Appendix B
Methane Emissions from Gathering Compressor Stations in the U.S.:
Leaker Emission Factor Details
October 2019 Revision

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B Leaker Emission Factors Plots

Plots and tables in this appendix provide a detailed overview of the leaker emission factors. Section B.1 describes the format and content of the one-page description of each factor. In Section B.2, each page contains a plot of the measured data and a table summarizing key statistics for the emission factor. The following section, Section B.3, includes data for component categories where there were insufficient measurements to develop emission factors.

B.1 Data Description

Each emission factor is summarized on a separate page. The page starts with a plot which shows measurement data for whole gas, containing both a histogram (probability distribution function or PDF) and as a a cumulative distribution function (CDF). In addition, the plot includes an additional CDF that includes the augmented measurement data, as marked, resulting from estimates of missing or incomplete measurements. Data in this latter CDF is utilized to create the emission factor.

The mean emission factor was calculated by bootstrapping [1] the mean (5000 bootstrap samples), and is included on the plot as a mean line (vertical black line) and shaded area. Note that all plots have a logarithmic emissions axis.

Following the plot is a table summarizing the measurement data displayed in the plot. Columns include:

Column Header	Description
Data	Summarizes the number of measurements, and simulated measurements, in the emission factor
Min & Max	Minimum and maximum measurement values (scfh)
Lower & Upper	Lower and upper 95% confidence interval of the mean, developed using bootstrap methods(scfh)
Mean	Mean value and emission factor (scfh)
Top 5%	Fraction of total measured emissions due to the top 5% of measured emitters

Some columns or values may be omitted from some tables if they are not appropriate or no data exists.

For each leaker factor, the count of each measurement quality classification is listed in the table "Unmeasured Sources and Corrections", following the definitions in the main report. The table also includes the total emissions from measured and estimated sources, to indicate how significantly estimates impacted the emission factor estimates.

The final table on each page summarizes the activity data from the measurement campaign for the component category. Two types of tables are included. If the component category is one of the components which were counted on major equipment to develop a estimate of components per major equipment unit, a detailed table is provided. This table contains:

Column Header	Description
Equipment Type	Compressor or Non-compressor equipment categories.
Count	Number of major equipment units which where components were counted
Min & Max	Minimum and maximum counts per unit
Lower & Upper	Lower and upper 95% confidence interval (scfh)
Mean	Mean number of components per major equipment unit
Top 5 Pct	Fraction of total measured emissions due to the top 5% of measured emitters
Units Measured	Number of major equipment units where one or more measurements were made
Units Screened	Number of major equipment units that were screened by optical gas imaging

If the component category was not one of the component types which was counted in detail during the field campaign, the activity was estimated from the number of major equipment units which were screened and measured during the field campaign. This is summarized in a 3-column table including:

Column Header	Description
Equipment Type	Compressor or Non-compressor equipment categories.
Measured	Number of major equipment units where one or more measurements were made
Screened	Number of major equipment units that were screened by optical gas imaging

When insufficient study data were available to accurately estimate activity data a foot-note **"No activity data. Opportunistic measurements only."** appears in place of tables.

B.2 Primary Leak Measurement Data

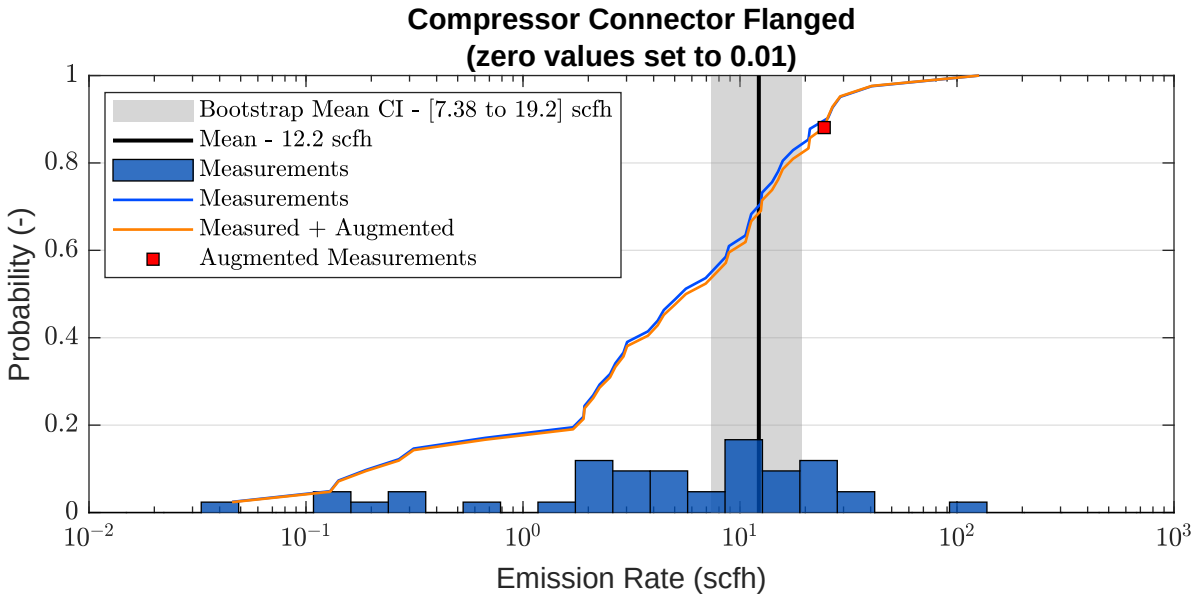

Figure B1: Compressor Connector Flanged

Table B1: Leaker Emission Factor for Compressor Connector Flanged

Gas Type	Data		Statistics (scfh)					
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	Fraction of Emissions Due to Largest 5% of Emitters
WholeGas	41	1	0.0209×10^{-3}	7.38	12.2	19.2	158	0.332
CH4	41	1	0.0149×10^{-3}	5.55	9.14	14.3	107	0.316

