ID | DESCription: Tube/Horizontal/Vertical/Domed/Floating/Other? | | |

Appendix C, Table C-3: TankESP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

| | | | | | | | | | | | | | | | | Ethylbenzene | | | | | | | | | | | | | | | |

Appendix C, Table C-5: TankESP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

Mercury (all) pollutant

Tank ID	1-propene (3-methyl-1,3-butadiene)	2-butanone (Methyl ethyl ketone)	2-methylpentane	3-methylpentane	4-methyl-2-pentanone (Methyl isobutyl ketone)	Acetone	Mercury	Methacrylonitrile (3-methyl-2-propenenitrile)	Methane	Methanol (methyl alcohol)	Methylbenzene (B)	Methyl acrylate (methyl ester 2-propenoic acid)	Methyl ethyl ketone (2-butanone)	Methyl isobutyl ketone (hexone)	Methyl mercaptan (Alk)	Methylcyclohexane	Methylcyclopentane	Methylene chloride	Naphthalene	Nonane	Octane	Pentane	Propane	Propylene	Styrene	Tetrachloroethylene (Perchloroethylene)	Toluene	Trichloroethylene	Vinyl acetate	Vinyl chloride	Xylenes (m-, p-, o-)
100	no data	no data	no data	no data	no data	no data	6E-05	no data	7.14E-05	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1100	no data	no data	no data	no data	no data	no data	0	no data	2.9E-05	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1200	no data	no data	no data	no data	no data	no data	0	no data	1.43E-05	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1300	no data	no data	no data	no data	no data	no data	0	no data	1.72E-05	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1400	no data	no data	no data	no data	no data	no data	0	no data	2.22E-05	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1500	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1700	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1800	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1900	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2000	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2100	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2200	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2300	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2400	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2500	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2600	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2700	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2800	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
2900	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
3000	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
3100	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
3200	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
3300	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
3400	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
3500	no data	no data	no data	no data	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-3: TankESP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: Jilke 2019 AP-42 revisions H/D ratio calculated

| | | |

Appendix C, Table C-3: Tank EP Output Report for Tables C-1 and C-2
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

| | Toluene | | |

Appendix C, Table C-4

Potential to Emit (PTE) Daily POC Emissions for Altered Storage Tanks in Flexibility Service
(Tanks allowed to store petroleum-based and renewable-based materials)
(throughputs and emissions below are imposed as enforceable permit condition limits)
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Source #	Post-Project Status	Tank Number	POC Emissions[1]					
			Roof Type	Vapor Control Efficiency	Stock	Avg. TVP (psia)	Max Daily Throughput (bbl/day)[3]	POC Emissions (lb/day)[3]
122	Altered	Tank 167	EFRT	0%	Gasoline TVP 11.00	11.00	5,479	22
125	Altered	Tank 170	EFRT	0%	Reformate-TK170	4.51	29,918	10
126	Altered	Tank 172	IFRT	0%	Gasoline RVP 9	9.00	28,800	9.2
139	Altered	Tank 204	FixedRoof	98%	Light Coker Gas Oil-TK204	1.42	35,145	49
140	Altered	Tank 205	FixedRoof	98%	Naphtha-TK205	5.42	56,107	94
150	Altered	Tank 241	EFRT	0%	Gasoline-TK241	6.51	31,655	15
195	Altered	Tank 501	FixedRoof	0%	Water Treatment Sludge	0.15	711	9
254	Altered	Tank 1001	EFRT	0%	Gasoline-TK1001	6.20	138,362	21
256	Altered	Tank 1003	EFRT	0%	Gasoline-TK1003	6.20	111,383	20
257	Altered	Tank 1004	IFRT	0%	Gasoline-TK1004	6.20	42,438	6
341	Altered	Tank 208	EFRT	0%	Gasoline TVP 3.00	3.00	12,000	7.6
342	Altered	Tank 209	EFRT	0%	Diesel TVP 0.50	0.50	12,000	2.2

Notes:

1. Tank parameters, stock properties, and meteorological data used to calculate these emissions are available in the TankESP database.

2. Tanks 204 (S-139) and 205 (S-140) are on on vapor recovery (A-7) to the fuel gas system.

3. Throughputs are based on maximum historical daily throughputs, except for S-122, S-126, S-341, and S-342. Emissions for S-122 are based on a daily throughput of 5,479 bbl/day (dividing the Condition #22963 throughput limit of 2,000,000 bbl/yr by 365), which will serve as an enforceable permit condition to limit the maximum daily throughput. Throughputs and emissions for S-126, S-341, and S-342 are from Application 27954.

Appendix C, Table C-5
Potential to Emit (PTE) Hourly Throughput TAC Emissions for Altered Storage Tanks in Flexibility Service
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Source #	Tank Number	Stock	TAC Emissions (lbs/hour)										
			Benzene	Cresol	Ethyl benzene	Hexane (n-)	Hydrogen sulfide	Naph thalene	Phenol	Propyl ene	Styrene	Toluene	Xylene (total)
122	Tank 167	Gasoline TVP 11.00	7.87E-04	0.00E+00	3.83E-04	3.45E-03	0.00E+00	6.56E-06	0.00E+00	0.00E+00	0.00E+00	3.78E-03	2.09E-03
125	Tank 170	Reformate-TK170	1.46E-03	0.00E+00	3.57E-03	7.06E-03	0.00E+00	2.87E-04	0.00E+00	0.00E+00	1.11E-04	2.17E-02	1.73E-02
126	Tank 172	Gasoline RVP 9	4.00E-03	0.00E+00	3.00E-03	4.00E-03	0.00E+00	1.00E-03	0.00E+00	0.00E+00	0.00E+00	1.00E-03	1.50E-02
139	Tank 204	Light Coker Gas Oil-TK204	2.64E-04	0.00E+00	4.72E-05	0.00E+00	3.92E-04	3.09E-07	0.00E+00	0.00E+00	0.00E+00	6.85E-05	7.08E-05
140	Tank 205	Naphtha-TK205	6.71E-03	0.00E+00	8.05E-04	4.37E-02	0.00E+00	2.57E-06	0.00E+00	0.00E+00	0.00E+00	1.07E-02	3.17E-03
150	Tank 241	Gasoline-TK241	1.12E-03	0.00E+00	1.25E-03	4.44E-03	0.00E+00	3.41E-05	0.00E+00	0.00E+00	0.00E+00	8.10E-03	7.11E-03
195	Tank 501	Water Treatment Sludge	2.86E-06	7.54E-05	1.08E-07	6.74E-02	0.00E+00	1.17E-05	1.00E-05	4.27E-01	1.24E-03	1.50E-06	6.31E-07
254	Tank 1001	Gasoline-TK1001	2.29E-03	0.00E+00	4.45E-03	7.74E-03	0.00E+00	1.37E-04	0.00E+00	0.00E+00	0.00E+00	2.39E-02	2.57E-02
256	Tank 1003	Gasoline-TK1003	2.05E-03	0.00E+00	3.64E-03	7.16E-03	0.00E+00	1.10E-04	0.00E+00	0.00E+00	0.00E+00	2.00E-02	2.10E-02
257	Tank 1004	Gasoline-TK1004	5.91E-04	0.00E+00	1.33E-03	1.88E-03	0.00E+00	4.20E-05	0.00E+00	0.00E+00	0.00E+00	6.85E-03	7.72E-03
341	Tank 208	Gasoline TVP 3.00	2.00E-03	0.00E+00	6.00E-03	9.00E-03	0.00E+00	6.00E-03	0.00E+00	0.00E+00	0.00E+00	2.30E-02	3.20E-02
342	Tank 209	Diesel TVP 0.50	1.00E-03	0.00E+00	1.00E-03	2.00E-03	0.00E+00	1.00E-03	0.00E+00	0.00E+00	0.00E+00	6.00E-03	1.00E-03

Notes:

1. TAC emissions are calculated using TanksESP and are presented in TankESP Output Report. Emissions for S-122 are based on dividing the annual TAC emissions (from Appendix C, Table C-2) by 8760. Emissions for S-126, S-341, and S-342 are from Application 27954.

Appendix C, Table C-6: Tank319 Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: Jiller 2019 AP-42 revisions H2S ratio calculated

Tank ID	Measurements: Maximum vapor height	Row - Stabilized Vapor Height	Row - Initial(or all vapor) space RH	Row - Overall Stabilized RH	Row - Overall Working Losses	Row - Will Vent?	Row - ratio if vented	North Overall Temperature (deg R)	Effective Solar Overall condition? (Yes)	Flammable	Pack Withdrawal Rate (BBL/year) (Yes)	Pack Withdrawal Rate (bbl/day)	Pack Vapor Loss (lbs)	Ratio	Effective Solar Index #
1/1/07	54.7083	51.705	23	23	74.453186	0.0313257	6.2	51.497556	0	0.0031	63.913295	87.497556	0	0	0
1/1/07	54.7083	53.835	24	24	58.238868	0.0313257	6.6	51.952726	0	0.0031	63.913295	89.952726	0	0	0
1/1/07	54.7083	54.375	24	24	61.997719	0.0313257	6.7	51.952726	0	0.0031	63.913295	89.952726	0	0	0
1/1/07	54.7083	54.375	24	24	61.997719	0.0313257	6.7	51.952726	0	0.0031	63.913295	89.952726	0	0	0
1/1/07	54.7083	60.79	24	23	68.296785	0.0313257	7	61.852907	0	0.0031	63.913295	100.83195	0	0	0
1/1/07	54.7083	69.97	24	24	79.837992	0.0313257	8.7	69.198918	0	0.0031	63.913295	99.562743	0	0	0
1/1/07	54.7083	67.91	24	23	75.727002	0.0313257	8.9	71.156873	0	0.0031	63.913295	100.21002	0	0	0
1/1/07	54.7083	66.625	24	24	74.288968	0.0313257	9.2	68.903869	0	0.0031	63.913295	99.562743	0	0	0
1/1/07	54.7083	66.625	24	24	71.356168	0.0313257	9.2	68.114356	0	0.0031	63.913295	92.478532	0	0	0
1/1/07	54.7083	66.625	24	24	68.892768	0.0313257	8.2	66.503869	0	0.0031	63.913295	87.439845	0	0	0
1/1/07	54.7083	58.535	24	24	60.826845	0.0313257	9.6	59.367536	0	0.0031	63.913295	83.499251	0	0	0
1/1/07	54.7083	53.85	24	24	53.903158	0.0313257	7.9	53.366169	0	0.0031	63.913295	80.967142	0	0	0
1/1/07	54.7083	53.85	24	24	53.903158	0.0313257	7.9	53.366169	0	0.0031	63.913295	80.967142	0	0	0
1/1/07	54.7083	58.535	24	24	54.258968	0.0313257	6.8	54.883176	0	0.0031	63.913295	82.889367	0	0	0
1/1/07	54.7083	53.85	24	24	56.496916	0.0313257	8.6	55.352732	0	0.0031	63.913295	91.472139	0	0	0
1/1/07	54.7083	60.79	24	23	68.296785	0.0313257	7	61.852907	0	0.0031	63.913295	100.83195	0	0	0
1/1/07	54.7083	69.97	24	24	79.837992	0.0313257	8.7	69.198918	0	0.0031	63.913295	102.36195	0	0	0
1/1/07	54.7083	67.91	24	23	75.727002	0.0313257	8.9	71.156873	0	0.0031	63.913295	103

Appendix C, Table C-6: Tank19 Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

Tank ID	Effective (Y/N Vshell) (N)	Effective Fixture Diameter (ft)	Effective Initial Liquid Level (ft)	Effective Roof Height (ft)	Effective cone height (ft)	Effective slant ength	Estimated shell loss (lb/yr)	Estimated landing seal loss (lb/yr)	Estimated standing loss (lb/yr)	Estimated working loss (lb/yr)	Estimated Annual Emissions (lb/yr)	Work Fac. Abbreviation	Work Fac Description (%)
144	0	1	0	0	0	0	0	0	217.9722	66.55176	570.65167		0
145	0	1	0	0	0	0.4	0	0	209.38981	66.55176	570.65167		0
146	0	1	0	0	0	0.4	0	0	209.38981	66.55176	570.65167		0
147	0	1	0	0	0	0.4	0	0	209.38981	66.55176	570.65167		0

Appendix C, Table C-5: Tank EF Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H,N ratio calculated

Tank ID	Fixed Gas Molecular Wt	Weather-and-Production Number	Weather Rec#1	Weather Rec#2	Weather Rec#3	Weather-and-Weather-dependent Factor	VCM g/day	Weather-only No.	Weather-only Incl. Fuel-and-weather VCM	Weather-all-year-dependent VCM	Weather-all-year VCM	Weather-all-year-no-zero VCM	Tank Rec. # for Weather Input	Tank Rec. # for Tank Characteristics	Tank Rec. # for Tank Characteristics	Tank ID ###	Tk_n-zero-or-non-int-of-direction-weather	Tk	Tk
1647	0	316.61993	0	2.58	0.2	316.61993	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	336.23374	0	2.24	0.2	336.23374	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	336.23374	0	2.24	0.2	336.23374	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	316.61993	0	2.58	0.2	316.61993	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	652.61535	0	0.2	0.2	652.61535	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	338.3672	0	0.06	0.2	338.3672	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	417.81063	0	0.16	0.2	417.81063	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	336.23374	0	2.24	0.2	336.23374	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	961.3795	0	2.69	0.2	961.3795	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	316.61993	0	2.58	0.2	316.61993	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	267.29501	0	1.91	0.2	267.29501	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	520.98577	0	1.91	0.2	520.98577	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1647	0	520.98577	0	1.91	0.2	520.98577	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	339.08582	0	2.24	0.2	339.08582	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	339.08582	0	2.24	0.2	339.08582	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	339.77963	0	2.58	0.2	339.77963	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	455.61351	0	0.2	0.2	455.61351	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	661.16383	0	0.06	0.2	661.16383	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	450.81909	0	0.16	0.2	450.81909	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	339.08582	0	2.24	0.2	339.08582	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	568.59955	0	2.69	0.2	568.59955	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	339.67579	0	2.58	0.2	339.67579	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	299.93821	0	1.91	0.2	299.93821	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	568.86824	0	2.32	0.2	568.86824	0.30870364	0	0	0	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0.53333333	0	0	0	0.28125	29.09375

Appendix C, Table C-6: Tank 619 Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

Tank ID	AP-42 user-defined seller	API user-specified seller	Shell Height (ft)	Diameter (ft)	Is Tank Heated (yes/no)	Is Roof Insulated (yes/no)	Vapor Space Outage (ft)	Tank Vapor Space Volume (ft3)	Tank Diameter (ft)	Effective Column Height (ft)	Annual Net Throughput (gal/yr)	Annual Turnovers	Turnover Factor	Maximum Liquid Volume (gal)	Maximum Liquid Height (ft)	Minimum Liquid Volume (gal)	Minimum Liquid Height (ft)	Net Working Capacity (gal)	Vapor Density (lb/ft3)	Vapor Molecular Weight (lb/lb-mole)	Vapor Pressure at Daily Average Liquid Surface Temperature (psia)	Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia)	Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia)	Vapor Space Expansion Factor	Vented Vapor Saturation Factor
1617	0	20.989796	20	140	N	N	0	0	140	19.989796	54.795	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	21.211478	20	140	N	N	0	0	140	19.989796	53.9595	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	21.211478	20	140	N	N	0	0	140	19.989796	54.795	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	26.782731	20	140	N	N	0	0	140	19.989796	65.79	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	39.39143	20	140	N	N	0	0	140	19.989796	69.99	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	26.626359	20	140	N	N	0	0	140	19.989796	67.95	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	21.109863	20	140	N	N	0	0	140	19.989796	69.765	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	22.580531	20	140	N	N	0	0	140	19.989796	66.825	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	21.609615	20	140	N	N	0	0	140	19.989796	58.935	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	22.989796	20	140	N	N	0	0	140	19.989796	51.975	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	21.211478	20	140	N	N	0	0	140	19.989796	54.795	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	21.211478	20	140	N	N	0	0	140	19.989796	53.9595	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	26.782731	20	140	N	N	0	0	140	19.989796	65.79	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1617	0	39.39143	20	140	N	N	0	0	140	19.989796	69.99	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	26.626359	20	140	N	N	0	0	140	19.989796	67.95	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	21.109863	20	140	N	N	0	0	140	19.989796	69.765	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	22.580531	20	140	N	N	0	0	140	19.989796	66.825	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	22.989796	20	140	N	N	0	0	140	19.989796	51.975	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	21.609615	20	140	N	N	0	0	140	19.989796	58.935	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	21.211478	20	140	N	N	0	0	140	19.989796	54.795	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	21.211478	20	140	N	N	0	0	140	19.989796	53.9595	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	26.782731	20	140	N	N	0	0	140	19.989796	65.79	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	39.39143	20	140	N	N	0	0	140	19.989796	69.99	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	26.626359	20	140	N	N	0	0	140	19.989796	67.95	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	21.109863	20	140	N	N	0	0	140	19.989796	69.765	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	22.580531	20	140	N	N	0	0	140	19.989796	66.825	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	21.609615	20	140	N	N	0	0	140	19.989796	58.935	0.00	0.00	5.8410536	8.0553257	Rodeo	CA	68.84	5.8410536	8.0553257	49	0			
1700	0	22.989796	20	140	N	N	0	0	140	19.989796	51.975

Appendix C, Table C-6: Tank EP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