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	41	488 [442 to 527]	95% [92% to 98%]
Exceeded Capacity	1		
Inaccessible	1		
Incomplete Capture	1	24.4 [11.6 to 42.7]	4.8% [2.3% to 8.2%]
Other	4		
Total		512 [463 to 557]	

Table B2: Count of Screened and Measured Equipment for *Compressor Connector Flanged*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
Compressor	286	0	1.95	71.6	170	307	0.114	432	462

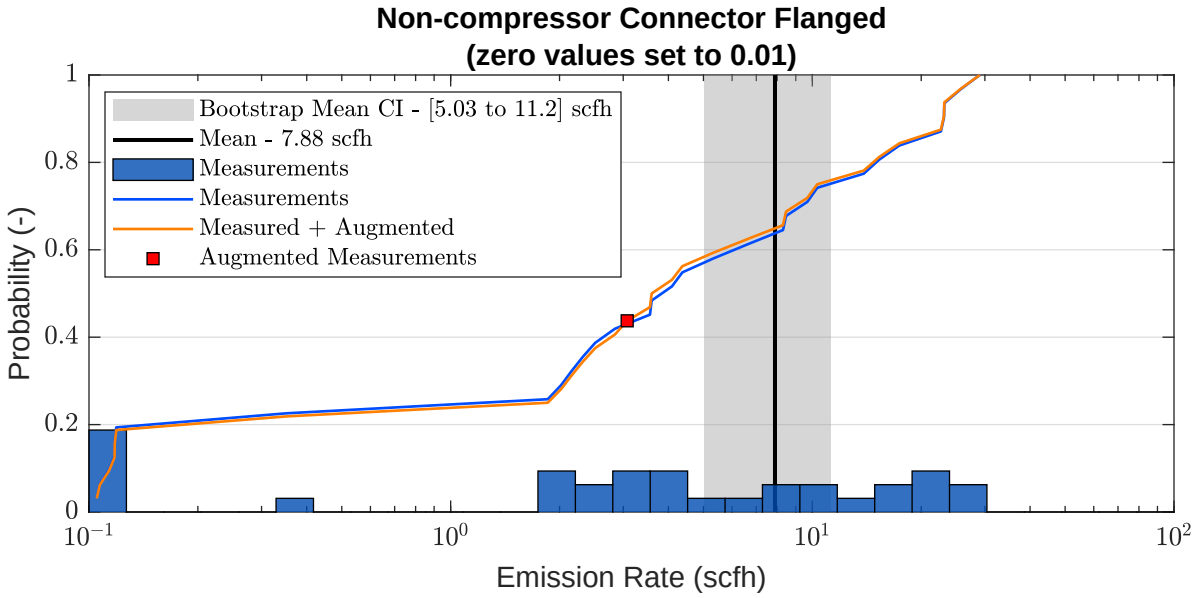

Figure B2: Non-compressor Connector Flanged

Table B3: Leaker Emission Factor for Non-compressor Connector Flanged

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	31	1	0.0343×10^{-3}	5.03	7.88	11.2	33.4	0.176
CH4	31	1	0.0309×10^{-3}	4.08	6.46	9.11	29.8	0.19

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	31	249 [231 to 269]	99% [98% to 99%]
Incomplete Capture	1	3.08 [1.94 to 4.68]	1.2% [0.77% to 1.9%]
Other	1		
Total		253 [233 to 272]	

Table B4: Count of Screened and Measured Equipment for *Non-compressor Connector Flanged*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
AGRU	7	0	0	53	72	72	-	8	8
Dehydrator	63	0	0	21.2	71.6	90	0.168	119	126
Separator	184	0	0	16.6	65.8	92	0.192	312	322
Tank	54	0	0	4.44	30.4	118	0.589	151	177
YardPiping	42	3	4.1	79.4	315	341	0.198	44	44