						Stock													
Tank ID	Non Routine Emissions (lbs)	Shutdown all Fullservice	Shutdown all Pump	Shutdown all Pump Operation	Shutdown all Instrument	Shell Left	Shell Roof Date	Shell Roof Year Date	Shell Year Into Roof	Shell Roof Into Roof	Shell Roof Less Roof	Shell Roof Less Roof Dummy	Shell Roof Less Roof Dia	Shell Roof Less Roof Ht	Shell Roof Less Roof Shell	Shell Roof Less Roof Roof	Shell Roof Less Roof Shell Shell	Shell Roof Reflect Ht Tank Id	Shell Fixes
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	1/1/2021	-1	228.3	197.310997	1	0.4	0.4	0	0	0.4	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	2/1/2021	-1	238.4	156.510997	1	0.4	0.4	0	0	0.4	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	3/1/2021	-1	238.4	187.410997	1	0.4	0.4	0	0	0.4	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	4/1/2021	-1	238.4	197.4	1	0.4	0.4	0	0	0.4	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	5/1/2021	-1	352	202.42997	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	6/1/2021	-1	338.8	225.75799	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	7/1/2021	-1	327.4	235.19899	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	8/1/2021	-1	327.4	244.63997	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	9/1/2021	-1	272.4	181.7624	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	10/1/2021	-1	238.4	157.110997	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	11/1/2021	-1	203.4	156.8016	1	0.4	0.4	0	0	0.25	EPRT
1647	0	0	0	0	0	180-70127	Earth Hollow	8/1/2021	12/1/2021	-1	169.1	136.248016	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	1/1/2021	-1	352	202.42997	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	2/1/2021	-1	238.4	124.62997	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	3/1/2021	-1	238.4	125.36997	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	4/1/2021	-1	238.4	136.14799	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	5/1/2021	-1	352	179.7242	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	6/1/2021	-1	338.8	167.205214	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	7/1/2021	-1	327.4	177.475141	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	8/1/2021	-1	327.4	186.91997	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	9/1/2021	-1	272.4	142.764	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	10/1/2021	-1	238.4	118.46092	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	11/1/2021	-1	203.4	105.09771	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	180-29797	Berkenside T	8/1/2021	12/1/2021	-1	169.1	100.18996	1	0.4	0.4	0	0	0.25	EPRT
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	1/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	2/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	3/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	4/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	5/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	6/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	7/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	8/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	9/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	10/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	11/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2050	0	0	0	0	0	154-0316	Earth Cober H	8/1/2021	12/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	1/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	2/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	3/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	4/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	5/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	6/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	7/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	8/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	9/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	10/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	11/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2700	0	0	0	0	0	881-22005	Readrike TK2	8/1/2021	12/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	1/1/2021	-1	228.3	202.156017	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	2/1/2021	-1	238.4	196.166017	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	3/1/2021	-1	238.4	217.75813	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	4/1/2021	-1	327.2	240.8556	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	5/1/2021	-1	364	211.195197	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	6/1/2021	-1	338.8	225.75799	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	7/1/2021	-1	279.2	167.17601	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	8/1/2021	-1	168.4	278.93587	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	9/1/2021	-1	297.4	235.31499	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	10/1/2021	-1	238.4	194.16092	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	11/1/2021	-1	238.4	229.33813	1	0.4	0.4	0	0	0.25	EPRT
2450	0	0	0	0	0	141-98538	Geaulher TK2	8/1/2021	12/1/2021	-1	169.1	136.248016	1	0.4	0.4	0	0	0.25	EPRT
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	1/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	2/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	3/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	4/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	5/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	6/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	7/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	8/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	9/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	10/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	11/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1700	0	0	0	0	0	116-48136	Water Treat	8/1/2021	12/1/2021	-1	0	0	0	0	0	0	0	0.25	FlamRoof
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	1/1/2021	-1	270.4	205.33253	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	2/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	3/1/2021	-1	295.2	221.182797	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	4/1/2021	-1	352	234.2242	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	5/1/2021	-1	416	216.276213	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	6/1/2021	-1	400.4	244.5242	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	7/1/2021	-1	339.2	254.96799	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	8/1/2021	-1	376.4	264.42997	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	9/1/2021	-1	284.4	196.5624	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	10/1/2021	-1	238.4	226.28797	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	11/1/2021	-1	203.4	165.8016	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	464-35075	Geaulher TK3	8/1/2021	12/1/2021	-1	169.1	235.33253	1	0.4	0.4	0	0	0.25	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	1/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	2/1/2021	-1	295.2	221.182797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	3/1/2021	-1	352	234.2242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	4/1/2021	-1	416	216.276213	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	5/1/2021	-1	400.4	244.5242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	6/1/2021	-1	339.2	254.96799	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	7/1/2021	-1	376.4	264.42997	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	8/1/2021	-1	284.4	196.5624	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	9/1/2021	-1	238.4	226.28797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	10/1/2021	-1	203.4	165.8016	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	11/1/2021	-1	169.1	235.33253	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	12/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	1/1/2021	-1	295.2	221.182797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	2/1/2021	-1	352	234.2242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	3/1/2021	-1	416	216.276213	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	4/1/2021	-1	400.4	244.5242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	5/1/2021	-1	339.2	254.96799	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	6/1/2021	-1	376.4	264.42997	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	7/1/2021	-1	284.4	196.5624	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	8/1/2021	-1	238.4	226.28797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	9/1/2021	-1	203.4	165.8016	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	10/1/2021	-1	169.1	235.33253	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	11/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	12/1/2021	-1	295.2	221.182797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	1/1/2021	-1	352	234.2242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	2/1/2021	-1	416	216.276213	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	3/1/2021	-1	400.4	244.5242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	4/1/2021	-1	339.2	254.96799	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	5/1/2021	-1	376.4	264.42997	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	6/1/2021	-1	284.4	196.5624	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	7/1/2021	-1	238.4	226.28797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	8/1/2021	-1	203.4	165.8016	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	9/1/2021	-1	169.1	235.33253	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	10/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	11/1/2021	-1	295.2	221.182797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	12/1/2021	-1	352	234.2242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	1/1/2021	-1	416	216.276213	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	2/1/2021	-1	400.4	244.5242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	3/1/2021	-1	339.2	254.96799	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	4/1/2021	-1	376.4	264.42997	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	5/1/2021	-1	284.4	196.5624	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	6/1/2021	-1	238.4	226.28797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	7/1/2021	-1	203.4	165.8016	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	8/1/2021	-1	169.1	235.33253	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	9/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	10/1/2021	-1	295.2	221.182797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	11/1/2021	-1	352	234.2242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	12/1/2021	-1	416	216.276213	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	1/1/2021	-1	400.4	244.5242	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	2/1/2021	-1	339.2	254.96799	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	3/1/2021	-1	376.4	264.42997	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	4/1/2021	-1	284.4	196.5624	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	5/1/2021	-1	238.4	226.28797	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	6/1/2021	-1	203.4	165.8016	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	7/1/2021	-1	169.1	235.33253	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0	874-80900	Geaulher TK3	8/1/2021	8/1/2021	-1	295.2	199.93566	1	0.4	0.4	0	0	0.24	EPRT
1650	0	0	0	0	0

Appendix C, Table C-6: TankESP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

															Throughput (bbl)	Total estimated emissions (lbs)			
Tank ID	Routine Emissions (lbs)	AQM	Submerged Factor (lbs)	Turnover Factor	Shell Effective Diameter	Shell and Turnover Factor	Shell Only Loss (lbs)	Roof Condition	Standing Loss Factor (lbs)	Tank Vapor mole MW	Tank Pressure (Pa)	Tank Shell H (ft)	Tank Type	Throughput (bbl)	Total Estimated Emissions (lbs)	Uncontrolled with Deduction Factor	Uncontrolled with Only Loss (lbs)
147	286.67956		0	0	0.25	0	0	600	257.8012	93.01178	132	48	AFRT	8609511.49	286.67956	22.9855	25.5162
147	286.53846		0	0	0.25	0	0	600	286.03955	93.01178	132	48	AFRT	8609511.49	286.53846	23.211	52.63759
147	286.67956		0	0	0.25	0	0	600	257.8012	93.01178	132	48	AFRT	8609511.49	286.67956	22.9855	25.5162
147	378.33916		0	0	0.25	0	0	2417	311.4073	93.01178	132	48	AFRT	8645121.49	378.33916	26.7867	18.47679
147	356.18868		0	0	0.25	0	0	2413	291.91356	93.01178	132	48	AFRT	8584439.47	356.18868	26.5145	17.56818
147	372.9902		0	0	0.25	0	0	2597	308.29561	93.01178	132	48	AFRT	8645121.49	372.9902	26.4386	18.3087
147	286.67956		0	0	0.25	0	0	600	257.8012	93.01178	132	48	AFRT	8609511.49	286.67956	22.9855	25.5162
147	308.16184		0	0	0.25	0	0	1755	243.49172	93.01178	132	48	AFRT	8584439.47	308.16184	24.1306	34.07921
147	286.67956		0	0	0.25	0	0	1363	237.9722	93.01178	132	48	AFRT	8645121.49	286.67956	22.5805	33.54253
147	255.81756		0	0	0.25	0	0	723	195.28709	93.01178	132	48	AFRT	8584439.47	255.81756	21.8185	31.99115
147	286.67956		0	0	0.25	0	0	600	257.8012	93.01178	132	48	AFRT	8609511.49	286.67956	22.9855	25.5162
147	286.67956		0	0	0.25	0	0	600	257.8012	93.01178	132	48	AFRT	8609511.49	286.67956	22.9855	25.5162
1700	219.90114		0	0	0.25	0	0	814	196.37576	93.01178	132	48	AFRT	8677353.49	219.90114	23.211	52.70565
1700	240.49516		0	0	0.25	0	0	1470	173.13028	93.01178	132	48	AFRT	9274917.18	240.49516	21.211	11.85193
1700	362.38978		0	0	0.25	0	0	2597	308.29561	93.01178	132	48	AFRT	8677353.49	362.38978	26.4386	18.3087
1700	303.03185		0	0	0.25	0	0	2417	252.64804	93.01178	132	48	AFRT	9274917.18	303.03185	26.7867	19.47679
1700	286.37816		0	0	0.25	0	0	2413	217.98311	93.01178	132	48	AFRT	8677353.49	286.37816	26.5145	18.56818
1700	360.53071		0	0	0.25	0	0	2597	292.18195	93.01178	132	48	AFRT	9274917.18	360.53071	26.4386	11.60829
1700	240.49516		0	0	0.25	0	0	1470	173.13028	93.01178	132	48	AFRT	9274917.18	240.49516	21.211	11.85193
1700	292.13951		0	0	0.25	0	0	1755	243.51343	93.01178	132	48	AFRT	8677353.49	292.13951	24.1306	11.92575
1700	219.68807		0	0	0.25	0	0	1363	169.13378	93.01178	132	48	AFRT	9274917.18	219.68807	22.5805	11.53012
1700	211.16122		0	0	0.25	0	0	723	165.28616	93.01178	132	48	AFRT	8677353.49	211.16122	21.8185	10.67857
1700	268.4899		0	0	0.25	0	0	768	178.13099	93.01178	132	48	AFRT	9274917.18	268.4899	23.922399	12.03355
2550	1170.7285		0	0	0.25	0	0	1470	2567.2924	8699.0148	101	54	PRT Iso Pentane	3189507.4	1170.7285	0	0
2550	1170.7285		0	0	0.25	0	0	814	2374.8011	8699.0148	101	54	PRT Iso Pentane	3189507.49	1170.7285	0	0
2550	1521.7285		0	0	0.25	0	0	1470	2567.2924	8699.0148	101	54	PRT Iso Pentane	3189507.4	1521.7285	0	0
2550	1560.5786		0	0	0.25	0	0	1680	2592.2681	8699.0148	101	54	PRT Iso Pentane	3201810.19	1560.5786	0	0
2550	1560.5786		0	0	0.25	0	0	1611	2592.702	8699.0148	101	54	PRT Iso Pentane	3198507.4	1560.5786	0	0
2550	1560.5786		0	0	0.25	0	0	1680	2592.2681	8699.0148	101	54	PRT Iso Pentane	3201810.19	1560.5786	0	0
2550	1482.8761		0	0	0.25	0	0	2569	5756.4009	8699.0148	101	54	PRT Iso Pentane	3189507.4	1482.8761	0	0
2550	1489.7525		0	0	0.25	0	0	2389	5418.3901	8699.0148	101	54	PRT Iso Pentane	3189507.4	1489.7525	0	0
2550	1560.5786		0	0	0.25	0	0	1680	2592.2681	8699.0148	101	54	PRT Iso Pentane	3201810.19	1560.5786	0	0
2550	1487.8781		0	0	0.25	0	0	1363	2721.0986	8699.0148	101	54	PRT Iso Pentane	3189507.4	1487.8781	0	0
2550	1456.2976		0	0	0.25	0	0	723	2951.2615	8699.0148	101	54	PRT Iso Pentane	3201810.4	1456.2976	0	0
2550	1513.3179		0	0	0.25	0	0	768	3268.3039	8699.0148	101	54	PRT Iso Pentane	3189507.4	1513.3179	0	0
2550	1560.5786		0	0	0.25	0	0	1680	2592.2681	8699.0148	101	54	PRT Iso Pentane	3201810.19	1560.5786	0	0
2550	2602.7067		0	0	0.25	0	0	814	1617.2356	7853.9834	100	49	PRT Iso Pentane	1709561	2602.7067	0	0
2550	2701.1605		0	0	0.25	0	0	1470	1220.0924	7853.9834	100	49	PRT Iso Pentane	1709561	2701.1605	0	0
2550	2799.6143		0	0	0.25	0	0	1680	1290.1317	7853.9834	100	49	PRT Iso Pentane	1680249	2799.6143	0	0
2550	2602.7067		0	0	0.25	0	0	1611	1617.2356	7853.9834	100	49	PRT Iso Pentane	1709561	2602.7067	0	0
2550	2799.6143		0	0	0.25	0	0	1680	1290.1317	7853.9834	100	49	PRT Iso Pentane	1680249	2799.6143	0	0
2550	2807.3395		0	0	0.25	0	0	2569	1908.3012	7853.9834	100	49	PRT Iso Pentane	1709561	2807.3395	0	0
2550	2602.023		0	0	0.25	0	0	2389	1767.8776	7853.9834	100	49	PRT Iso Pentane	1709561	2602.023	0	0
2550	2701.4002		0	0	0.25	0	0	1755	1560.1562	7853.9834	100	49	PRT Iso Pentane	1680249	2701.4002	0	0
2550	2800.4089		0	0	0.25	0	0	1363	1362.9327	7853.9834	100	49	PRT Iso Pentane	1709561	2800.4089	0	0
2550	2602.7067		0	0	0.25	0	0	1611	1617.2356	7853.9834	100	49	PRT Iso Pentane	1709561	2602.7067	0	0
2550	2807.3395		0	0	0.25	0	0	768	676.46219	7853.9834	100	49	PRT Iso Pentane	1709561	2807.3395	0	0
2550	941.95715		0	0	0.25	0	0	600	277.18298	11309.756	132	48	AFRT	9812951.49	941.95715	22.5805	18.29274
2550	928.58978		0	0	0.25	0	0	600	264.81076	11309.756	132	48	AFRT	9809795.49	928.58978	22.5805	18.29274
2550	859.1376		0	0	0.25	0	0	1470	256.56161	11309.756	132	48	AFRT	9812951.25	859.1376	23.211	18.803957
2550	980.89676		0	0	0.25	0	0	1680	317.97122	11309.756	132	48	AFRT	9809826.49	980.89676	24.1306	19.53612
2550	861.29562		0	0	0.25	0	0	2417	306.51825	11309.756	132	48	AFRT	9812951.25	861.29562	26.7867	21.69539
2550	1000.3179		0	0	0.25	0	0	2597	308.29561	11309.756	132	48	AFRT	9812951.25	1000.3179	26.4386	21.41732
2550	857.59212		0	0	0.25	0	0	2569	351.29005	11309.756	132	48	AFRT	9812951.25	857.59212	26.6858	21.57953
2550	827.08643		0	0	0.25	0	0	2389	362.61126	11309.756	132	48	AFRT	9812951.25	827.08643	26.6269	20.76023
2550	972.19753		0	0	0.25	0	0	1755	309.71167	11309.756	132	48	AFRT	9809826.49	972.19753	24.1306	19.51311
2550	928.58978		0	0	0.25	0	0	1363	277.18298	11309.756	132	48	AFRT	9809795.49	928.58978	22.5805	18.29274
2550	941.95715		0	0	0.25	0	0	1611	277.18298	11309.756	132	48	AFRT	9812951.25	941.95715	22.5805	18.29274
2550	967.70532		0	0	0.25	0	0	768	332.46226	11309.756	132	48	AFRT	9812951.25	967.70532	23.922399	19.33256
550	149.81312	0.5	0	0	0.25	0	0	600	10.143077	962.11275	91	53	PRT Iso Pentane	233182.537	149.81312	0	0
550	149.54543	0.5	0	0	0.25	0	0	814	10.143077	962.11275	91	53	PRT Iso Pentane	233182.537	149.54543	0	0
550	171.7513	0.5	0	0	0.25	0	0	1470	21.087693	962.11275	91	53	PRT Iso Pentane	233182.537	171.7513	0	0
550	149.81312	0.5	0	0	0.25	0	0	600	10.143077	962.11275	91	53	PRT Iso Pentane	233182.537	149.81312	0	0
550	216.10834	0.5	0	0	0.25	0	0	2417	51.610958	962.11275	91	53	PRT Iso Pentane	233182.537	216.10834	0	0
550	149.81312	0.5	0	0	0.25	0	0	600	10.143077	962.11275	91	53	PRT Iso Pentane	233182.537	149.81312	0	0
550	279.49113	0.5	0	0	0.25	0	0	2569	49.68977	962.11275	91	53	PRT Iso Pentane	233182.537	279.49113	0	0
550	265.35583	0.5	0	0	0.25	0	0	2389	43.971804	962.11275	91	53	PRT Iso Pentane	233182.537	265.35583	0	0
550	242.29916	0.5	0	0	0.25	0	0	1755	37.610095	962.11275	91	53	PRT Iso Pentane	233182.537	242.29916	0	0
550	232.95673	0.5	0	0	0.25	0	0	1363	31.659213	962.11275	91	53	PRT Iso Pentane	233182.537	232.95673	0	0
550	149.81312	0.5	0	0	0.25	0	0	723	10.143077	962.11275	91	53	PRT Iso Pentane	233182.537	149.81312	0	0
550	152.53849	0.5	0	0	0.25	0	0	768	11.1738302	962.11275	91	53	PRT Iso Pentane	233182.537	152.53849	0	0
1650	524.53979		0	0	0.25	0	0	600	269.18851	13270.129	132	48	AFRT	4249509.5	524.53979	22.5805	17.19353
1650	489.00519		0	0	0.25	0	0	814	252.56897	13270.129	132	48	AFRT	3870119.49	489.00519	23.211	15.93714
1650	561.99016		0	0	0.25	0	0	1470	329.52726	13270.129	132	48	AFRT	4249509.5	561.99016	24.1306	17.64662
1650	524.53979		0	0	0.25	0	0	600	269.18851	13270.129	132	48	AFRT	4249509.5	524.53979	22.5805	17.19353
1650	642.22101		0	0	0.25	0	0	2417	380.87116	13270.129	132	48	AFRT	4249509.5	642.22101	26.7867	20.35761
1650	609.32979		0	0	0.25	0	0	2913	356.68957	13270.129	132	48	AFRT	4249509	609.32979	26.9516	19.58599
1650	549.81943		0	0	0.25	0	0	769	288.38234	13270.129	132	48	AFRT	4249509.5	549.81943	23.922399	17.99233
1650	606.63859		0	0	0.25	0	0	2389	347.00773	13270.129	132	48	AFRT	4249509.5	606.63859	26.6269	19.88553
1650	524.53979		0	0	0.25	0	0	600	269.18851	13270.129	132	48	AFRT	4249509.5	524.53979	22.5805	17.19353
1650	642.22101		0	0	0.25	0	0	2417	380.87116	13270.129	132	48	AFRT	4249509.5	642.22101	26.7867	20.35761
1650	524.53979		0	0	0.25	0	0	1363	269.18851	13270.129	132	48	AFRT	4249509.5	524.53979	22.5805	17.19353
1650	498.83872		0	0	0.25	0	0	723	255.8672	13270.129	132	48	AFRT	4249509.5	498.83872	21.8185	16.65115
1650	498.67872		0	0	0.25	0	0	814	276.68202	13270.129	132	48	AFRT	4249509	498.67872	23.211	16.65114
1650	524.53979		0	0	0.25	0	0	600	269.18851	13270.129	132	48	AFRT	4249509.5	524.53979	22.5805	17.19353
1650	515.73296		0	0	0.25	0	0	1469	330.12827	13270.129	132	48	AFRT	4249509	515.73296	24.038926	17.67606
1650	421.21773		0	0	0.25	0	0	2417	210.82921	13270.129	132	48	AFRT	3243870	421.21773	26.7867	20.35761
1650	588.56916		0	0	0.25	0	0	2913	384.96405	13270.129	132	48	AFRT	4249509	588.56916	26.9516	19.58599
1650	498.83872		0	0	0.25	0	0	723	255.8672	13270.129	132	48	AFRT	4249509.5	498.83872	21.8185	16.65115
1650	586.8363		0	0	0.25	0	0	2389	376.04358	13270.129	132	48	AFRT	3243870	586.8363	25.636399	19.48651
1650	524.53979		0	0	0.25	0	0	600	269.18851	13270.129	132	48	AFRT	4249509.5	524.53979	22.5805	17.19353
1650	498.83872		0	0	0.25	0	0	1363	255.8672	13270.129	132	48	AFRT	3243870	498.83872	21.8185	17.19353
1650	457.071		0	0	0.25	0	0	723	254.4663	13270.129	132	48	AFRT	3243870	457.071	21.8185	15.95515
1650	526.23999		0	0	0.25	0	0	768	316.86457	13270.129	132	48	AFRT	3243870	526.23999	23.922399	17.89233
1650	172.19616		0	0	0.25	0	0	600	93.019902	13270.129	132	48	diesel#2 DFRT	1515542.5	172.19616	22	10.642956
1650	166.63951		0	0	0.25	0	0	814	89.093806	13270.129	132	48	diesel#2 DFRT	1515542.5	166.63951	22	10.299091
1650	172.19616		0	0	0.25	0	0	1470	93.019902	13270.129	132	48	diesel#2 DFRT	1515542.5	172.19616	22	10.642956
1650	166.63951		0	0	0.25	0	0	600	89.093806	13270.129	132	48	diesel#2 DFRT	1515542.5	166.63951	22	10.299091
1650	172.19616		0	0	0.25	0	0	2417	93.019902	13270.129	132	48	diesel#2 DFRT	1515542.5	172.19616	22	10.642956
1650	172.19616		0	0	0.25	0	0	2569	93.019902	13270.129	132	48	diesel#2 DFRT	1515542.5	172.19616	22	10.642956
1650	166.63951		0	0	0.25	0	0	1755	89.093806	13270.129	132	48	diesel#2 DFRT	1275125	166.63951	22	10.299091
1650	172.19616		0	0	0.25	0	0	1363	93.019902	13270.129	132	48	diesel#2 DFRT	1515542.5	172.19616	22	10.642956
1650	166.63951		0	0	0.25	0	0	723	89.093806	13270.129	132	48	diesel#2 DFRT	1275125	166.63951	22	10.299091
1650	172.19616		0	0	0.25	0	0	768	93.019902	13270.129	132	48	diesel#2 DFRT	1515542.5	172.19616	22	10.642956