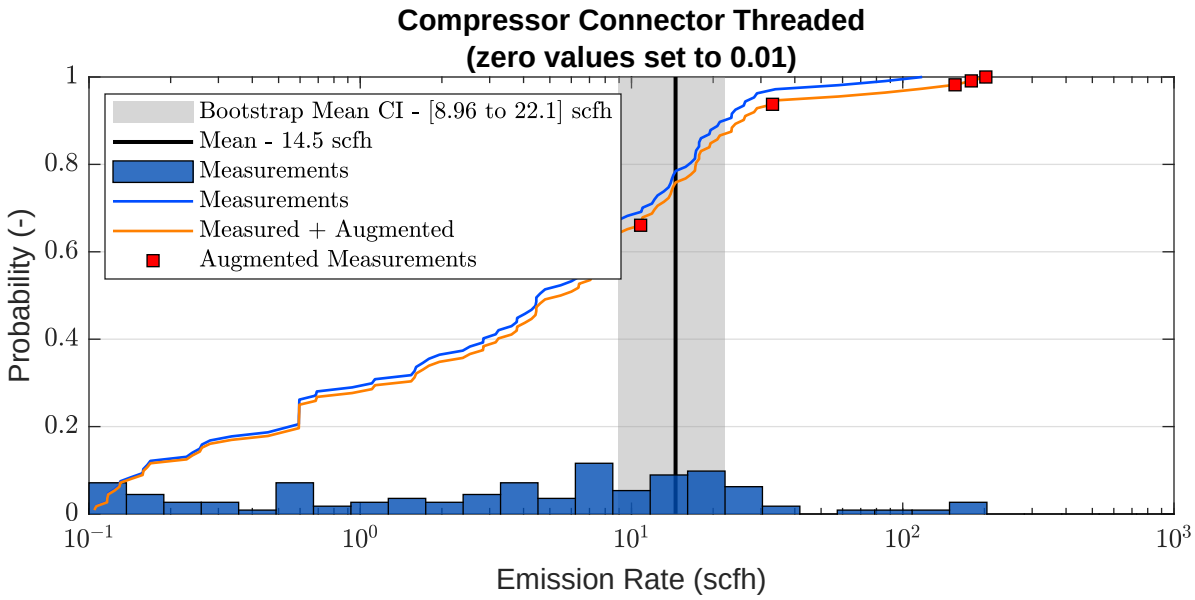

Figure B3: Compressor Connector Threaded

Table B5: Leaker Emission Factor for Compressor Connector Threaded

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	107	5	0.00995×10^{-3}	8.96	14.5	22.1	1.01×10^{3}	0.475
CH4	107	5	0.0095×10^{-3}	7.44	12.1	18.4	1.16×10^{3}	0.485

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	107	1.05×10^{3} [986 to 1.11×10^{3}]	65% [51% to 77%]
Cannot Measure	3		
Inaccessible	2		
Incomplete Capture	5	581 [321 to 1.01×10^{3}]	35% [23% to 49%]
Other	6		
Safety	4		
Total		1.63×10^{3} [1.36×10^{3} to 2.07×10^{3}]	

Table B6: Count of Screened and Measured Equipment for *Compressor Connector Threaded*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
Compressor	286	10	28	140	364	614	0.128	432	462

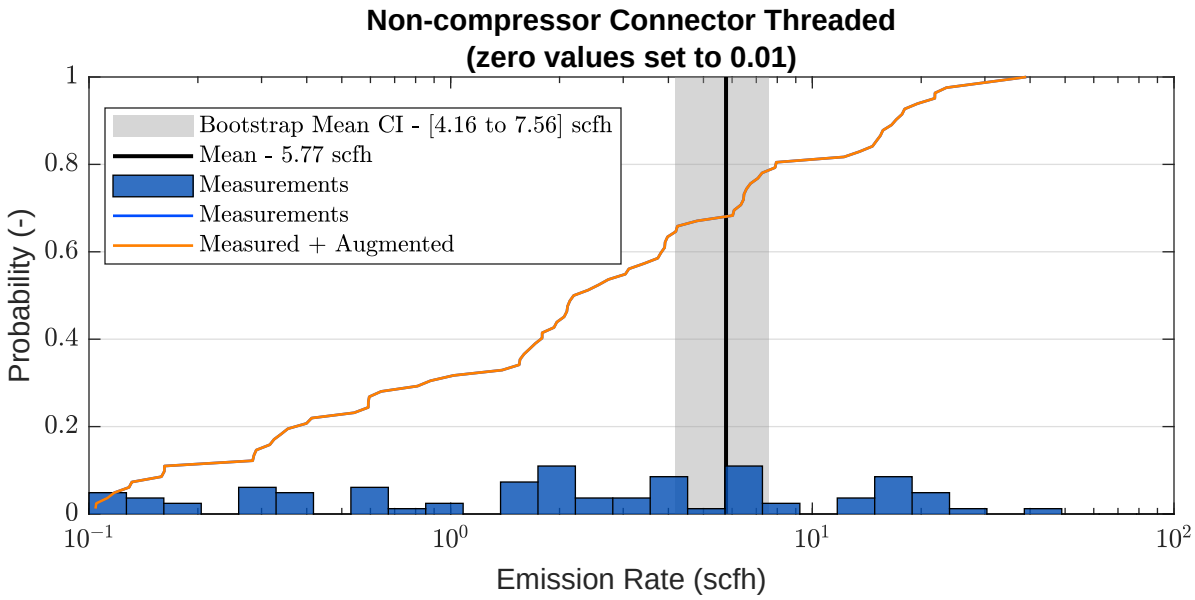

Figure B4: Non-compressor Connector Threaded

Table B7: Leaker Emission Factor for Non-compressor Connector Threaded

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	82	0	0.0015×10^{-3}	4.16	5.77	7.56	52.9	0.247
CH4	82	0	0.00135×10^{-3}	3.57	4.94	6.49	45.5	0.251

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	82	474 [448 to 503]	100% [100% to 100%]
Exceeded Capacity	1		
Other	3		
Total		474 [448 to 503]	

Table B8: Count of Screened and Measured Equipment for *Non-compressor Connector Threaded*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
AGRU	7	54	54	128	326	326	-	8	8
Dehydrator	63	0	19.3	128	324	329	0.126	119	126
Separator	184	0	1.1	31.3	121	269	0.222	312	322
Tank	54	0	4.25	35.4	171	210	0.233	151	177
YardPiping	42	9	13.4	167	742	849	0.222	44	44