Appendix C, Table C-6: TankESP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

Vapor Control Efficiency

Benzene

Tank ID	Vapor control efficiency for RefillInitial source	Vapors Recycled	Vapors Recovered Annual lbs/yr	Vapors Recovered Temperature Short	VPCntlEffMeasure	Vapors Recovered Annual lbs/yr	VaporCntlEffMeasure	Vapor Recovery Annual lbs/yr	Vapor control efficiency source RVP	RVPatDischarge Set Source source RVP Max	AnnualRVPatDisch	Month_Valid	Month_valid RefuelFuelGrade_valid1 valid1 valid2 RefuelFuel	AnnualVolBbl	AnnualVolBbl	AnnualBbl_valid RVP measurement_valid	AnnualVolBbl RVP measurement_valid	RVPatDischarge Set Source source RVP	RVPatDischarge Source RVP measurement	Pressure	AnnualBbl	AnnualBbl	AnnualVolBbl Benzene	Benzene
1647	0	0.06795855	0.13073855	0	0	0	0	0	0	66.7579	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.99197164
1647	0	0.06795855	0.13073855	0	0	0	0	0	0	66.26375	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.97652833
1647	0	0.06795855	0.13073855	0	0	0	0	0	0	66.26375	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.97652833
1647	0	0.06795855	0.13073855	0	0	0	0	0	0	66.7579	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.99197164
1647	0	0.0699539	0.13073855	0	0	0	0	0	0	66.7579	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.9967935
1647	0	0.06955787	0.13073855	0	0	0	0	0	0	66.55085	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.98417687
1647	0	0.069356	0.13073855	0	0	0	0	0	0	66.7579	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.99122982
1647	0	0.06955787	0.13073855	0	0	0	0	0	0	66.55085	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.98417687
1647	0	0.06962356	0.13073855	0	0	0	0	0	0	66.55085	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.98604596
1647	0	0.06962356	0.13073855	0	0	0	0	0	0	66.7579	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.99122982
1647	0	0.06962356	0.13073855	0	0	0	0	0	0	66.55085	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.98604596

Appendix C, Table C-6: TankESP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

Crescol

Tank ID	Service	Is Insurance	Diameter (ft)	Diameter	Roof Type	Roof Height (ft)	Roof Slope	Roof Radius (ft)	Shell Height (ft)	Shell Condition	Working Loss Throughput	Net Throughput	Shell Turnovers	Turnover Factor	Maximum Liquid Height (ft)	Average Liquid Height (ft)	Maximum Vapor Space Height (ft)	Average Vapor Space Height (ft)	Vapor Space Volume (ft³)	Vapor Density (lb/ft³)	Vapor Space Expansion Factor	Vented Vapor Saturation Factor	Tank Construction	Breather Vent Pressure (psig)	Breather Vent Vacuum (psig)	Paint Solar Absorptance	Paint Roof Solar Absorptance	Paint Color	Annual Net Throughput (gal/yr)	Annual Turnovers	Working Loss (lb/yr)	Breathing Loss (lb/yr)	Total Emissions (lb/yr)	Estimation Method	Emissions Report for:	Control Efficiency
147			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
148			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
149			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
150			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
151			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
152			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
153			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
154			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
155			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
156			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
157			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
158			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
159			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
160			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
161			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
162			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
163			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
164			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
165			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
166			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
167			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
168			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
169			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
170			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
171			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
172			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
173			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
174			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
175			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
176			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
177			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
178			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
179			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
180			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
181			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
182			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
183			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
184			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
185			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
186			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
187			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
188			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
189			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
190			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
191			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
192			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
193			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
194			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
195			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
196			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
197			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
198			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
199			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
200			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
201			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
202			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
203			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
204			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
205			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
206			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
207			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
208			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
209			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
210			no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
211	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
212	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
213	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
214	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
215	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
216	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
217	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
218	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
219	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
220	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
221	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
222	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
223	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
224	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
225	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
226	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
227	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
228	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
229	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
230	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
231	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
232	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
233	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
234	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
235	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
236	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
237	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
238	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
239	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
240	0.000000		no data	0		0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-6: TankESP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

| Tank ID | Material Name | Paint (C/L) | Pressure Vacuum Vent (Y/N) | Shell Color | Roof Color | Roof Condition | Roof Type | Shell Condition | Effective Column Diameter (ft) | Tank Diameter (ft) | Tank Height (ft) | Shell Height (ft) | Shell Clingage Factor (bbl/1000 ft²) | Average Liquid Surface Temperature (°F) | Average Ambient Temperature (°F) | Daily Average Solar Insolation Factor (Btu/ft²-day) | Daily Maximum Liquid Surface Temperature (°F) | Daily Minimum Liquid Surface Temperature (°F) | Vapor Molecular Weight (lb/lb-mole) | Vapor Pressure at Daily Average Liquid Surface Temperature (psia) | Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia) | Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia) | Vapor Space Expansion Factor | Vapor Space Outage (ft) | Working Loss Turnover Factor | Working Loss Product Factor | Annual Net Throughput (gal/yr) | Annual Turnovers | Maximum Liquid Volume (gal) | Maximum Liquid Height (ft) | Minimum Liquid Volume (gal) | Minimum Liquid Height (ft) | Net Working Capacity (gal) | Maximum Vapor Space Volume (ft³) | Maximum Vapor Space Height (ft) | Minimum Vapor Space Volume (ft³) | Minimum Vapor Space Height (ft

Appendix C, Table C-6: Tank107 Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: Jilke 2019 AP-42 revisions H2S ratio calculated

| Tank ID | Shell or Fixed Roof Tank Diameter? | Height of Liquid | Shell Color/Shade | Shell Condition | Roof Color/Shade | Roof Condition | Roof Type | Shell Type | Shell Height | Shell Construction | Roof Height | Roof Slope | Roof Slope Entered

Appendix C, Table C-6: TankSIM Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

	Ethylbenzene																									Hexane													Hydrogen Sulfide (H2S)													
Tank ID	Ethylbenzene ID	Effect of variable	Effect of variable, Turbulent Factor Transmission, cs/dP	Effect of variable	Effect of variable, Tube Roof, adRoof	Effect of variable	Effect of Vacuum Relief Valve	Effect of variable	Effect of Annual Emissions	Effect of variable	Effect of Roof Fittings	Effect of variable	Effect of Deck Seams	Effect of variable	Effect of Deck Fittings	Effect of variable	Effect of Annual Emissions	Effect of variable	Hexane ID	Effect of variable	Effect of variable, Turbulent Factor Transmission, cs/dP	Effect of variable	Effect of variable, Tube Roof, adRoof	Effect of variable	Effect of Vacuum Relief Valve	Effect of variable	Effect of Annual Emissions	Effect of variable	Effect of variable	Effect of variable	Effect of Roof Fittings	Effect of variable	Effect of Deck Seams	Effect of variable	Effect of Deck Fittings	Effect of variable	Effect of Annual Emissions	Effect of variable	Hydrogen Sulfide (H2S) ID	Effect of variable	Effect of variable, Turbulent Factor Transmission, cs/dP	Effect of variable	Effect of variable, Tube Roof, adRoof	Effect of variable	Effect of Vacuum Relief Valve	Effect of variable	Effect of Annual Emissions	Effect of variable	Effect of variable	Effect of variable	Effect of Roof Fittings	Effect of variable	Effect of Deck Seams	Effect of variable	Effect of Deck Fittings	Effect of variable	Effect of Annual Emissions	Effect of variable
167	No data	No data	No data	No data	No data	No data	1.19999999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.05428699	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.14999999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.19429999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.35	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.10110199	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.17967999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.20061299	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.17999999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
167	No data	No data	No data	No data	No data	No data	1.19999999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
170	No data	No data	No data	No data	No data	No data	1.45	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
170	No data	No data	No data	No data	No data	No data	0.91999999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
170	No data	No data	No data	No data	No data	No data	0.91999999	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
170	No data	No data	No data	No data	No data	No data	0.99

Appendix C, Table C-6: TankESP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: Jiller 2019 AP-42 revisions H/D ratio calculated

Mercury (all) pollutant

Tank ID	bar octanol-(2,2,3-trimethylpentane)	Tetrachloroethene (Perchloroethylene)	Tetrachloroethene (Perchloroethylene)	Tetrachloroethene (Perchloroethylene)	Tetrachloroethene (Perchloroethylene)	Tetrachloroethene (Perchloroethylene)	Tetrachloroethene (Perchloroethylene)	Total	Xylene	Xylenes (mixed isomers)	Mercury	Methacrylonitrile (2-methylprop-2-enenitrile)	Methane	Methanol (methyl alcohol)	Methylhydrazine (1)	Methyl acrylate (methyl ester 2-propenoic acid)	Methyl ethyl ketone (2-butanone)	Methyl methacrylate (methyl ester 2-methyl-2-propenoic acid)	Methyl tert-butyl ether	Methylene chloride (Dichloromethane)	Methyl hydrazine	Naphthalene	Nickel	Nickel (insoluble compounds)	Nitrobenzene
167	no data	no data	no data	no data	no data	no data	no data	0	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-6: Tier2 EP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: Alter 2019-EP-42 revisions H/O ratio: calculated

Methyl tertiary-butyl ether Naphthalene

Tank ID#	Methyl tertiary-butyl ether	Naphthalene	Total
167	no data	no data	no data
167	no data	no data	no data
167	no data	no data	no data

Appendix C, Table C-6: Tank/EP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H2S ratio calculated

| | Phenol | | | | | | | | | | | | | | | | | | | | Propylene | | | | | | | | | | | | | | | | | | | | Styrene | | | | | | | | | | | | | | | | | | | | Toluene | | | | | | | | | | | | | | | | | | | |
|---|---|---