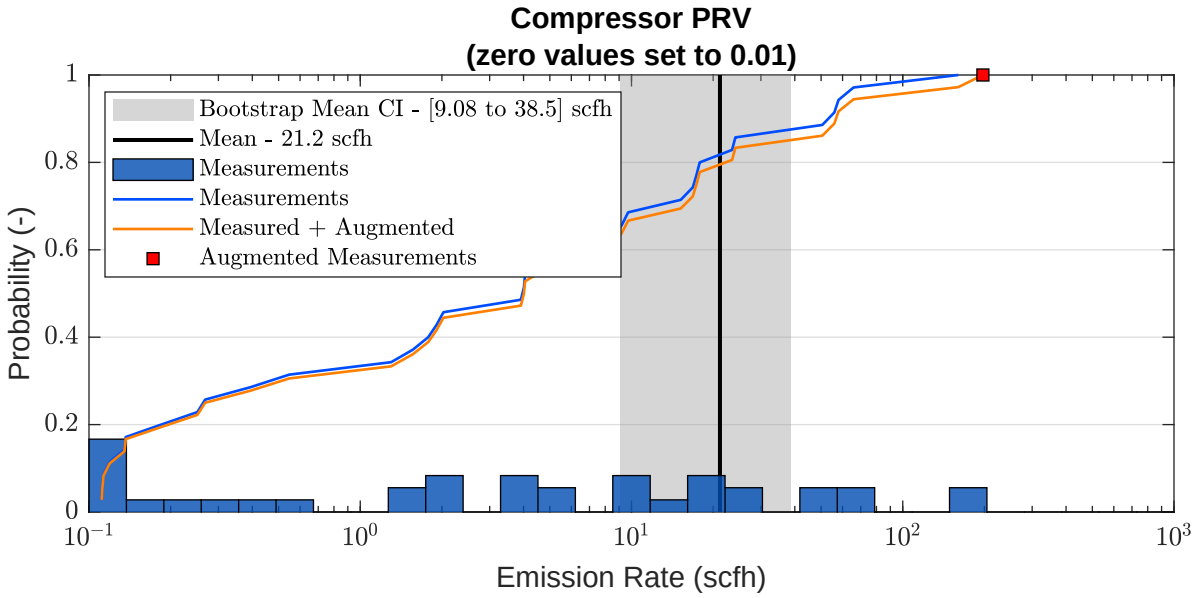

Figure B5: Compressor PRV

Table B9: Leaker Emission Factor for Compressor PRV

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	35	1	0.00129×10^{-3}	9.08	21.2	38.5	1.05×10^{3}	0.427
CH4	35	1	0.000139×10^{-3}	7.62	18.1	34.6	1.27×10^{3}	0.447

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	35	566 [512 to 622]	75% [54% to 90%]
Inaccessible	5		
Incomplete Capture	1	197 [62.2 to 486]	25% [9.9% to 46%]
Other	1		
Total		763 [612 to 1.06×10^{3}]	

Table B10: Count of Screened and Measured Equipment for *Compressor PRV*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
Compressor	286	0	0	3.93	7	12	0.0944	432	462

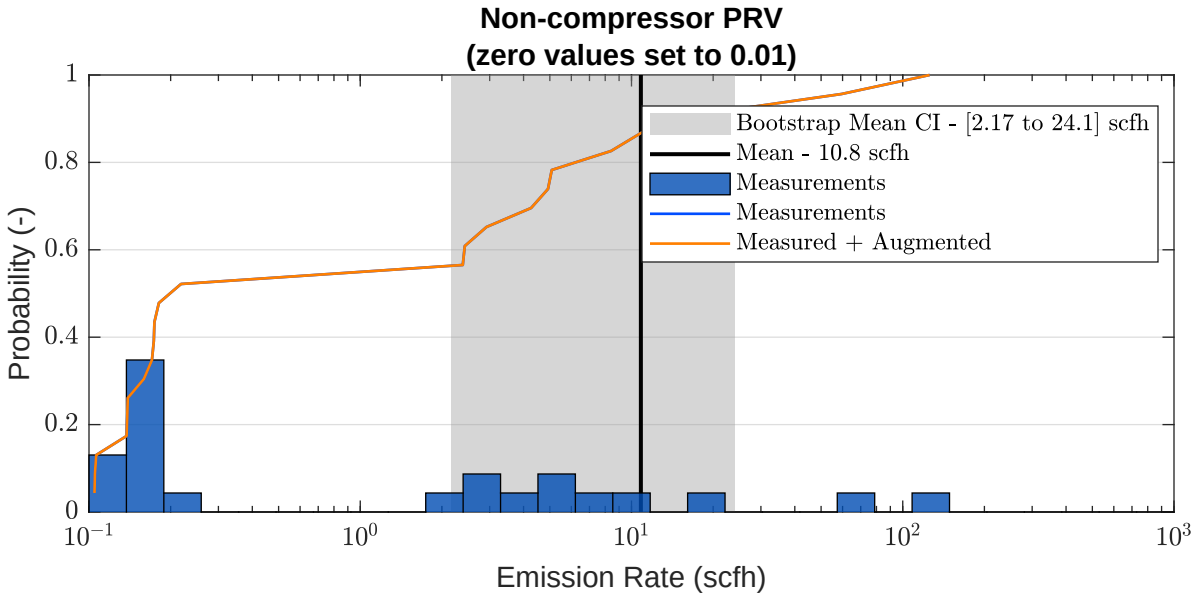

Figure B6: Non-compressor PRV

Table B11: Leaker Emission Factor for Non-compressor PRV

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	23	0	0.00801×10^{-3}	2.17	10.8	24.1	158	0.543
CH4	23	0	0.00783×10^{-3}	1.73	9.56	21.4	145	0.566

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	23	248 [223 to 280]	100% [100% to 100%]
Cannot Measure	1		
Inaccessible	3		
Total		248 [223 to 280]	

Table B12: Count of Screened and Measured Equipment for *Non-compressor PRV*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
AGRU	7	3	3	5	10	10	-	8	8
Dehydrator	63	0	0	2.54	5.92	6	0.111	119	126
Separator	184	0	0	1.2	3	13	0.22	312	322
Tank	54	0	0	1.63	5.6	9	0.191	151	177
YardPiping	42	0	0	2.4	10.7	14	0.225	44	44