Appendix C, Table C-6: TankESP Output Report for Tables C-6 and C-5
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio calculated

| | | |

Appendix C, Table C-7

Potential to Emit (PTE) POC Emissions for Altered and Exempt Storage Tanks (Post-Project, for Renewable-Based Scenario)
(Emissions below are NOT imposed as permit condition limits)
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Source #	Post-Project Status[1]	Tank Number		POC Emissions[1]						
			Period	Roof Type	Vapor Control Efficiency	Stock	Avg. TVP (psia)	Throughput (bbl/yr)	POC Emissions (lb/yr)	POC Emissions (ton/yr)
90	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 67	NA[3]	FixedRoof	0%	Renewable Feedstock	0.0001	243,333	5.83	0.003
97	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 100[6]	NA[3]	FixedRoof	10 ppmv	Renewable Feedstock	0.0001	15,571,000	632.73	0.316
99	Exempt per: 2-1-123.3.2	Tank 102	NA[3]	EFRT	0%	Renewable Diesel	0.0066	500,000	38.06	0.019
103	Exempt per: 2-1-123.3.2	Tank 106	NA[3]	EFRT	0%	Renewable Diesel	0.0065	3,129,000	266.47	0.133
105	Exempt per: 2-1-123.3.2	Tank 129	NA[3]	EFRT	0%	Renewable Diesel	0.0066	7,300,000	564.25	0.282
108	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 153	NA[3]	FixedRoof	0%	Renewable Feedstock	0.0001	7,300,000	139.93	0.070
110	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 155	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	9,136,680	742.73	0.371
111	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 156	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	13,140,000	1,068.10	0.534
112	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 157	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	13,140,000	1,068.10	0.534
113	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 158	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	13,140,000	1,068.09	0.534
114	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 159	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	13,140,000	925.74	0.463
122	Altered	Tank 167	NA[3]	EFRT	0%	Renewable Naphtha	5.8805	2,000,000	3,715.39	1.858
125	Altered	Tank 170	NA	EFRT	0%	Renewable Naphtha	5.6973	3,000,000	3,563.22	1.782
126	Altered	Tank 172	NA[3]	IFRT	0%	Renewable Naphtha	5.5756	594,845	788.05	0.394
127	Exempt per: 2-1-123.3.2	Tank 173	NA[3]	EFRT	0%	Renewable Diesel	0.0065	7,300,000	614.56	0.307
135	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 200	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	10,000,000	2.42	0.001
137	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 202	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	10,000,000	2.87	0.001
139	Altered	Tank 204	Jul 2021 - Jun 2022	FixedRoof	98%	RR Slop Oil	2.5530	962,972	3,255.40	1.628
140	Altered	Tank 205	Sep 2015 - Aug 2016	FixedRoof	98%	RR Slop Oil	6.0208	630,575	5,245.87	2.623
150	Altered	Tank 241	Jun 2018 - May 2019	EFRT	0%	Renewable Naphtha	5.6013	519,471	3,549.03	1.775
173	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 280	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	28,800,000	5.73	0.003
174	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 281	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	28,800,000	5.73	0.003
175	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 284	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	28,800,000	5.73	0.003
195	Altered	Tank 501	Mar 2021 - Feb 2022	FixedRoof	0%	Water treatment sludge	0.1961	97,928	1,912.24	0.956
204	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 528	NA[3]	FixedRoof	0%	Renewable Feedstock	0.0001	691,686	19.71	0.010
205	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 529	NA[3]	FixedRoof	0%	Renewable Feedstock	0.0001	691,686	19.71	0.010
254	Altered	Tank 1001	Apr 2007 - Mar 2008	EFRT	0%	Renewable Diesel	0.0068	7,257,233	518.78	0.259
256	Altered	Tank 1003	Jun 2009 - May 2010	EFRT	0%	Renewable Jet	0.0095	4,024,700	316.11	0.158
257	Altered	Tank 1004	Sep 2020 - Aug 2021	IFRT	0%	Renewable Diesel	0.0062	3,568,973	253.68	0.127
261	Exempt per: 2-1-123.3.2	Tank 1010	NA[3]	EFRT	0%	Renewable Diesel	0.0068	33,375,600	2,363.60	1.182
262	Exempt per: 2-1-123.3.2	Tank 1011	NA[3]	EFRT	0%	Renewable Diesel	0.0066	500,000	41.68	0.021
263	Exempt per: 2-1-123.3.2	Tank 1012	NA[3]	EFRT	0%	Renewable Diesel	0.0066	500,000	41.68	0.021
334	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 107	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	18,264,600	1,198.81	0.599
340	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 108	NA[3]	EFRT	0%	Renewable Feedstocks	0.0001	18,264,600	1,198.81	0.599
341	Altered	Tank 208	NA[3]	EFRT	0%	Renewable Jet	0.0095	1,819,583	158.96	0.079
342	Altered	Tank 209	NA[3]	EFRT	0%	Renewable Jet	0.0095	2,407,700	207.49	0.104
360	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 223	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	2,780,000	1.98	0.001
440	No changes (Not included in Application 31157)[7]	Tank 110	NA[3]	EFRT	0%	Gasoline TVP 10.87	10.8699	3,600,000	10,476.48	5.238
445	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 271	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	28,800,000	6.50	0.003
448	Exempt per: 2-1-123.3.2	Tank 1007	NA[3]	IFRT	0%	Renewable Diesel	0.0062	33,375,600	1,970.35	0.985
449	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 285	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	28,800,000	6.50	0.003
506	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 257	NA[3]	FixedRoof	98%	Renewable Feedstocks	0.0001	5,475,000	2.13	0.001
32120	Exempt per: 2-1-123.3.2 2-1-123.3.6	Tank 224	NA[3]	FixedRoof	0%	Renewable Feedstock	0.0001	3,500,000	119.28	0.060

Notes:

1. Tank parameters, stock properties, and meteorological data used to calculate these emissions are available in the TankESP database and TanksESP Output Report.
2. Tanks 200 (S-135), 202 (S-137), 204 (S-139), 205 (S-140), 280 (S-173), 281 (S-174), 284 (S-175), 223 (S-360), 271 (S-445), 285 (S-449), and 257 (S-506) are on on vapor recovery to the fuel gas
3. Throughputs for Tanks 167 (S-122), 172 (S-126), 208 (S-341), 209 (S-342), and 110 (S-440) are based on permit condition limits and are thus modeled on a representative 12-month period. Tanks
4. Regulation 2-1-123.3.2: storage of organic liquids with an initial boiling point greater than 302F and exceeds storage temperature by at least 180°F

   Regulation 2-1-123.3.6: storage of tallow or vegetable oils
5. Renewable Diesel and Renewable Feedstock contain no TACs.
6. See Appendix C, Table C-10 for emissions calculations for S-97.
7. The emissions for S-440 were included in the HRA. However, Phillips 66 later withdrew their requests for changes to S-440. S-440 is no longer part of the Rodeo Renewed Project. The HRA results remain valid since the HRA results represent a more conservative estimate with the inclusion of S-440.

Appendix C, Table C-8
Potential to Emit (PTE) TAC Emissions for Altered and Exempt Storage Tanks (Post-Project, for Renewable-Based Scenario)
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Source #	Tank Number	Stock	TAC Emissions (lb/yr)[1]										
			Benzene	Cresol	Ethyl benzene	Hexane (n-)	Hydrogen sulfide	Naph thalene	Phenol	Propyl ene	Styrene	Toluene	Xylene (total)
90	Tank 67	Renewable Feedstock	--	--	--	--	--	--	--	--	--	--	--
97	Tank 100	Renewable Feedstock	--	--	--	--	--	--	--	--	--	--	--
99	Tank 102	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
103	Tank 106	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
105	Tank 129	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
108	Tank 153	Renewable Feedstock	--	--	--	--	--	--	--	--	--	--	--
110	Tank 155	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
111	Tank 156	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
112	Tank 157	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
113	Tank 158	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
114	Tank 159	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
122	Tank 167	Renewable Naphtha	0.01	--	0.02	82.6	--	0.00	--	--	--	0.10	0.02
125	Tank 170	Renewable Naphtha	0.01	--	0.03	84.6	--	0.00	--	--	--	0.11	0.02
126	Tank 172	Renewable Naphtha	0.00	--	0.01	17.6	--	0.00	--	--	--	0.02	0.00
127	Tank 173	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
135	Tank 200	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
137	Tank 202	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
139	Tank 204	RR Slop Oil	0.03	--	0.02	206.2	--	0.00	--	--	--	0.17	0.02
140	Tank 205	RR Slop Oil	0.02	--	0.01	117.8	--	0.00	--	--	--	0.10	0.01
150	Tank 241	Renewable Naphtha	0.01	--	0.01	81.4	--	0.00	--	--	--	0.07	0.01
173	Tank 280	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
174	Tank 281	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
175	Tank 284	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
195	Tank 501	Water treatment sludge	0.01	0.32	0.00	349.4	--	0.05	0.04	2,435.84	5.95	0.01	0.00
204	Tank 528	Renewable Feedstock	--	--	--	--	--	--	--	--	--	--	--
205	Tank 529	Renewable Feedstock	--	--	--	--	--	--	--	--	--	--	--
254	Tank 1001	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
256	Tank 1003	Renewable Jet	--	--	--	--	--	--	--	--	--	--	--
257	Tank 1004	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
261	Tank 1010	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
262	Tank 1011	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
263	Tank 1012	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
334	Tank 107	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
340	Tank 108	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
341	Tank 208	Renewable Jet	--	--	--	--	--	--	--	--	--	--	--
342	Tank 209	Renewable Jet	--	--	--	--	--	--	--	--	--	--	--
360	Tank 223	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
440	Tank 110	Gasoline TVP 10.87	8.94	--	4.31	39.2	--	0.07	--	--	--	42.79	23.49
445	Tank 271	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
448	Tank 1007	Renewable Diesel	--	--	--	--	--	--	--	--	--	--	--
449	Tank 285	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
506	Tank 257	Renewable Feedstocks	--	--	--	--	--	--	--	--	--	--	--
32120	Tank 224	Renewable Feedstock	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. TAC emissions are calculated using TanksESP and are presented in TankESP Output Report.
2. Renewable Diesel and Renewable Feedstock contain no TACs.
3. The emissions for S-440 were included in the HRA. However, Phillips 66 later withdrew their requests for changes to S-440. S-440 is no longer part of the Rodeo Renewed Project. The HRA results remain valid since the HRA results represent a more conservative estimate with the inclusion of S-440.

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Atmospheric Pressure (psia)	Avg. Ambient Temp. (degF)	Avg. height of vapor space (ft)	Avg. Liquid Height (ft)	Avg. Liquid Surface Temp. (degF)	Avg. TVP (psia)	Avg. wind speed	Bulk Liquid Temperature (degF)	Cleaning loss (w/out control) (lbs)	Clingage Factor	Comments	Deck Fitting (w/o GP) Loss (lbs)	Deck fitting Emission Factor	Deck Seam Loss (lbs)	Delta Tv	Effective Antoines B	Effective CDB Height (ft)	
107	14.7465	59.98184932	28	28	65.06994739	0.000100034	5.289589041	62.09551582	0	0.0015		0.049661999		0	0	0	0	0
108	14.7465	59.98184932	28	28	65.06904739	0.000100034	5.289589041	62.09551582	0	0.0015		0.049612389		0	0	0	0	0
110	14.7465	59.98184932	25.5	25.5	65.03142584	10.869927	5.289589041	62.13048513	0	0.0015		1434.53561		0	0	0	0	0
170	14.7465	59.98184932	24	24	64.91945856	5.6973404	5.289589041	61.97052003	0	0.0015		642.479039		0	0	0	0	0
172	14.7465	59.98184932	60.666667	24	62.46229314	5.575511857	5.289589041	61.16369315	0	0.0015		234.613935	40.63	0	0	0	0	0
200	14.7465	59.98184932	25.09375	24	62.56187904	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
1001	14.7465	59.98184932	24	24	64.9835414	0.006817678	5.289589041	62.06209704	0	0.0015		0.835783116		0	0	0	0	0
1003	14.7465	59.98184932	24	24	64.98355414	0.009159447	5.289589041	62.06209704	0	0.0015		1.930469734		0	0	0	0	0
1004	14.7465	59.98184932	67.333333	24	62.50813783	0.00618052	5.289589041	61.16369315	0	0.0015		0.752953293	69.07	0	0	0	0	0
1007	14.7465	59.98184932	31.822917	30	62.52600627	0.006185091	5.289589041	61.16369315	0	0.0015		9.30318391	696.33	0	0	0	0	0
1010	14.7465	59.98184932	24	24	64.98355414	0.006817678	5.289589041	62.06209704	0	0.0015		1.286868548		0	0	0	0	0
155	14.7465	59.98184932	24	24	64.98355414	0.000100034	5.289589041	62.06209704	0	0.0015		0.026546647		0	0	0	0	0
156	14.7465	59.98184932	24	24	64.98355414	0.000100034	5.289589041	62.06209704	0	0.0015		0.03977851		0	0	0	0	0
157	14.7465	59.98184932	24	24	64.98355414	0.000100034	5.289589041	62.06209704	0	0.0015		0.039397512		0	0	0	0	0
159	14.7465	59.98184932	24	24	65.03991888	0.000100034	5.289589041	62.14251818	0	0.0015		0.044367653		0	0	0	0	0
167	14.7465	59.98184932	24	24	64.91945056	5.8804971	5.289589041	61.97052003	0	0.0015		654.317822		0	0	0	0	0
202	14.7465	59.98184932	25.25	24	62.59919415	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
158	14.7465	59.98184932	24	24	64.98355414	0.000100034	5.289589041	62.06209704	0	0.0015		0.03823812		0	0	0	0	0
204	14.7465	59.98184932	29.09375	28	62.51687449	2.512989454	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
205	14.7465	59.98184932	21.091667	20	62.59919415	6.010771724	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
208	14.7465	59.98184932	28	28	64.89436958	0.009506546	5.289589041	61.93469041	0	0.0015		1.758504259		0	0	0	0	0
223	14.7465	59.98184932	29.25	28	62.55597157	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
241	14.7465	59.98184932	21	21	65.00449708	5.6013072	5.289589041	62.09201144	0	0.0015		646.017852		0	0	0	0	0
257	14.7465	59.98184932	25.145833	24	62.5750686	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
209	14.7465	59.98184932	28	28	64.89436958	0.009506546	5.289589041	61.93469041	0	0.0015		1.758504259		0	0	0	0	0
271	14.7465	59.98184932	31.5625	30	62.59919415	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
280	14.7465	59.98184932	25.5625	24	62.65748799	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
281	14.7465	59.98184932	25.5625	24	62.65748799	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
285	14.7465	59.98184932	31.5625	30	62.59919415	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
501	14.7465	59.98184932	7.8645833	7.5	62.58012412	0.196101259	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
284	14.7465	59.98184932	25.5625	24	62.65748799	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
67	14.7456	59.98184932	28.833333	28	158	0.000100034	5.289589041	158	0	0.0015		0	0	0	0	0	0	0
1011	14.7456	59.98184932	24	24	64.01074509	6.56E-03	5.289589041	62.9062234	0	0.0015		1.129184646		0	0	0	0	0
1012	14.7456	59.98184932	24	24	64.01074509	6.56E-03	5.289589041	62.9062234	0	0.0015		1.129184646		0	0	0	0	0
102	14.7456	59.98184932	28	28	64.00572585	6.56E-03	5.289589041	62.88946274	0	0.0015		1.264239936		0	0	0	0	0
129	14.7456	59.98184932	20	20	64.03974415	6.57E-03	5.289589041	63.00288712	0	0.0015		0.917357361		0	0	0	0	0
153	14.7456	59.98184932	31.5625	24	130	0.000100034	5.289589041	130	0	0.0015		0	0	0	0	0	0	0
173	14.7456	59.98184932	24	24	63.96375392	6.55E-03	5.289589041	62.74958629	0	0.0015		0.852998424		0	0	0	0	0
106	14.7456	59.98184932	24	24	63.96375392	6.55E-03	5.289589041	62.74958629	0	0.0015		0.852998424		0	0	0	0	0
224	14.7456	59.98184932	29.25	28	62.55597157	0.000100034	5.289589041	61.16369315	0	0.0015		0	0	0	0	0	0	0
528	14.7456	59.98184932	20.9375	20	59.981849	0.000100034	5.289589041	59.981849	0	0.0015		0	0	0	0	0	0	0
529	14.7456	59.98184932	20.9375	20	59.981849	0.000100034	5.289589041	59.981849	0	0.0015		0	0	0	0	0	0	0

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Effective Column Diameter (ft)	Effective height of liquid heel (ft)	Effective Roof Height (ft)	Effective sump height (ft)	Effective wind speed	Estimated cleaning losses (lbs)	Estimated heating cycle Losses (lbs)	Estimated standing losses (lbs)	Estimated working losses (lbs)	Extrapolated Annual Throughput (bbl)	Flash Gas Abbreviation	Flash Gas Emissions (lbs)	Flash Gas Molecular Wt	
107	1	-1	0	0		0	0	0.254891264	1198.554155	102537460		0	0	
108	1	-1	0	0		0	0	0.256041653	1198.554155	102537460		0	0	
110	1	-1	0	0		0	0	10293.68778	182.766924	20210400		0	0	
170	1	-1	0	0		0	0	3346.11404	214.103866	16842000		0	0	
172	1	-1	36.666667	0	0	0	0	745.601854	42.4528711	3199459.8		0	0	
200	0	-1	1.09375	0	0	0	0	0.26612854	2.15145836	50140000		0	0	
1001	1	-1	0	0		0	0	6.29702919	512.478134	40742103.44		0	0	
1003	1	-1	0	0		0	0	9.56748773	306.542802	22594664.38		0	0	
1004	1	-1	43.333333	0	0	0	0	1.649503801	252.02739	20036214.87		0	0	
1007	1.1	-1	1.8229167	0	0	0	0	10.44847634	1959.90519	187270620		0	0	
1010	1	-1	0	0		0	0	6.74611462	2164.85777	187370620		0	0	
155	1	-1	0	0		0	0	0.195472405	742.537583	51293122		0	0	
156	1	-1	0	0		0	0	0.208704267	1067.887221	73767960		0	0	
157	1	-1	0	0		0	0	0.20832227	1067.887221	73767960		0	0	
159	1	-1	0	0		0	0	0.237489222	925.502256	73767960		0	0	
167	1	-1	0	0		0	0	3572.65953	140.735912	11238000		0	0	
202	0	-1	1.25	0	0	0	0	0.347823854	2.52048144	50140000		0	0	
158	1	-1	0	0		0	0	0.207553879	1067.887221	73767960		0	0	
204	0	-1	1.09375	0	0	0	0	357.053561	2898.348775	54061212.551		0	0	
205	0	-1	1.9416667	0	0	0	0	333.568878	692.29826	35405455.664		0	0	
208	1	-1	0	0		0	0	8.82190878	150.138346	10215139		0	0	
223	0	-1	1.25	0	0	0	0	0.405514798	1.57279857	15608920		0	0	
241	1	-1	0	0		0	0	3515.04138	21.98409272	2916308.057		0	0	
257	0	-1	1.1458333	0	0	0	0	0.292119817	1.84348849	30736650		0	0	
209	1	-1	0	0		0	0	8.82190878	198.665346	13516828		0	0	
271	0	-1	1.5625	0	0	0	0	0.679120734	5.82518648	161683200		0	0	
280	0	-1	1.5625	0	0	0	0	0.545416507	5.18173855	161683200		0	0	
281	0	-1	1.5625	0	0	0	0	0.545416507	5.18173855	161683200		0	0	
391	0	-1	1.5625	0	0	0	0	0.679120734	5.82518648	161683200		0	0	
501	0	-1	0.3645833	0	0	0	0	344.525283	1567.711226	549767.0725		0	0	
284	0	-1	1.5625	0	0	0	0	0.545416507	5.18173855	161683200		0	0	
67	0	-1	0.8333333	0	0	0	0	0	0.83404824	1366073.3		0	0	
1011	1	-1	0	0		0	0	6.37218804	35.3080961	2807000		0	0	
1012	1	-1	0	0		0	0	6.37218804	35.3080961	2807000		0	0	
102	1	-1	0	0		0	0	7.25037854	30.8057211	2807000		0	0	
129	1	-1	0	0		0	0	5.79229038	558.464384	40982200		0	0	
153	0	-1	1.5625	0	0	0	0	0	139.932002	40982200		0	0	
173	1	-1	0	0		0	0	5.33515758	609.22515	40982200		0	0	
106	1	-1	0	0		0	0	5.33515758	261.132256	17566206		0	0	
224	0	-1	1.25	0	0	0	0	20.2753863	99.0070927	19649000		0	0	
528	0	-1	0.9375	0	0	0	0	0	19.715585	3883126.3		0	0	
529	0	-1	0.9375	0	0	0	0	0	19.715585	3883126.3		0	0	