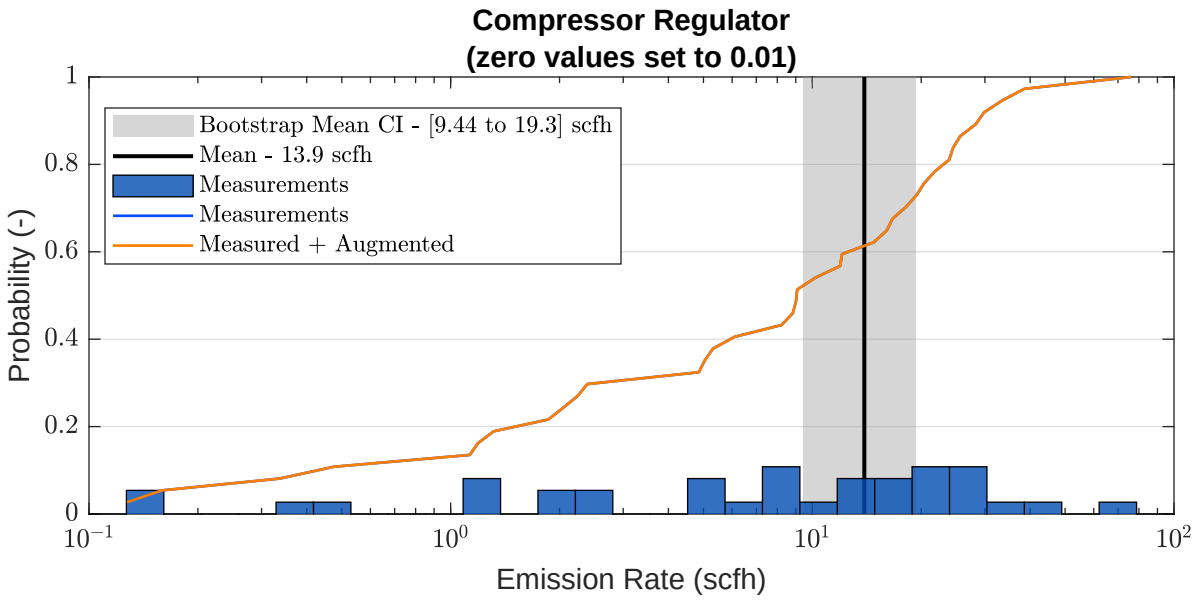

Figure B7: Compressor Regulator

Table B13: Leaker Emission Factor for Compressor Regulator

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	37	0	0.000117	9.44	13.9	19.3	97.3	0.213
CH4	37	0	0.000112	7.45	10.9	14.6	58.7	0.186

Table B14: Count of Screened and Measured Equipment for *Compressor Regulator*

Equipment Type	**Statistics (components per unit)**						**Top 5%**	**Units Measured**	**Units Screened**
	Count	**Min**	**Lower**	**Mean**	**Upper**	**Max**			
Compressor	286	0	0	1.52	6	12	0.214	432	462

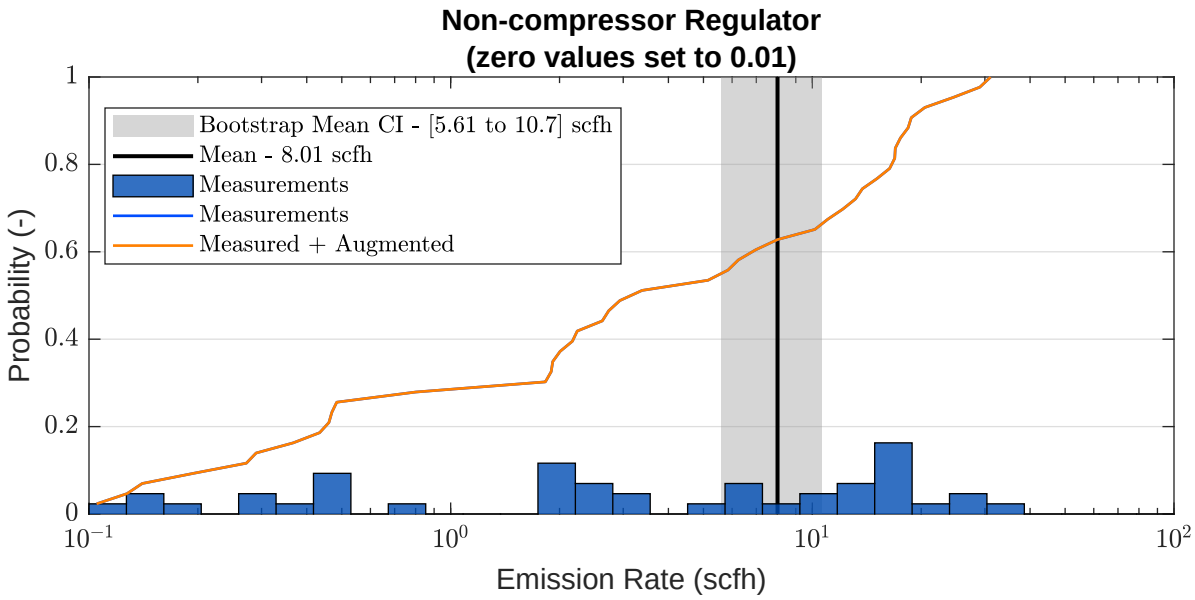

Figure B8: Non-compressor Regulator

Table B15: Leaker Emission Factor for Non-compressor Regulator

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	43	0	0.0029×10^{-3}	5.61	8.01	10.7	37.7	0.185
CH4	43	0	0.00239×10^{-3}	4.43	6.49	8.77	32.8	0.2