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Floating roof Emission Factor	Floating Roof Kd	Floating Roof Kr	Floating Roof Sd	Floating roof standing storage loss factor	H/D Ratio	Heating cycle Ke	Heating cycle loss (w/out control) (lbs)	Height of cone down bottom (ft)	Height of roof (ft)	Height of vapor space (ft)	Includes a landing loss?	Includes a tank cleaning?	Initial fill?	Is a vapor control device used?	Kb	Kc	Ke	Kf per slotted pole	
107		0		0.2		0.34782609	-1	0	0	0	0	N	N	N		1	1	0	0	0
108		0		0.2		0.34782609	-1	0	0	0	0	N	N	N		1	1	0	0	0
110		0		0.2		0.32692308	-1	0	0	0	0	N	N	N		1	1	0	0	0
170		0		0.2		0.43636364	-1	0	0	0	0	N	N	N		1	1	0	0	0
172	84.63	0	0.4	0.2	84.63	0.43636364	-1	0	0	0	55	N	N	N		1	1	0	55	0
200	0	0	0	0	0	0.45714286	-1	0	0	0	3.28125	N	N	N		1	1		0	0
1001		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
1003		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
1004	121.07	0	0.4	0.2	121.07	0.36923077	-1	0	0	0	65	N	N	N		1	1	0	65	0
1007	766.33	0	0.4	0.2	766.33	0.34285714	-1	0	0	0	5.46875	N	N	N		1	1	0	0	0
1010		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
155		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
156		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
157		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
159		0		0.2		0.32	-1	0	0	0	0	N	N	N		1	1	0	0	0
167		0		0.2		0.43636364	-1	0	0	0	0	N	N	N		1	1	0	0	0
202	0	0	0	0	0	0.4	-1	0	0	0	3.75	N	N	N		1	1		0	0
158		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
204	0	0	0	0	0	0.53333333	-1	0	0	3.28125	29.09375	N	N	N		1			0	0
205	0	0	0	0	0	0.4	-1	0	0	3.125	21.041667	N	N	N		1			0	0
208		0		0.2		0.46666667	-1	0	0	0	0	N	N	N		1	1	0	0	0
223	0	0	0	0	0	0.46666667	-1	0	0	0	3.75	N	N	N		1	1		0	0
241		0		0.2		0.35	-1	0	0	0	0	N	N	N		1	1	0	0	0
257	0	0	0	0	0	0.43636364	-1	0	0	0	3.4375	N	N	N		1	1		0	0
209		0		0.2		0.46666667	-1	0	0	0	0	N	N	N		1	1	0	0	0
271	0	0	0	0	0	0.4	-1	0	0	4.6875	31.5625	N	N	N		1	1		0	0
280	0	0	0	0	0	0.32	-1	0	0	4.6875	25.5625	N	N	N		1	1		0	0
281	0	0	0	0	0	0.32	-1	0	0	4.6875	25.5625	N	N	N		1	1		0	0
285	0	0	0	0	0	0.4	-1	0	0	4.6875	31.5625	N	N	N		1	1		0	0
501	0	0	0	0	0	0.42857143	-1	0	0	1.09375	7.8645833	N	N	N			1		0	0
284	0	0	0	0	0	0.32	-1	0	0	4.6875	25.5625	N	N	N		1	1		0	0
67	0	0	0	0	0	0.7	-1	0	0	2.5	28.833333	N	N	N		1	1	-0	0	0
1011		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
1012		0		0.2		0.36923077	-1	0	0	0	0	N	N	N		1	1	0	0	0
102		0		0.2		0.27583893	-1	0	0	0	0	N	N	N		1	1	0	0	0
129		0		0.2		0.33333333	-1	0	0	0	0	N	N	N		1	1	0	0	0
153	0	0	0	0	0	0.32	-1	0	0	4.6875	25.5625	N	N	N		1	1	-0	0	0
173		0		0.2		0.43636364	-1	0	0	0	0	N	N	N		1	1	0	0	0
106		0		0.2		0.43636364	-1	0	0	0	0	N	N	N		1	1	0	0	0
224	0	0	0	0	0	0.46666667	-1	0	0	3.75	29.25	N	N	N		1	1		0	0
528	0	0	0	0	0	0.44444444	-1	0	0	2.8125	20.9375	N	N	N		1	1	-0	0	0
529	0	0	0	0	0	0.44444444	-1	0	0	2.8125	20.9375	N	N	N		1	1	-0	0	0

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Kf per unslotted pole	Kn	Kp	Ks	Loss from incoming vapors (lbs)	Loss from resident vapors (lbs)	Low-volume liquid temperature (degF)	Max. Ambient Temp. (degF)	Max. Liquid Surface Temp. (degF)	Max. TVP (psia)	Met. Data City	Met. Data State	Min. Ambient Temp. (degF)	Min. Liquid Surface Temp. (degF)	Min. TVP (psia)	Net working height (ft)	Nominal operating pressure (psia)	Non Routine Emissions (lbs)
107		0	1	1	0	0	59.98184932	68.47643836	65.00694739	0.000100034	Rodeo	CA	51.48726027	65.00694739	0.000100034	54	0	0
108		0	1	1	0	0	59.98184932	68.47643836	65.00694739	0.000100034	Rodeo	CA	51.48726027	65.00694739	0.000100034	54	0	0
110		1	1	1	0	0	59.98184932	68.47643836	65.03142584	10.868927	Rodeo	CA	51.48726027	65.03142584	10.868927	49	0	0
170		1	1	1	0	0	59.98184932	68.47643836	64.91945256	5.6973434	Rodeo	CA	51.48726027	64.91945256	5.6973434	46	0	0
172	14	1	1	1	0	0	59.98184932	68.47643836	62.46229314	5.575611867	Rodeo	CA	51.48726027	62.46229314	5.575611867	46	0	0
200	0	0	1	1	0	0	59.98184932	68.47643836	67.46622575	0.000100034	Rodeo	CA	51.48726027	57.61752224	0.000100034	46	0	0
1001			1	1	0	0	59.98184932	68.47643836	64.98355414	0.006817678	Rodeo	CA	51.48726027	64.98355414	0.006817678	46	0	0
1003			1	1	0	0	59.98184932	68.47643836	64.98355414	0.009539447	Rodeo	CA	51.48726027	64.98355414	0.009539447	46	0	0
1004	14		1	1	0	0	59.98184932	68.47643836	62.52631783	0.006168052	Rodeo	CA	51.48726027	62.52631783	0.006168052	46	0	0
1007	14	0	1	1	0	0	59.98184932	68.47643836	62.52500627	0.006185091	Rodeo	CA	51.48726027	62.52500627	0.006185091	58	0	0
1010		0	1	1	0	0	59.98184932	68.47643836	64.98355414	0.006817678	Rodeo	CA	51.48726027	64.98355414	0.006817678	46	0	0
155		1	1	1	0	0	59.98184932	68.47643836	64.98355414	0.000100034	Rodeo	CA	51.48726027	64.98355414	0.000100034	46	0	0
156		0	1	1	0	0	59.98184932	68.47643836	64.98355414	0.000100034	Rodeo	CA	51.48726027	64.98355414	0.000100034	46	0	0
157		0	1	1	0	0	59.98184932	68.47643836	64.98355414	0.000100034	Rodeo	CA	51.48726027	64.98355414	0.000100034	46	0	0
159		0	1	1	0	0	59.98184932	68.47643836	65.03991888	0.000100034	Rodeo	CA	51.48726027	65.03991888	0.000100034	46	0	0
167		1	1	1	0	0	59.98184932	68.47643836	64.91945056	5.6804971	Rodeo	CA	51.48726027	64.91945056	5.6804971	46	0	0
202	0	0	1	1	0	0	59.98184932	68.47643836	67.48061887	0.000100034	Rodeo	CA	51.48726027	57.71776927	0.000100034	46	0	0
158		0	1	1	0	0	59.98184932	68.47643836	64.98355414	0.000100034	Rodeo	CA	51.48726027	64.98355414	0.000100034	46	0	0
204	0	1	1		0	0	59.98184932	68.47643836	67.48866665	2.552989454	Rodeo	CA	51.48726027	57.58488226	2.552989454	54	0	0
205	0	1	1		0	0	59.98184932	68.47643836	67.48861887	6.020771724	Rodeo	CA	51.48726027	57.71776927	6.020771724	38	0	0
208		1	1	1	0	0	59.98184932	68.47643836	64.89436958	0.009506546	Rodeo	CA	51.48726027	64.89436958	0.009506546	54	0	0
223	0	1	1	1	0	0	59.98184932	68.47643836	67.46284702	0.000100034	Rodeo	CA	51.48726027	57.64796604	0.000100034	54	0	0
241		1	1	1	0	0	59.98184932	68.47643836	65.00449708	5.6013072	Rodeo	CA	51.48726027	65.00449708	5.6013072	40	0	0
257	0	1	1	1	0	0	59.98184932	68.47643836	67.47132132	0.000100034	Rodeo	CA	51.48726027	57.67882396	0.000100034	46	0	0
209		1	1	1	0	0	59.98184932	68.47643836	64.89436958	0.009506546	Rodeo	CA	51.48726027	64.89436958	0.009506546	54	0	0
271	0	0	1	1	0	0	59.98184932	68.47643836	67.48061887	0.000100034	Rodeo	CA	51.48726027	57.71776927	0.000100034	58	0	0
280	0	0	1	1	0	0	59.98184932	68.47643836	67.50110405	0.000100034	Rodeo	CA	51.48726027	57.81187185	0.000100034	46	0	0
281	0	0	1	1	0	0	59.98184932	68.47643836	67.50110405	0.000100034	Rodeo	CA	51.48726027	57.81187185	0.000100034	46	0	0
395	0	0	1	1	0	0	59.98184932	68.47643836	67.48061887	0.000100034	Rodeo	CA	51.48726027	57.71776927	0.000100034	58	0	0
501	0		1		0	0	59.98184932	68.47643836	67.4732618	0.225840699	Rodeo	CA	51.48726027	57.6868849	0.169974749	13	0	0
284	0	0	1	1	0	0	59.98184932	68.47643836	67.50110405	0.000100034	Rodeo	CA	51.48726027	57.81187185	0.000100034	46	0	0
67	0	1	1	1	0	0	59.98184932	68.47643836	158	0.000100034	Rodeo	CA	51.48726027	158	0.000100034	54	0	0
1011			1	1	0	0	59.98184932	68.47643836	64.01074509	6.56E-03	Rodeo	CA	51.48726027	64.01074509	6.56E-03	46	0	0
1012			1	1	0	0	59.98184932	68.47643836	64.01074509	6.56E-03	Rodeo	CA	51.48726027	64.01074509	6.56E-03	46	0	0
122			1	1	0	0	59.98184932	68.47643836	64.00572585	6.56E-03	Rodeo	CA	51.48726027	64.00572585	6.56E-03	54	0	0
129		0	1	1	0	0	59.98184932	68.47643836	64.03974415	6.57E-03	Rodeo	CA	51.48726027	64.03974415	6.57E-03	38	0	0
153	0	1	1	1	0	0	59.98184932	68.47643836	130	0.000100034	Rodeo	CA	51.48726027	130	0.000100034	46	0	0
173		0	1	1	0	0	59.98184932	68.47643836	63.96375392	6.55E-03	Rodeo	CA	51.48726027	63.96375392	6.55E-03	46	0	0
106		1	1	1	0	0	59.98184932	68.47643836	63.96375392	6.55E-03	Rodeo	CA	51.48726027	63.96375392	6.55E-03	46	0	0
224	0	1	1	1	0	0	59.98184932	68.47643836	67.46284702	0.000100034	Rodeo	CA	51.48726027	57.64796604	0.000100034	54	0	0
528	0	1	1	1	0	0	59.98184932	68.47643836	59.981849	0.000100034	Rodeo	CA	51.48726027	59.981849	0.000100034	38	0	0
529	0	1	1	1	0	0	59.98184932	68.47643836	59.981849	0.000100034	Rodeo	CA	51.48726027	59.981849	0.000100034	38	0	0

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Stock

Tank ID	Number of Columns	Number of Days	Number of Days Cleaning	Number of turnovers	Product	Report End Date	Report Start Date	Resident loss limit (lbs)	Rim seal Emission Factor	Rim Seal Loss (lbs)	Rim Seal Loss Factor Exponent	Rim Seal Loss Factor Kra	Rim Seal Loss Factor Krb	Roof landing loss (lbs)	Roof landing loss limit (lbs)	Roof Reflectivity (alpha)	Roof Type	Routine Emissions (lbs)	RVP
107	0	365	0	93.271118	Renewable Feedstocks			-1		0.194776273	1	0.4	0.4	0	0	0.25	EFRT	1198.809068	0
108	0	365	0	93.271118	Renewable Feedstocks			-1		0.194776273	1	0.4	0.4	0	0	0.25	EFRT	1198.8102211	0
110	0	365	0	21.579419	Gasoline TVP 10.87			-1		8343.95182	1	0.4	0.4	0	0	0.25	EFRT	10476.49487	0
170	0	365	0	38.526591	Renewable Naphtha-TK170			-1		2487.7897	1	0.4	0.4	0	0	0.25	EFRT	3582.2179	0
172	0	365	0	7.6391166	Renewable Naphtha			-1	44	367.646506	1	0.4	0.4	0	0	0.25	IFRT	788.054723	0
200	0	365	0	140.94384	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	2.41758889	0
1001	0	365	0	66.73814219	Renewable Diesel			-1		5.09193111	1	0.4	0.4	0	0	0.25	EFRT	518.77116	0.02
1003	0	365	0	37.0059428	Renewable Jet Fuel			-1		7.12036341	1	0.4	0.4	0	0	0.25	EFRT	316.11029	0
1004	0	365	0	12.81566911	Renewable Diesel			-1	52	0.708466521	1	0.4	0.4	0	0	0.25	IFRT	251.6767913	0.02
1007	19	365	0	134.30974	Renewable Diesel			-1	70	0.954410439	1	0.4	0.4	0	0	0.25	IFRT	1970.31371	0.02
1010	0	365	0	106.87803	Renewable Diesel			-1		5.09193111	1	0.4	0.4	0	0	0.25	EFRT	2303.60392	0.02
155	0	365	0	84.009114	Renewable Feedstocks			-1		0.157272768	1	0.4	0.4	0	0	0.25	EFRT	742.733054	0
156	0	365	0	120.81848	Renewable Feedstocks			-1		0.157272768	1	0.4	0.4	0	0	0.25	EFRT	1068.095926	0
157	0	365	0	120.81848	Renewable Feedstocks			-1		0.157272768	1	0.4	0.4	0	0	0.25	EFRT	1068.095544	0
159	0	365	0	80.7481	Renewable Feedstocks			-1		0.181468578	1	0.4	0.4	0	0	0.25	EFRT	825.739767	0
167	0	365	0	25.684094	Renewable Naphtha			-1		2486.75827	1	0.4	0.4	0	0	0.25	EFRT	3715.38645	0
202	0	365	0	107.91013	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	2.80830528	0
158	0	365	0	120.81848	Renewable Feedstocks			-1		0.157272768	1	0.4	0.4	0	0	0.25	EFRT	1068.094772	0
204	0	365	0	11.56175194	Multiple			-1	0	0	0	0	0	0	0	0.25	FixedRoof	3255.40224	0
205	0	365	0	11.86138456	Multiple			-1	0	0	0	0	0	0	0	0.25	FixedRoof	5245.86715	0
208	0	365	0	16.726233	Renewable Jet Fuel			-1		6.54857619	1	0.4	0.4	0	0	0.25	EFRT	158.960251	0
223	0	365	0	25.554717	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	1.97831339	0
241	0	365	0	6.44645611	Renewable Naphtha-TK241			-1		2655.84263	1	0.4	0.4	0	0	0.25	EFRT	3569.02549	0
257	0	365	0	70.311028	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	2.1331983	0
209	0	365	0	22.132407	Renewable Jet Fuel			-1		6.54857619	1	0.4	0.4	0	0	0.25	EFRT	207.487255	0
271	0	365	0	157.74823	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	6.50450723	0
280	0	365	0	198.89995	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	5.72715304	0
281	0	365	0	198.89995	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	5.72715304	0
285	0	365	0	157.74823	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	6.50450723	0
501	0	365	0	43.955113	Water Treatment Sludge			-1	0	0	0	0	0	0	0	0.25	FixedRoof	1912.23651	0.5
284	0	365	0	198.89995	Renewable Feedstocks			-1	0	0	0	0	0	0	0	0.25	FixedRoof	5.72715304	0
67	0	365	0	5.0328084	Renewable Feedstock			-1	0	0	0	0	0	0	0	0.25	FixedRoof	5.83404824	0
1011	0	365	0	4.5873545	Renewable Diesel			-1		4.88797773	1	0.4	0.4	0	0	0.25	EFRT	41.6802843	0.02
1012	0	365	0	4.5873545	Renewable Diesel			-1		4.88797773	1	0.4	0.4	0	0	0.25	EFRT	41.6802843	0.02
122	0	365	0	2.9811665	Renewable Diesel			-1		5.60119127	1	0.4	0.4	0	0	0.25	EFRT	38.0560999	0.02
129	0	365	0	95.318675	Renewable Diesel			-1		4.51748507	1	0.4	0.4	0	0	0.25	EFRT	564.246379	0.02
153	0	365	0	50.415011	Renewable Feedstock			-1	0	0	0	0	0	0	0	0.25	FixedRoof	139.932002	0
173	0	365	0	93.748317	Renewable Diesel			-1		4.12781033	1	0.4	0.4	0	0	0.25	EFRT	614.583307	0.02
106	0	365	0	40.183214	Renewable Diesel			-1		4.12781033	1	0.4	0.4	0	0	0.25	EFRT	266.467417	0.02
224	0	365	0	32.17320459	Renewable Feedstock			-1	0	0	0	0	0	0	0	0.25	FixedRoof	119.2820808	0
528	0	365	0	16.062865	Renewable Feedstock			-1	0	0	0	0	0	0	0	0.25	FixedRoof	19.711585	0
529	0	365	0	16.062865	Renewable Feedstock			-1	0	0	0	0	0	0	0	0.25	FixedRoof	19.711585	0