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	43	346 [324 to 367]	100% [100% to 100%]
Other	2		
Safety	1		
Weather	1		
Total		346 [324 to 367]	

Table B16: Count of Screened and Measured Equipment for *Non-compressor Regulator*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
AGRU	7	0	0	1	7	7	-	8	8
Dehydrator	63	0	0	3.19	10.9	12	0.171	119	126
Separator	184	0	0	0.25	2.9	11	0.722	312	322
Tank	54	0	0	0.37	3	20	1	151	177
YardPiping	42	0	0	1.95	9.45	10	0.239	44	44

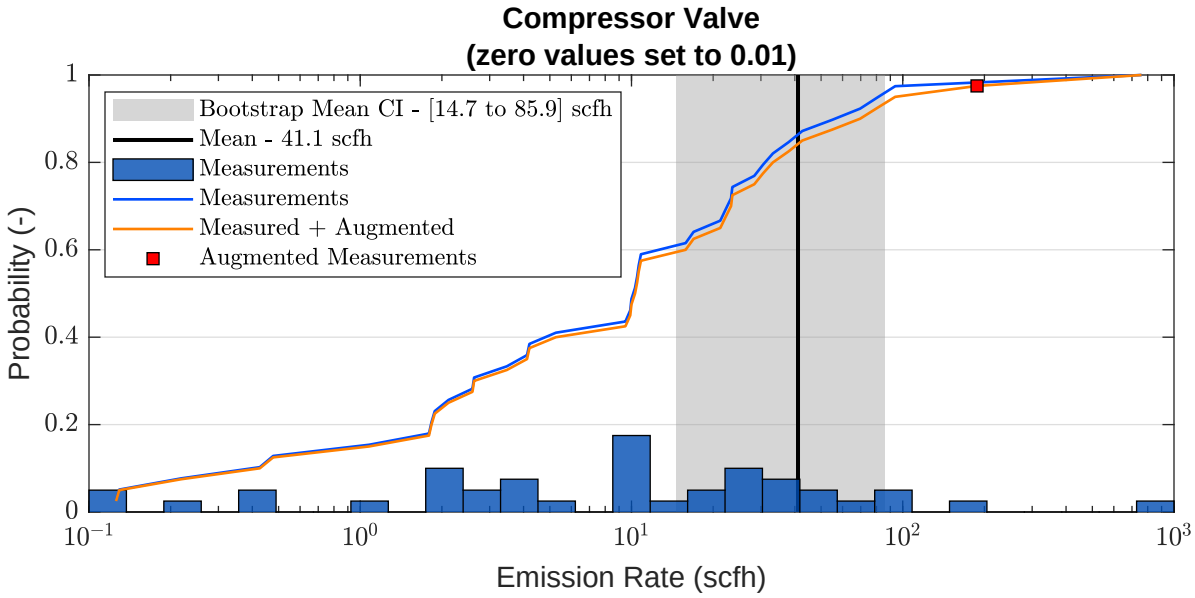

Figure B9: Compressor Valve

Table B17: Leaker Emission Factor for Compressor Valve

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	39	1	0.00834×10^{-3}	14.7	41.1	85.9	1.32×10^{3}	0.575
CH4	39	1	0.00661×10^{-3}	11.7	36.3	79.7	1.08×10^{3}	0.604

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	39	1.46×10^{3} [1.27×10^{3} to 1.66×10^{3}]	89% [75% to 96%]
Inaccessible	1		
Incomplete Capture	1	188 [59.5 to 463]	11% [3.9% to 25%]
Other	1		
Total		1.65×10^{3} [1.4×10^{3} to 1.98×10^{3}]	

Table B18: Count of Screened and Measured Equipment for *Compressor Valve*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
Compressor	286	0	0	23.6	55	78	0.135	432	462

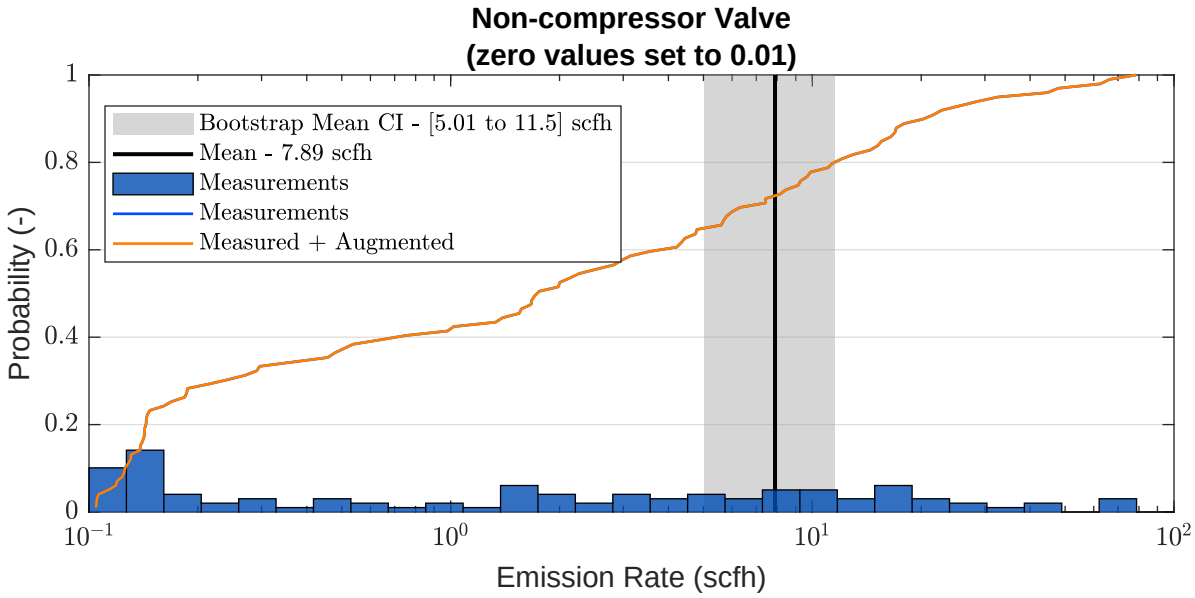

Figure B10: Non-compressor Valve

Table B19: Leaker Emission Factor for Non-compressor Valve

Gas Type	Data		Statistics (scfh)					
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	Fraction of Emissions Due to Largest 5% of Emitters
WholeGas	99	0	0.000134×10^{-3}	5.01	7.89	11.5	143	0.381
CH4	99	0	0.00074×10^{-3}	4.18	6.68	9.93	124	0.389

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	99	781 [615 to 949]	100% [100% to 100%]
Inaccessible	2		
Other	14		
Total		781 [615 to 949]	

Table B20: Count of Screened and Measured Equipment for *Non-compressor Valve*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
AGRU	7	35	35	50.1	85	85	-	8	8
Dehydrator	63	0	0	23.1	58.9	85	0.144	119	126
Separator	184	0	0	11.3	35.9	71	0.175	312	322
Tank	54	0	0	5.13	47.6	91	0.521	151	177
YardPiping	42	0	2.2	57.1	235	258	0.205	44	44

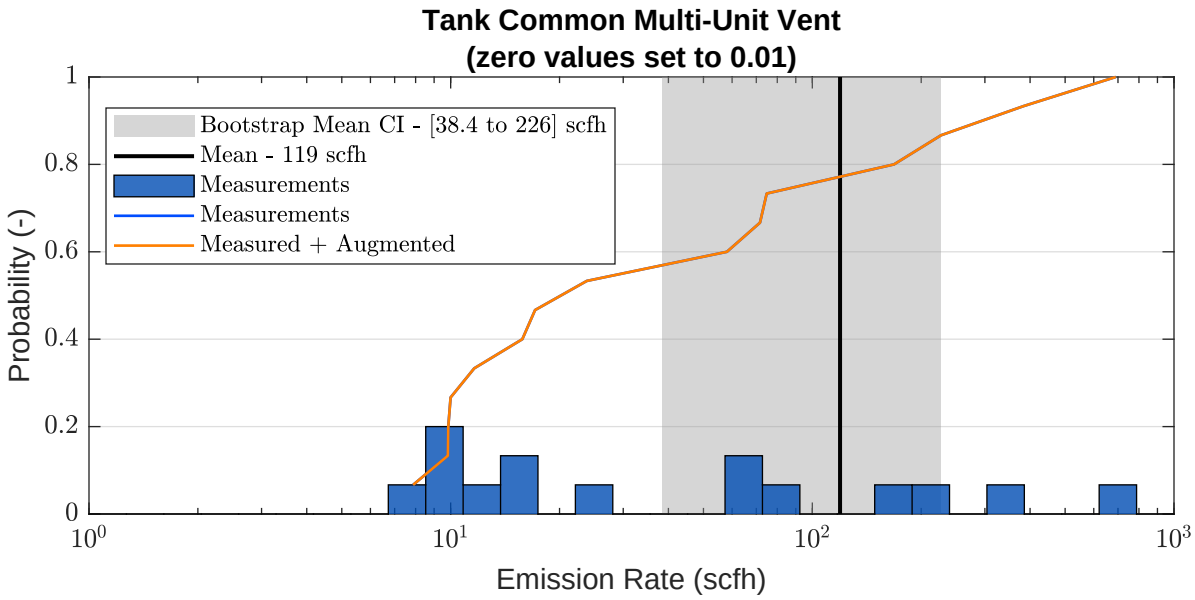

Figure B11: Tank Common Multi-Unit Vent

Table B21: Leaker Emission Factor for Tank Common Multi-Unit Vent

Gas Type	Data		Statistics (scfh)					
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	Fraction of Emissions Due to Largest 5% of Emitters
WholeGas	15	0	0.046×10^{-3}	38.4	119	226	950	N/A
CH4	15	0	0.0358×10^{-3}	29.9	109	219	950	N/A

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	15	1.78×10^3 [1.36×10^3 to 2.17×10^3]	100% [100% to 100%]
Exceeded Capacity	3		
Other	1		
Safety	1		
Total		1.78×10^3 [1.36×10^3 to 2.17×10^3]	

Table B22: Count of Screened and Measured Equipment for *Tank Common Multi-Unit Vent*