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

												Throughput (bbl/yr)						
Tank ID	**Saturation Factor (Ks)**	**Seam Emission Factor**	**Shell Reflectivity (alpha)**	**Slotted pole Emission Factor**	**Slotted Pole Loss (lbs)**	**Solar insolation**	**Standing loss (w/out control) (lbs)**	**Tank base area (ft2)**	**Tank Diameter (ft)**	**Tank Height (ft)**	**Tank Type**	**Throughput (bbl)**	**Total estimated emissions (lbs)**	**Unslotted pole Emission Factor**	**Unslotted Pole Loss (lbs)**	**Vapor control efficiency for Refill/initial purge**	
107	0	0	0.25	0	0		0.254891264	20358.306	161	56	EFRT	18264600	1198.809068		0.011652991		0
108	0	0	0.25	0	0		0.256061653	20358.306	161	56	EFRT	18264600	1198.810211		0.011652991		0
110	0	0	0.25	0	0		10293.68778	19113.45	156	51	EFRT	2599999.96	10474.48487		515.198437		0
170	0	0	0.25	0	0		3349.11404	9503.3178	110	48	EFRT	2999999.99	3561.2179		217.845011		0
172	0	0	0.25	0	0		745.4818454	9503.3178	110	48	domed EFRT	594844.999	788.054723		123.3419034		0
200	0	0	0.25	0	0		13.30642701	8659.0148	105	48	FRT fro floatinr r	10000000.02	2.417586489	0	0		0
1001	0	0	0.25	0	0		6.29702919	13273.229	130	48	EFRT	7257232.57	518.77516		0.365312958		0
1003	0	0	0.25	0	0		9.56748773	13273.229	130	48	EFRT	4034699.72	316.11029		0.51654464		0
1004	0	0	0.25	0	0		1.649503801	13273.229	130	48	domed EFRT	3548973.09	253.4767913	14	0.190740687		0
1007	0	0	0.25	0	0		10.44847634	24052.819	175	60	cone-roof tank w	33375600	1970.35371	14	0.190883087		0
1010	0	0	0.25	0	0		6.74611462	13273.229	130	48	EFRT	33375600	2363.60392		0.365312958		0
155	0	0	0.25	0	0		0.195472405	13273.229	130	48	EFRT	9136680	742.733854		0.011652991		0
156	0	0	0.25	0	0		0.208704267	13273.229	130	48	EFRT	13140000	1068.095916		0.011652991		0
157	0	0	0.25	0	0		0.20832127	13273.229	130	48	EFRT	13140000	1068.095544		0.011652991		0
159	0	0	0.25	0	0		0.217489222	17671.459	150	48	EFRT	13140000	925.709747		0.011652991		0
167	0	0	0.25	0	0		3572.61053	9503.3178	110	48	EFRT	1999999.97	3715.38645		231.574432		0
202	0	0	0.25	0	0		17.39119273	11309.734	120	48	FRT fro floatinr r	10000000.02	2.868830528	0	0		0
158	0	0	0.25	0	0		0.207553879	13273.229	130	48	EFRT	13140000	1068.094772		0.011652991		0
204	0	0	0.25	0	0		17852.67803	8659.0148	105	56	FRT fro floatinr r	962971.598	3255.46234	0	0		0
205	0	0	0.25	0	0		16678.444	7853.9816	100	40	FRT fro floatinr r	630576.576	5245.86715	0	0		0
208	0	0	0.25	0	0		8.82190878	11309.734	120	56	EFRT	1819583.04	158.960251		0.514828354		0
221	0	0	0.25	0	0		20.27573996	11309.734	120	56	FRT fro floatinr r	2760000	1.978313139	0	0		0
241	0	0	0.25	0	0		3515.04138	11309.734	120	42	EFRT	519470.6144	3549.02549		213.18092		0
257	0	0	0.25	0	0		14.60554676	9503.3178	110	48	FRT fro floatinr r	5475000	2.1193493	0	0		0
209	0	0	0.25	0	0		8.82190878	11309.734	120	56	EFRT	2407700	207.487255		0.514828354		0
271	0	0	0.25	0	0		33.9660365	17671.459	150	60	FRT fro floatinr r	28800000.1	6.50450723	0	0		0
280	0	0	0.25	0	0		27.2708253	17671.459	150	48	FRT fro floatinr r	28800000.1	5.72715504	0	0		0
281	0	0	0.25	0	0		27.2708253	17671.459	150	48	FRT fro floatinr r	28800000.1	5.72715504	0	0		0
395	0	0	0.25	0	0		33.9660365	17671.459	150	60	FRT fro floatinr r	28800000.1	6.50450723	0	0		0
501	0	0	0.25	0	0		344.525283	962.11375	35	15	FRT fro floatinr r	97927.8723	1912.23651	0	0		0
284	0	0	0.25	0	0		27.2708253	17671.459	150	48	FRT fro floatinr r	28800000.1	5.72715504	0	0		0
67	0	0	0.25	0	0		0	5026.5482	80	56	FRT fro floatinr r	243331.336	5.83404824	0	0		0
1011	0	0	0.25	0	0		6.37218804	13273.229	130	48	EFRT	499999.995	41.6802843		0.350325452		0
1012	0	0	0.25	0	0		6.37218804	13273.229	130	48	EFRT	499999.995	41.6802843		0.350325452		0
102	0	0	0.25	0	0		7.25037854	17436.625	149	56	EFRT	499999.995	38.0560999		0.354952298		0
129	0	0	0.25	0	0		5.79059038	11309.734	120	40	EFRT	7300000	564.246079		0.355443984		0
153	0	0	0.25	0	0		0	17671.459	150	48	FRT fro floatinr r	7300000	139.932002	0	0		0
173	0	0	0.25	0	0		5.335157758	9503.3178	110	48	EFRT	7300000	614.560307		0.354348833		0
106	0	0	0.25	0	0		5.335157758	9503.3178	110	48	EFRT	3128999.96	266.467417		0.354348833		0
224	0	0	0.25	0	0		20.27538863	11309.734	120	56	FRT fro floatinr r	3499999.96	119.3828408	0	0		0
528	0	0	0.25	0	0		0	6361.7251	90	40	FRT fro floatinr r	691686.188	19.71585	0	0		0
529	0	0	0.25	0	0		0	6361.7251	90	40	FRT fro floatinr r	691686.188	19.71585	0	0		0

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

| | | | | Vapor Control Efficiency | | | |

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Butene (2-methyl-1)	Butene (2-methyl-2) [isopentene]	Butene (cis-2) ([Z]-2-butene))	Butene (trans-2) ([E]-2-butene)	Butyl acetate (n-)	Butyl alcohol (n-) (butanol (1))	Butyl alcohol (t-)	Butyl chloride (-n)(1-chloro-butane)	Butyl ether (di-tert)	Butylbenzene (n-)	Butylbenzene (sec-)	Carbon disulfide	Carbon tetrachloride	Carbonyl sulfide	Chlorobenzene	Chlorobutane (2)	Chloroform	Chloroprene(2-chloro-1,3-butadiene)	Chlorotoluene (o)(1 -chloro-2methylbenzene)	Chrysene	Chrysene(benzo[a]phenanthrene)	Cresol	Cresol (m-)	Cresol (o-)	Cresol (p-)	Cumene (isopropylbenzene)	Cyclohexane	Cyclohexanol	Cyclohexanone	Cyclohexene
107	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
108	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
110	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0	no data	no data	no data	0.266738217	0	no data	no data
170	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
172	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
200	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1001	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1003	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1004	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1007	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1010	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
155	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
156	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
157	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
159	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
167	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
202	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
158	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
208	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
223	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
241	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
257	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
209	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
271	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
280	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
281	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
285	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
501	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.321981769	no data	no data	no data	0.917910084	0	no data	no data
284	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
67	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1011	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1012	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
102	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
106	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
224	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
528	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
529	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Cyclopentadiene	Cyclopentane	Cyclopentanone	Cyclopentene	Decane (n-)	DGM ether (diethylene glycol monomethyl ether)	Dibromoethane (1,2) (ethylene dibromide)	Dibromopropane (1,2)	Dibromopropane (1,3)	Dichloroethane (1,1)	Dichloroethane (1,2)	Dichloroethylene (1,2)(1,2 dichloroethene)	Dichloroethylene (trans-1,2)	Dichlorotoluene (2,4)	Diethanolamine (DEA)	Diethoxyethane (1,1)	Diethoxymethane	Diethylbenzene (1,2)	Diethylbenzene (1,4)	Diethyl (n.o) aniline (N,N-diethylbenzenamine)	Diethyl ketone (3-pentanone)	Diethyl sulfide	Diethylamine	Diethylbenzene (1,3)	Di-isopropyl ether	Dimethoxyethane (1,2)
107	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
108	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
110	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
170	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
172	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
200	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1001	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1003	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1004	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1007	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1010	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
155	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
156	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
157	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
159	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
167	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
202	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
158	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
208	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
223	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
241	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
257	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
209	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
271	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
280	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
281	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
285	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
501	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
284	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
67	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1011	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1012	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
102	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
106	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
224	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
528	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
529	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Tank ID	Dimethylpentane (2,2)	Dimethyl butane (2,2)	Dimethyl butane (2,3)	Dimethyl cyclopentane (1,1)	Dimethyl formamide (n,n)	Dimethyl hydrazine (1,1)	Dimethyl phthalate	Dimethyl sulfide	Dimethyl-3-ethylbenzene (1,3)	Dimethyl-3-ethylbenzene (1,4)	Dimethylhexane (2,4)	Dimethylpentane (2,3)	Dimethylpentane (2,4)	Dimethylpentane (3,3)	Dioxane (1,4)	Dipropyl ether (di-n-propyl ether)	DMN (2,6) (2,6-dimethyl-naphthalene)	Dodecane (n-)	Epichlorohydrin (chloromethyl oxirane)	Ethanol (ethyl alcohol)	Ethylpentane (3)	Ethyl acetate	Ethyl acrylate (ethyl ester 2-propenoic acid)	Ethyl chloride	Ethyl ether (diethyl ether)	Ethylamine	Ethylbenzene
107	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
108	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
110	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	4.312077542
170	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.027548649
172	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.005501196
200	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1001	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1003	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1004	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1007	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1010	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
155	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
156	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
157	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
159	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
167	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.021300369
202	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
158	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.027771211
205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.013626078
208	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
223	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
241	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.013328131
257	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
209	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
271	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
280	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
281	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
285	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
501	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.0005237
284	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
67	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1011	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1012	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
102	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
106	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
224	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
528	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
529	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

| | | | | | | | | | | | | | | | | Hexane | | | | | | | | | | | | | | | |

Appendix C, Table C-9: Tank&SP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

Mercury (all) pollutant

Tank ID	Isopropylbenzene (1-methyl-2)	Isopropyltoluene (p-)	Lead	MDI (methylene diphenyl diisocyanate)	Mercury	Methacrylonitrile (2-methyl-2-propenenitrile)	Methane	Methanol (methyl alcohol)	Methylhexane (2)	Methyl acrylate (methyl ester 2-propenoic acid)	Methyl ethyl ketone (2-butanone)	Methyl isobutyl ketone (hexone)	Methyl methacrylate	Methyl propyl ether	Methyl styrene (alpha)	Methyl-2-ethylbenzene (1)	Methylcyclohexane	Methylcyclopentane	Methyldichlorosilane	Methylene chloride (dichloromethane)	Methylheptane (2)	Methylheptane (3)	Methylheptane (4)	Methylhexane (2) (isoheptane)	Methylhexane (3)
107	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
108	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
110	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
170	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
172	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
200	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1001	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1003	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1004	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1007	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1010	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
155	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
156	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
157	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
159	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
167	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
202	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
158	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
208	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
223	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
241	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
257	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
209	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
271	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
280	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
281	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
285	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
501	no data	no data	0	no data	0	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
284	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
67	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1011	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1012	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
102	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
106	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
224	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
528	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
529	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

| | | | | | | | | Methyl tertiary-butyl ether | Naphthalene | | | | | | | |

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

					Propylene					Styrene										Toluene																		
Tank ID	Propyl alcohol (n) (propanol (1))	Propylamine (n) (1-propanamine)	Propylbenzene (n-)	Propylcyclohexane	Propylene	Propylene glycol (1,2) (1,2 propanediol)	Propylene oxide	Pyridine	Resorcinol	Styrene	Tetra ethyl lead	Tetrachloroethane (1,1,1,2)	Tetrachloroethane (1,1,2,2)	Tetrachloroethylene	Tetradecane (n-)	Tetrahydrofuran	Tetramethylbenzene (1,2,4,5)	Toluene	Toluene diisocyanate	Trichloroethane (1,1,1)	Trichloroethane (1,1,2)	Trichloroethylene	Trichloropropane (1,2,3)	Tridecane (n-)	Triethanolamine (TEA)	Trifluoroethane (1,1,2-trichloro-1,2,2)	Trimethylbenzene (1,2,3)	Trimethylbenzene (1,2,4)	Trimethylbenzene (1,3,5)
107	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
108	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
110	no data	no data	no data	no data	0	no data	no data	no data	no data	0	no data	no data	no data	no data	no data	no data	no data	42.79020549	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	5.319844635	no data	no data	no data	no data	no data
170	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.109928829	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
172	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.022250031	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
200	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1001	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1003	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1004	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1007	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1010	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
155	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
156	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
157	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
159	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
167	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.095475296	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
202	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
158	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
204	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.173235542	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
205	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.097262738	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
208	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
223	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
241	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.074754574	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
257	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
209	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
271	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
280	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
281	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
285	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
501	no data	no data	no data	no data	2435.843207	no data	no data	no data	no data	5.952911147	no data	no data	no data	no data	no data	no data	no data	0.007483129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	1.354708432	no data	no data	no data	no data
284	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
67	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1011	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
1012	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
102	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
106	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
224	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
528	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
529	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data

Appendix C, Table C-9: TankESP Output Report for Tables C-7 and C-8
Site: Rodeo Renewed, Phillips 66 San Francisco Refinery - Rodeo Renewed, Rodeo, CA
Equations for this site: After 2019 AP-42 revisions H/D ratio: calculated

											Xylene									
Tank ID	Trimethylchlorosilane (chlorotrimethylsilane)	Trimethylcyclohexane (1,1,3)	Trimethylcyclopentane (1,1,3)	Trimethylpentane (2,2,3)	Trimethylpentane (2,2,4)	Trimethylpentane (2,3,3)	Undecane (n-)	Vinyl acetate (acetic acid ethenyl ester)	Vinylidene chloride (1,1-dichloro ethene)	Xylene	Xylene (m-)	Xylene (o-)	Xylene (p-)	Zinc compounds					
107	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
108	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
110	no data	no data	no data	no data	no data	no data	no data	no data	no data	23.48821917	no data	no data	no data		0					
170	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.023828192	no data	no data	no data	no data						
172	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.00411146	no data	no data	no data	no data						
200	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
1001	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
1003	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
1004	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
1007	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
1010	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
155	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
156	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
157	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
159	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
167	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.015731603	no data	no data	no data	no data						
202	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
158	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
204	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.015456085	no data	no data	no data	no data						
205	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.008562001	no data	no data	no data	no data						
208	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
223	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
241	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.008400737	no data	no data	no data	no data						
257	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
209	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
271	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
280	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
281	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
285	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
501	no data	no data	no data	no data	no data	no data	no data	no data	no data	0.003044538	no data	no data	no data		0					
284	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data						
67	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
1011	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
1012	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
102	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
129	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
153	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
173	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
106	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
224	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
528	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		
529	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		no data	no data	no data		

Appendix C, Table C-10
Potential to Emit (PTE) POC Emissions for S-97 Tank 100
Phillips 66 Company - San Francisco Refinery
Rodeo, CA

Source Number	Vapor Flow Rate[1]	VOC Concentration[1]	VOC Flow Rate	POC Emission Rate	
	scfm	ppmv	scfm	lb/day	ton/yr
S-97 [exempt per 123.3.2 and 2-1-123.3.6]	2,911	10	0.029	1.7	0.316

Notes:

1. All parameters are based on engineering design. VOC concentration is 10 ppmv at outlet of carbon canisters. POC=VOC
2. Daily and annual VOC emission rates calculated from VOC flow rate using the molar volume of an ideal gas at 70°F and 1 atm to convert from volume to moles and assuming all VOCs are methane to convert from moles to mass. Continuous facility operation is also assumed (24 hours per day, 365 days per year).This is conservative in that emissions only occur during loading.

Comparison Between Baseline Potential to Emit and Post-Project Potential to Emit

Source Number	Tank Number[1]	Baseline PTE[2]			Post-Project PTE[2]			Net Change in Emissions	
		Stock	Throughput (bbl/yr)	POC Emissions (lb/yr)	Stock	Throughput (bbl/yr)	POC Emissions (lb/yr)	lb/yr	ton/yr
S-97 [exempt per 123.3.2 and 2-1-123.3.6]	Tank 100	Crude-Blended	15,571,000	4,782	Renewable Feedstock	15,571,000	633	-4,149	-2.1

Notes:

1. See TankESP output report for descriptions of tank type and parameters.
2. Stocks and throughput for each scenario based on engineering design as shown in TankESP output report. Emissions were calculated using AP-42 Chapter 7 methodology. Detailed summaries of the tank parameters, stock parameters, and meteorological data used in these calculations are presented in TankESP output report.

Abbreviations:

lb - pound
ppmv - parts per million by volume
scfm - standard cubic feet per minute
VOC - volatile organic compound
yr - year
bbl - barrel(s)
POC - precursor organic compound(s)

Conversions	
386.9	ft3/lbmol at 70F and 1 atm
16	lb/lbmol Methane
2000	lb/ton
60	min/hr
24	hr/day
365	day/yr

References:

US EPA. June 2020. AP-42, Fifth Edition, Volume I. Chapter 7: Liquid Storage Tanks. Available at: https://www3.epa.gov/ttnchie1/ap42/ch07/. Accessed March 2021.

Conversions	
386.9	ft3/lbmol at 70F and 1 atm
16	lb/lbmol Methane
2000	lb/ton
60	min/hr
24	hr/day
365	day/yr

Input Form for Storage Tank Properties

Input Form 2 of 3

Return to Input_Service
Go to Input_FloatingRoof

Once tank data have been entered, subsequent entries are required only in the event of a change to a tank configuration.

	Tank Shell Finish		Tank Roof Finish	
A		A		aluminum-colored paint (specular) 0.39 0.49
B	Tank	B	Tank	aluminum-colored paint (diffuse) 0.60 0.68
C	Shell	C	Roof	beige/cream-colored paint 0.35 0.49
D	Finish	D	Finish	brown paint 0.58 0.67
E		E		light gray paint 0.54 0.63
F		F		medium gray paint 0.68 0.74
G		G		black paint 0.97 0.97
H		H		red primer or dark green paint 0.89 0.91
I		I		rust (unpainted iron oxide) 0.38 0.50
J		J		tan paint 0.43 0.55
K	condition	K	condition	white paint 0.17 0.34
		L		mill finish aluminum (unpainted) 0.10 0.15

Solar Absorptance values
Guide to finishes:
left column is for Good condition
right column is for Poor condition

Columns below are required ONLY if the tank has NO floating roof. (scroll to the right for TX add'l input)

| list each Tank only once | for horizontal tanks, enter the overall length in the 'Tank Height' field | Fixed Roof Type | | |

Input Form for Storage Tank Properties

Input Form 2 of 3

Return to Input_Service
Go to Input_FloatingRoof

Once tank data have been entered, subsequent entries are required only in the event of a change to a tank configuration.

| | | |

For Floating-Roof Tanks:
Entry is required for every field except Floating Roof Type and the Optional Data Entry fields for Deck Fittings (to the far right), all of which will default as indicated if left blank.

Return to Input_Service
Return to Input_Tank

Once floating roof data have been entered, subsequent entries are required only in the event of a change to a floating roof.

Floating Roof Type
A steel pontoon-type EFR (API 650 App. C-type) *(default for EFRTs and Domed EFRTs)*
B steel double-deck EFR (API 650 App. C-type)
C alum. bolted deck IFR (API 650 App. H-type) *(default for IFRTs)*
I w/ Rim-Mtd Secondary Seal

Vapor-Mounted Primary Seal
N with NO Secondary Seal
W with a Weather Shield
F w/ Rim-Mtd Secondary Seal

click here to enter bolted deck constr.

Fixed Roof Type
A self-supporting cone roof (default)
B self-supporting dome roof
C pontoon roof (steel pan)

Rim Seal Type
Welded Tanks, Any-Fitting Rim Seals
Mechanical-Shoe Primary Seal
A with NO Secondary Seal
B w/ Shoe-Mtd Secondary Seal
C w/ Rim-Mtd Secondary Seal
Liquid-Mounted Primary Seal
D with NO Secondary Seal
E with a Weather Shield
F w/ Rim-Mtd Secondary Seal
Vapor-Mounted Primary Seal
N with NO Secondary Seal
W with a Weather Shield
I w/ Rim-Mtd Secondary Seal
Add'l Mech-Shoe Seals, Special Conditions
J w/ NO Secondary Seal - Add'l Shoe
K w/ Shoe-Mtd Secondary Seal - Add'l Shoe
L w/ NO Sec - Riveted Tank (knee fitting)
M w/Rim-Mtd Sec -Riveted Tank(knee fitting)

OR
If a floating roof (Fixed-Roof Tank):
enter the code letter

Guideside Code	Deck Cover Gasket	Fixed	Pole Wiper	Pole Sleeve
A	Unskirted	No	n/a	No
B	Unskirted	Yes	n/a	No
C	Unskirted	No	n/a	Yes
D	Unskirted	Yes	n/a	Yes
E	Unskirted	Yes	n/a	Yes
F	Skirted	Y or N	No	No
G	Skirted	Y or N	Yes	No
H	Skirted	Yes	Yes	No
I	Skirted	Yes	No	Yes
J	Skirted	Yes	Yes	Yes
K	Skirted	Yes	Yes	Yes
L	Skirted	Yes	Yes	Yes

OR
If no guideside / cascaside, enter 2 for quantity

Any Deck Fitting:	A	B
	no gasket or controls	gasketed
Additional Control Options:	C	D (for IFRs)
Access Hatch	bolted & gasketed	na
Gauge Float	bolted & gasketed	na
Gauge Hatch	na	roll-hatch seal
Vacuum Breaker	na	na
Deck Drain	90% Closed	1" diameter
Leg.conn area/onIFRt	with sock (no gasket)	IFR-type
Leg.cnr area/onCNDN	with sock (no gasket)	none
Rim Vent	no	yes
Column, round-slee	na	Rec fabric sleeve
Column, built-up	na	no
Ladder (vertical)	na	slotted w/sliders*

*An IFR ladder having pipe legs, one of which is slotted, is the preferred ladder instance to a ladder where both legs are slotted.

Default Control Status for:

	EFR-type deck pontoon	EFR-type deck dbl deck	IFR-type deck aluminum	IFR-type deck steel pan
A	A	A	A	A
B	B	B	D	D
C	C	C	C	C
D	D	D	D	D
E	E	E	E	E
F	A	A	D	D
G	A	A	D	D
H	A	A	n/a	n/a
I	B	B	n/a	n/a
J	n/a	n/a	A	A
K	n/a	n/a	A	A
L	n/a	n/a	A	A

Note 1
Note 2

Default quantity for EFR pontoon & IFR steel pan is zero

Default quantity for IFR-types is zero
Default quantity for IFR-types is zero
Default quantity for EFR-types is zero
Default quantity for EFR-types is zero

*Use this row for IFR deck rows; for for the pontoon area loss of pontoon-type EFRs. IFR deck rows basically have **12-inch tall sleeves**, whereas EFR pontoon-area rows basically have **30-inch sleeves**.
†Use this row for the deck rows of double-deck EFRs; for for the pontoon-area loss of pontoon-type EFRs. Double-deck EFR rows and pontoon-area rows for pontoon-type EFRs basically have **48-inch sleeves**.

TANKS Default Control Status for:

	EFR-type deck pontoon	EFR-type deck dbl deck	EFR-type deck aluminum	EFR-type deck steel pan
A	A	A	A	A
B	B	B	D	D
C	C	C	A	A
D	D	D	D	D
E	E	E	E	E
F	A	A	n/a	n/a
G	A	A	D	D
H	A	A	D	D
I	B	B	n/a	n/a
J	n/a	n/a	A	A
K	n/a	n/a	A	A
L	n/a	n/a	A	A

Bold magenta font indicates a difference from TANKS defaults.

Make entries in these fields ONLY to override the default control status or quantity (any code or quantity left blank will revert to the default value).

Scroll to the right to adjust effective column diameter (if column type is unknown, enter 1.0 for effective diameter)

Floating Roof Deck Construction
If Bolted (Type G), enter dimensions:
Dia. & Pontoon (i.e., noncontact)
Enter Sheet Width
If unknown, enter:
60 blank

Effective Column Diameter
(if left blank defaults to 0.7 for steel & 1.1 for

Sandwich Panel
E.g., contact=
Enter Panel
Width Length
If unknown, enter:
60 120
If left blank, defaults to 60-inch sheet width

If columns are to be added, insert them before this column

Tank ID No.	Diameter (feet)	OR Is horizontal tank	OR Is floating roof (Fixed-Roof Tank) enter the code letter	Guideside / Gauge-Hatch Sample Pipe enter the code letter	Guideside / Gauge-Hatch Sample Pipe code letter	Guideside / Gauge-Hatch Sample Pipe quantity
21	3.6	A	E			0
67	80	A	E			0
100	220	C	A	K	E	1
101	149	C	B	K	E	1
102	149	C	A	K	E	1
104	140	C	B	K	E	1
105	146	C	B	K	E	1
106	110	C	A	K	E	1
107	161	C	B	K	E	1
108	161	C	B	K	E	1
109	156	C	A	K	E	1
110	156	C	B	K	E	1
112	156	C	B	K	E	1
129	120	C	A	K	E	1
130	180	C	B	K	E	1
150	120	C	B	K	E	1
153	150	C	A	K	E	1
154	150	C	A	K	E	1
155	130	C	B	K	E	1
156	139	C	B	K	E	1
157	130	C	B	K	E	1
158	130	C	B	K	E	1
159	150	C	B	K	E	1
160	110	C	B	K	E	1
167	110	C	B	K	E	1
168	110	C	B	K	E	1
169	110	C	B	K	E	1
170	110	C	B	K	E	1
172	110	B	B	K	E	1
173	110	C	A	K	E	1
174	110	C	B	K	E	1
185	110	C	B	K	E	1
194	60	C	B	K	E	1
200	105	A	E			0
201	120	A	E			0
202	120	A	E			0
203	120	C	A	K	E	1
204	105	A	E			0
205	100	A	E			0
206	50	C	A	K	E	1
208	120	C	B	K	E	1
209	126	C	B	K	E	1
210	120	C	B	K	E	1
223	120	A	E			0
224	120	A	E			0
235	40	A	E			0
236	40	A	E			0
241	120	C	B	K	E	1
242	120	C	B	K	K	1
243	120	C	B	K	E	1
257	110	A	E			0
269	77	A	E			0
270	77	A	E			0
271	150	A	E			0
280	150	A	E			0
281	150	A	E			0
284	150	A	E			0
285	150	A	E			0
287	130	C	B	K	E	1
288	130	C	B	K	E	1
291	105	C	A	K	E	1
292	100	C	A	K	E	1
294	82	A	E			0
295	52	C	B	K	E	1
296	110	C	B	K	E	1
298	90	C	B	K	E	1
304	55	A	E			0
501	35	A	E			0
529	90	A	E			0
674	114	A	E			0
1001	139	C	B	K	E	1
1002	130	C	B	K	E	1
1003	130	C	B	K	E	1
1004	130	B	B	K	E	1
1005	130	B	B	K	E	1
1006	130	C	B	K	E	1
1007	175	A	B	K	E	1
1009	130	C	A	K	E	1
1010	130	C	B	K	E	1
1011	130	C	A	K	E	1
1012	130	C	A	K	E	1
5101	15.30999	D				

Access Hatch Code	Access Hatch Quantity	Gauge Float Code	Gauge Float Quantity	Gauge Hatch Code	Gauge Hatch Quantity	Vacuum Breaker Code	Vacuum Breaker Quantity	Deck Drain Code	Deck Drain Quantity	Leg.centcr area (or Double Deck) Code	Leg.centcr area (or Double Deck) Quantity	Rim Vent Code	Rim Vent Quantity	Column, round slee Code	Column, round slee Quantity	Column, built-up Code	Column, built-up Quantity	Ladder (vertical) Code	Ladder (vertical) Quantity
0																			
80																			
230	2	C	2	B	1	B	1	B	2	R	2	C	0	C	23	C	140	R	0
150		C	1			C	1			R	1			R	2	C	1	C	1
150		C	1			C	1			R	1			R	2	C	1	C	1
140		C	1			C	1			R	1			R	2	C	1	C	1
140		C	1			C	1			R	1			R	2	C	1	C	1
110		C	1			C	1			R	1			R	1	C	1	C	1
160	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
160	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	3	C	3
160	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	1	C	1
160		C	1			C	1			R	1			R	2	C	1	C	1
160		C	1			C	1			R	1			R	2	C	1	C	1
120		C	1			C	1			R	1			R	1	C	1	C	1
180		C	1			C	1			R	1			R	2	C	1	C	1
120	2	C	2	B	1	B	1	B	2	R	2	C	3	C	3	C	3	C	3
150		C	1			C	1			R	1			R	2	C	1	C	1
150		C	1			C	1			R	1			R	2	C	1	C	1
130	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	3	C	3
130	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
130	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	3	C	3
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	1	C	1
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	1	C	1
110	2	C	2	A	1	A	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	1	R	1	C	3	C	3
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	1	R	1	C	3	C	3
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	1	R	1	C	3	C	3
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	1	R	1	C	3	C	3
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	1	R	1	C	3	C	3
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	2	R	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
110	2	C	2	A	1	A	1	B	1	R	1	R	1	R	1	C	3	C	3
120																			
120																			
120		C	1			C	1			R	1	C	1	C	1	C	1	C	1
100																			
50		C	1			C	1			R	1	C	1	C	1	C	1	C	1
120	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
120	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
120	2	C	2	C	1	C	1	B	1	R	1	R	2	R	2	C	2	C	2
120																			
40																			
40																			
120	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
120	3	C	3	A	1	A	1	B	1	R	1	R	2	R	2	C	3	C	3
120		C	1			C	1			R	1			R	1	C	1	C	1
110																			
80																			
80																			
150																			
150																			
150																			
130	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
50	2	C	2	C	1	C	1	B	1	R	2	R	2	C	2	C	2	C	2
110	2	C	2	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
90	2	C	2	B	1	B	1	B	1	R	1	R	1	R	1	C	2	C	2
20																			
40																			
90																			
130		C	1			C	1			R	1			R	2	C	1	C	1
130	3	C	3	B	1	B	1	B	1	R	1	R	2	R	2	C	3	C	3
130	3	C	3	A	1	A	1	B	1	R	1	R	2	R	2	C	3	C	3
130	4	C	4	B	1	B	1	B	1	R	1	R	2	R	2	C	3	C	3
130	3	C	3	B	1	B	1	B	1	R	1	R	2	R	2	C	1	C	1
130		C	1			C	1			R	1			R	2	C	1	C	1
130		C	1			C	1			R	1			R	2	C	1	C	1
130	4	C	4	B	1	B	1	B	1	R	1	R	2	R	2	C	2	C	2
130		C	1			C	1			R	1			R	2	C	1	C	1
20		#N/A	CheckType?			#N/A	CheckType?			#N/A	CheckType?			#N/A	CheckType?			#N/A	CheckType?

Appendix C, Table C-13: Meteorological Data

	CTYST	CITY	STATE	A_TEMP_DAA	ATMOS_PRS
	Rodeo, California	Rodeo	California	59.95225914	14.7465

	Month	Avg Daily Min Temp	Avg Daily Max Temp	Avg Daily Total Solar Insolation	Avg Wind Speed
1	**JAN**	46.80	57.01	609	4.2
2	**FEB**	44.84	62.47	822	4.6
3	**MAR**	46.33	61.35	1476	4.6
4	**APR**	49.78	65.61	1689	5.4
5	**MAY**	53.06	68.52	2427	7.0
6	**JUN**	55.45	76.49	2511	6.7
7	**JUL**	57.28	78.60	2549	6.9
8	**AUG**	56.68	77.34	2199	6.2
9	**SEP**	55.33	76.52	1735	5.2
10	**OCT**	55.08	74.17	1362	4.2
11	**NOV**	50.54	66.57	723	3.6
12	**DEC**	46.20	56.85	746	4.8
13	ANNUAL	51.45	68.46	1570.42	5.29

Appendix C, Table C-14: Exempt Chemical Tanks Potentials to Emit (PTE) POC and TAC Emissions Calculations

Tank ID	Exemption*	Tank Description	Tank Type	Breather Vent?	Insulation or Vapor recovery?	Storage Pressure	Length (ft)	Width (ft)	Height (ft)	Color	Max Daily Throughput (gal)	Max Annual Throughput (gal)	Max Annual Turnovers
S-607 or S-618	Regulation 2-1-123.2.1	Sulfuric Acid	Tote	Yes	No	Atm	3.58	3.58	6.00	White	400	45,000	112.5
S-611	Regulation 2-1-123.2	Polymer	Tote	Yes	No	Atm	3.58	3.58	6.00	White	400	45,000	112.5

* Regulation 2-1-123.2.1: Sulfuric acid with an acid strength of less than or equal to 99.0% by weight
Regulation 2-1-123.2: Tanks, vessels and pumping equipment used exclusively for the storage or dispensing of any aqueous solution which contains less than 1 percent (wt) organic compounds

Methodology
- TCEQ APDG 6250, worst case short term emissions from a vertical fixed roof tank, adapted to conservatively estimate annual PTE emissions

Assumptions
- Totes will be stored so as not to be susceptable to significant daily temperature changes
- Totes will remain capped and sealed during storage (i.e. no breather vent openings or breathing losses)
- Empty totes will be splash loaded and each filling will occur in less than an hour
- Empty totes are considered to be saturated with vapor for this PTE calculation
- The entire contents of an empty tote are displaced (expelled) with each filling
- H2SO4 is stored in 99% aqueous solution (high end of ranged stated on SDS)
- Material properties of the polymer are represented as Kerosene (i.e., CAS No. 64742-47-8)
- Worst case liquid surface temperature of 85 degF for PTE calculations (30 degC)

Emissions Calculation Results

	Sulfuric Acid S607 or S618	Polymer S-611			
Density	15.27	8.6	lb/gal		
POC content	0	24.44	liq wt%		
M_V	98.079	130	vapor mol wt		
P_{VA}	0.000001	0.0058	psia at 30 degrees C		
FR_M	400.00	400.00	gal/hr		
R	80.273	80.273	constant		
T	544.67	544.67	°R (85 °F)		
L_{MAX}	**9.75E-07**	**0.0069**	**lb/hr (= lb/day, max of 1 filling event per day)**		
POC	**None**	**2.5172**	**lb/yr**		0.001259
H2SO4	**3.56E-04**	**None**	**lb/yr**	**Annual PTE**	
Other TACs	**None**	**None**	**lb/yr**		

- Sulfuric Acid partial vapor pressures obtained from Perry's Chemical Engineering Handbook.
- Conversion: 1 bar = 14.5 psia
- Material properties of the polymer, inlcuding the vapor molecular weight and the vapor pressure, are represented as Kerosene (i.e., CAS No. 64742-47-8) per the SDS.

Calculation Procedure

Emissions from loading a VFR tank should be calculated using Equation 1:

Equation 1

$$L_{MAX} = \frac{M_V \times P_{VA}}{R \times T} \times FR_M$$

- L_{MAX} (lb/hr) is the maximum potential short term emission rate at worst case conditions (highest liquid surface temperature, vapor pressure, and fill rate).
- M_V (lb/lbmol) is the vapor molecular weight of the VOC.
- P_{VA} (psia) is the vapor pressure of the tank contents at the worst case temperature.
- FR_M (gal/hr) is the maximum filling rate.
- R ((psia × gal)/(lbmol × °R)) is the ideal gas constant (80.273 for the selected units).
- T (Rankine) is the worst case liquid surface temperature. It is TCEQ practice to use either 95°F (554.67°R) or the actual temperature, whichever is higher.

Appendix C, Table C-15
Potential to Emit (PTE) TAC Emissions - Reg 2-1-316 Analysis for Exempt Chemical Tanks
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Table 2-5-1 TAC Trigger Levels

Source #	Description	Pollutant	CAS No.	Yearly Total (lbs/yr)	Hourly Total (lbs/hr)	Chronic (lb/yr)		Acute (lb/hr)	
607 or 618	Sulfuric Acid Tank	1,3-Butadiene	106990	--	--	4.8E-01	*Below*	1.5E+00	*Below*
		Benzene	71432	--	--	2.9E+00	*Below*	6.0E-02	*Below*
		Cresol (mixed isomers)	1319773	--	--	2.3E+04	*Below*		
		Ethylbenzene	100414	--	--	3.3E+01	*Below*		
		Hydrogen sulfide	7783064	--	--	3.9E+02	*Below*	9.3E-02	*Below*
		Naphthalene	91203	--	--	2.4E+00	*Below*		
		n-Hexane	110543	--	--	2.7E+05	*Below*		
		PAH (as B(a)P equivalent)	1151	--	--	3.3E-03	*Below*		
		Phenol	108952	--	--	7.7E+03	*Below*	1.3E+01	*Below*
		Propylene	115071	--	--	1.2E+05	*Below*		
		Styrene	100425	--	--	3.5E+04	*Below*	4.6E+01	*Below*
		Sulfuric acid	7664939	3.56E-04	9.75E-07	3.9E+01	*Below*	2.6E-01	*Below*
		Toluene	108883	--	--	1.2E+04	*Below*	8.2E+01	*Below*
		Xylene (mixed isomers)	1330207	--	--	2.7E+04	*Below*	4.9E+01	*Below*
611	Polymer Tank	1,3-Butadiene	106990	--	--	4.8E-01	*Below*	1.5E+00	*Below*
		Benzene	71432	--	--	2.9E+00	*Below*	6.0E-02	*Below*
		Cresol (mixed isomers)	1319773	--	--	2.3E+04	*Below*		
		Ethylbenzene	100414	--	--	3.3E+01	*Below*		
		Hydrogen sulfide	7783064	--	--	3.9E+02	*Below*	9.3E-02	*Below*
		Naphthalene	91203	--	--	2.4E+00	*Below*		
		n-Hexane	110543	--	--	2.7E+05	*Below*		
		PAH (as B(a)P equivalent)	1151	--	--	3.3E-03	*Below*		
		Phenol	108952	--	--	7.7E+03	*Below*	1.3E+01	*Below*
		Propylene	115071	--	--	1.2E+05	*Below*		
		Styrene	100425	--	--	3.5E+04	*Below*	4.6E+01	*Below*
		Sulfuric acid	7664939	--	--	3.9E+01	*Below*	2.6E-01	*Below*
		Toluene	108883	--	--	1.2E+04	*Below*	8.2E+01	*Below*
		Xylene (mixed isomers)	1330207	--	--	2.7E+04	*Below*	4.9E+01	*Below*

Appendix C, Table C-16: Sulfiding Tanks Potential to Emit (PTE) POC and TAC Emissions Calculations

Equipment ID	Description	Equipment Type	Breather Vent?	Insulation or Vapor Recovery?	Diameter (ft)	T/T (ft)	Color	Max Fill Rate (GPM)	Max Daily Comsumed (gal)	Max Annual Throughput (gal)	Max Annual Turnovers
S-619	**Sulfiding Agent Vessel A**	Vessel	No	Flare Gas Recovery, 98% Control Efficiency	9	27	White	50	1,300	474,500	365
S-620	**Sulfiding Agent Vessel B**	Vessel	No	Flare Gas Recovery, 98% Control Efficiency	9	27	White	50	1,300	474,500	365
S-621	**Sulfiding Agent Vessel C**	Vessel	No	Flare Gas Recovery, 98% Control Efficiency	9	27	White	50	1,300	474,500	365

Methodology

- TCEQ APDG 6250, worst case short term emissions from a vertical fixed roof tank, adapted to conservatively estimate annual PTE emissions

Assumptions

- Vessels will not to be susceptable to significant daily temperature changes
- Other than PRV venting, vessels are closed systems (i.e., no breathing losses)
- Empty vessels will be pressure loaded and each filling will occur in less than five hours
- Empty vessels are considered to be saturated with vapor for this PTE calculation
- 98% of contents of an empty vessel are displaced to Flare Gas Recovery with each filling
- Worst case liquid surface temperature of 85 F for PTE calculations (30 C)

Emissions Calculation Results

	TBPS 454 Sulfiding Agent Vessel A	TBPS 454 Sulfiding Agent Vessel B	TBPS 454 Sulfiding Agent Vessel C		
Density	8.93	8.93	8.93	lb/gal	
POC content	99%	99%	99%	liq wt%	
M_V	242.5	242.5	242.5	vapor mol wt	
P_{VA}	0.0023	0.0023	0.0023	psia (15.6 Pa per SDS)	
FR_M	3,000	3,000	3,000	gal/hr	
R	80.273	80.273	80.273	constant	
T	544.67	544.67	544.67	^{o}R (85 ^{o}F)	
L_{MAX}	**0.0376**	**0.0376**	**0.0376**	**lb/hr (based on limiting fill rate)**	
POC	**5.9544**	**5.9544**	**5.9544**	**lb/yr (based on limiting consumption rate in the process)**	**Uncontrolled Annual PTE**
TBPS	**5.6566**	**5.6566**	**5.6566**	**CAS 68937-96-2, 90-100 wt%, lb/yr**	
Triethylamine	**0.0595**	**0.0595**	**0.0595**	**CAS 121-44-8, 1 wt%, lb/yr**	
Propylene oxide	**0.0595**	**0.0595**	**0.0595**	**CAS 75-56-9, 1 wt%, lb/yr**	
Other TACs	**None**	**None**	**None**	**lb/yr**	
FGR	**98%**	**98%**	**98%**	**Flare Gas Rec. Contr. Eff.**	
POC	**0.1191**	**0.1191**	**0.1191**	**lb/yr (based on limiting consumption rate in the process)**	**Annual PTE with 98% Flare Gas Recovery**
TBPS	**0.1131**	**0.1131**	**0.1131**	**CAS 68937-96-2, 90-100 wt%, lb/yr**	
Triethylamine	**0.0012**	**0.0012**	**0.0012**	**CAS 121-44-8, 1 wt%, lb/yr**	
Propylene oxide	**0.0012**	**0.0012**	**0.0012**	**CAS 75-56-9, 1 wt%, lb/yr**	
Other TACs	**None**	**None**	**None**	**lb/yr**	
POC	**0.00075**	**0.00075**	**0.00075**	**lb/hr (based on limiting fill rate)**	**Hourly PTE with 98% Flare Gas Recovery**
TBPS	**0.00001**	**0.00001**	**0.00001**	**CAS 68937-96-2, 90-100 wt%, lb/hr**	
Triethylamine	**0.0000002**	**0.0000002**	**0.0000002**	**CAS 121-44-8, 1 wt%, lb/hr**	
Propylene oxide	**0.0000002**	**0.0000002**	**0.0000002**	**CAS 75-56-9, 1 wt%, lb/hr**	
Other TACs	**None**	**None**	**None**	**lb/hr**	

Calculation Procedure

Emissions from loading a VFR tank should be calculated using Equation 1:

Equation 1

$$L_{MAX} = \frac{M_V \times P_{VA}}{R \times T} \times FR_M$$

- L_{MAX} (lb/hr) is the maximum potential short term emission rate at worst case conditions (highest liquid surface temperature, vapor pressure, and fill rate).
- M_V (lb/lbmol) is the vapor molecular weight of the VOC.
- P_{VA} (psia) is the vapor pressure of the tank contents at the worst case temperature.
- FR_M (gal/hr) is the maximum filling rate.
- R ((psia × gal)/(lbmol × °R)) is the ideal gas constant (80.273 for the selected units).
- T (Rankine) is the worst case liquid surface temperature. It is TCEQ practice to use either 95°F (554.67°R) or the actual temperature, whichever is higher.

- SDS lists 90-100% TBPS in composition but traces of Triethylamine and Propylene Oxide are possible. Assumed 1% for conservative calculation.

Appendix C, Table C-17
Potential to Emit (PTE) TAC Emissions - Reg 2-1-316 Analysis for Exempt Chemical Tanks
Phillips 66 Company - San Francisco Refinery, Rodeo, CA

Table 2-5-1 TAC Trigger Levels

Source #	Description	Pollutant	CAS No.	Yearly Total (lbs/yr)	Hourly Total (lbs/hr)	Chronic (lb/yr)		Acute (lb/hr)	
		1,3-Butadiene	106990	--	--	4.8E-01	*Below*	1.5E+00	*Below*
		Benzene	71432	--	--	2.9E+00	*Below*	6.0E-02	*Below*
		Cresol (mixed isomers)	1319773	--	--	2.3E+04	*Below*		
		Ethylbenzene	100414	--	--	3.3E+01	*Below*		
		Hydrogen sulfide	7783064	--	--	3.9E+02	*Below*	9.3E-02	*Below*
		Naphthalene	91203	--	--	2.4E+00	*Below*		
		n-Hexane	110543	--	--	2.7E+05	*Below*		
	Sulfiding Agent Vessel A	PAH (as B(a)P equivalent)	1151	--	--	3.3E-03	*Below*		
		Phenol	108952	--	--	7.7E+03	*Below*	1.3E+01	*Below*
		Propylene	115071	--	--	1.2E+05	*Below*		
		Propylene oxide	75569	0.00	1.51E-07	2.2E+01	*Below*	6.8E+00	*Below*
		Styrene	100425	--	--	3.5E+04	*Below*	4.6E+01	*Below*
		Toluene	108883	--	--	1.2E+04	*Below*	8.2E+01	*Below*
		Triethylamine	121448	0.00	1.51E-07	7.7E+03	*Below*	6.2E+00	*Below*
		Xylene (mixed isomers)	1330207	--	--	2.7E+04	*Below*	4.9E+01	*Below*
		1,3-Butadiene	106990	--	--	4.8E-01	*Below*	1.5E+00	*Below*
		Benzene	71432	--	--	2.9E+00	*Below*	6.0E-02	*Below*
		Cresol (mixed isomers)	1319773	--	--	2.3E+04	*Below*		
		Ethylbenzene	100414	--	--	3.3E+01	*Below*		
		Hydrogen sulfide	7783064	--	--	3.9E+02	*Below*	9.3E-02	*Below*
		Naphthalene	91203	--	--	2.4E+00	*Below*		
		n-Hexane	110543	--	--	2.7E+05	*Below*		
	Sulfiding Agent Vessel B	PAH (as B(a)P equivalent)	1151	--	--	3.3E-03	*Below*		
		Phenol	108952	--	--	7.7E+03	*Below*	1.3E+01	*Below*
		Propylene	115071	--	--	1.2E+05	*Below*		
		Propylene oxide	75569	0.00	1.51E-07	2.2E+01	*Below*	6.8E+00	*Below*
		Styrene	100425	--	--	3.5E+04	*Below*	4.6E+01	*Below*
		Toluene	108883	--	--	1.2E+04	*Below*	8.2E+01	*Below*
		Triethylamine	121448	0.00	1.51E-07	7.7E+03	*Below*	6.2E+00	*Below*
		Xylene (mixed isomers)	1330207	--	--	2.7E+04	*Below*	4.9E+01	*Below*
		1,3-Butadiene	106990	--	--	4.8E-01	*Below*	1.5E+00	*Below*
		Benzene	71432	--	--	2.9E+00	*Below*	6.0E-02	*Below*
		Cresol (mixed isomers)	1319773	--	--	2.3E+04	*Below*		
		Ethylbenzene	100414	--	--	3.3E+01	*Below*		
		Hydrogen sulfide	7783064	--	--	3.9E+02	*Below*	9.3E-02	*Below*
		Naphthalene	91203	--	--	2.4E+00	*Below*		
		n-Hexane	110543	--	--	2.7E+05	*Below*		
	Sulfiding Agent Vessel C	PAH (as B(a)P equivalent)	1151	--	--	3.3E-03	*Below*		
		Phenol	108952	--	--	7.7E+03	*Below*	1.3E+01	*Below*
		Propylene	115071	--	--	1.2E+05	*Below*		
		Propylene oxide	75569	0.00	1.51E-07	2.2E+01	*Below*	6.8E+00	*Below*
		Styrene	100425	--	--	3.5E+04	*Below*	4.6E+01	*Below*
		Toluene	108883	--	--	1.2E+04	*Below*	8.2E+01	*Below*
		Triethylamine	121448	0.00	1.51E-07	7.7E+03	*Below*	6.2E+00	*Below*
		Xylene (mixed isomers)	1330207	--	--	2.7E+04	*Below*	4.9E+01	*Below*