Equipment Type	Measured	Screened
Tank	251	339

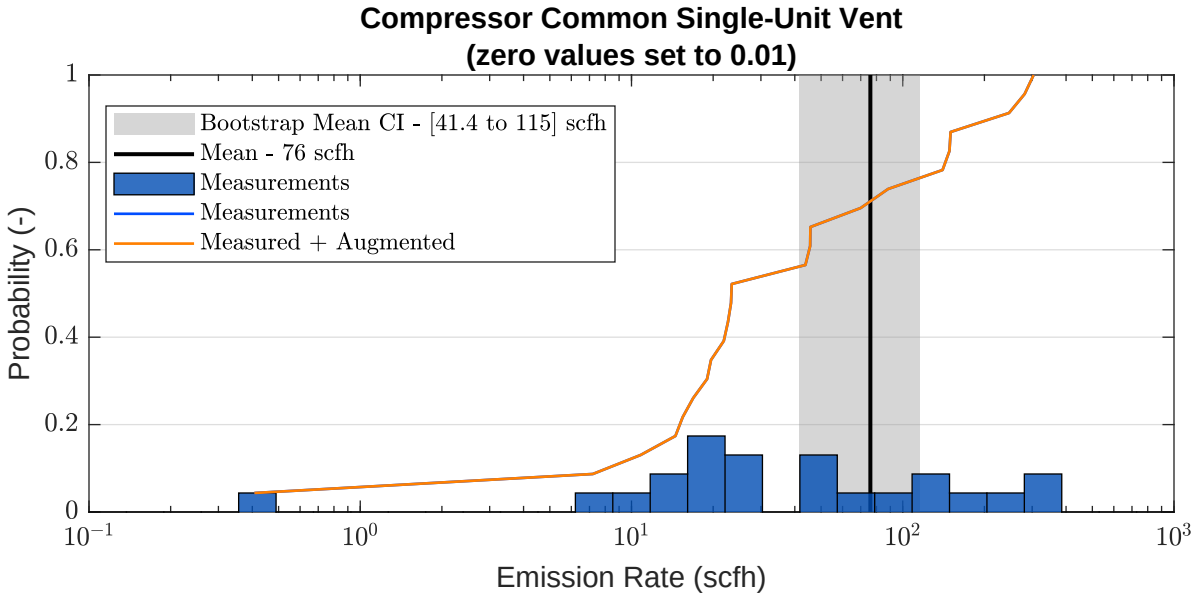

Figure B12: Compressor Common Single-Unit Vent

Table B23: Leaker Emission Factor for Compressor Common Single-Unit Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	23	0	0.00077	41.4	76	115	342	0.197
CH4	23	0	0.000528	34.2	59.8	89.3	276	0.198

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	23	1.76×10^3 [1.69×10^3 to 1.83×10^3]	100% [100% to 100%]
Exceeded Capacity	1		
Inaccessible	2		
Other	3		
Total		1.76×10^3 [1.69×10^3 to 1.83×10^3]	

Table B24: Count of Screened and Measured Equipment for *Compressor Common Single-Unit Vent*

Equipment Type	Measured	Screened
Compressor	435	465

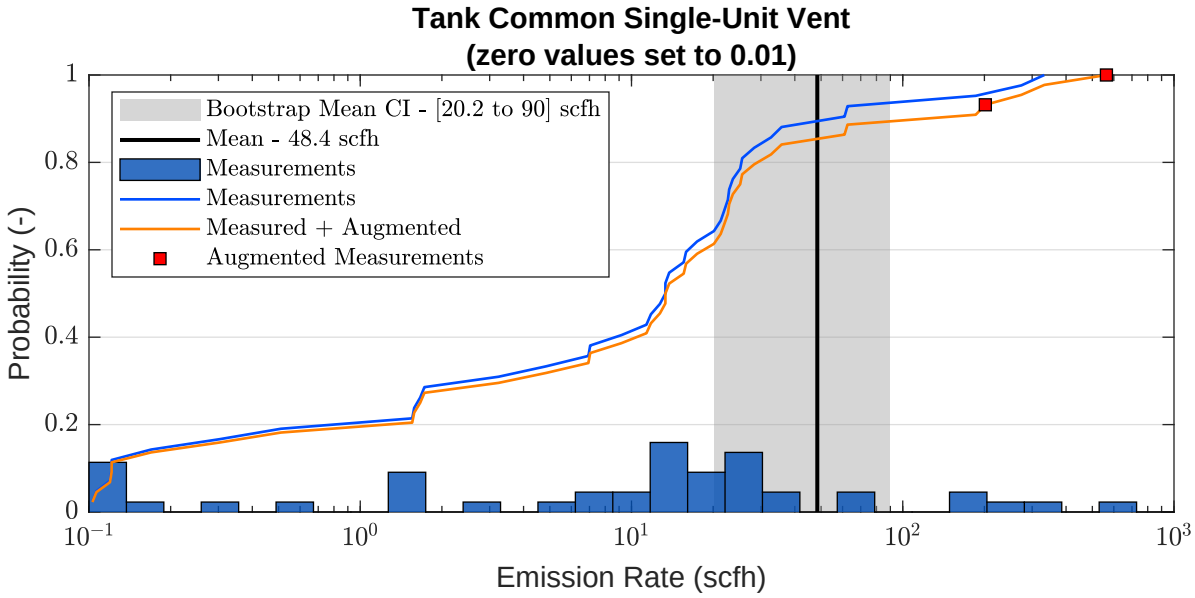

Figure B13: Tank Common Single-Unit Vent

Table B25: Leaker Emission Factor for Tank Common Single-Unit Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	42	2	0.00812×10^{-3}	20.2	48.4	90	4.08×10^{3}	0.447
CH4	42	2	0.00558×10^{-3}	17.6	43.7	81.5	3.32×10^{3}	0.462

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	42	1.36×10^{3} [1.21×10^{3} to 1.53×10^{3}]	65% [46% to 81%]
Cannot Measure	1		
Exceeded Capacity	2		
Inaccessible	2		
Incomplete Capture	1	765 [317 to 1.62×10^{3}]	35% [19% to 54%]
Other	1		
Total		2.13×10^{3} [1.63×10^{3} to 2.98×10^{3}]	

Table B26: Count of Screened and Measured Equipment for *Tank Common Single-Unit Vent*

Equipment Type	Measured	Screened
Tank	251	339

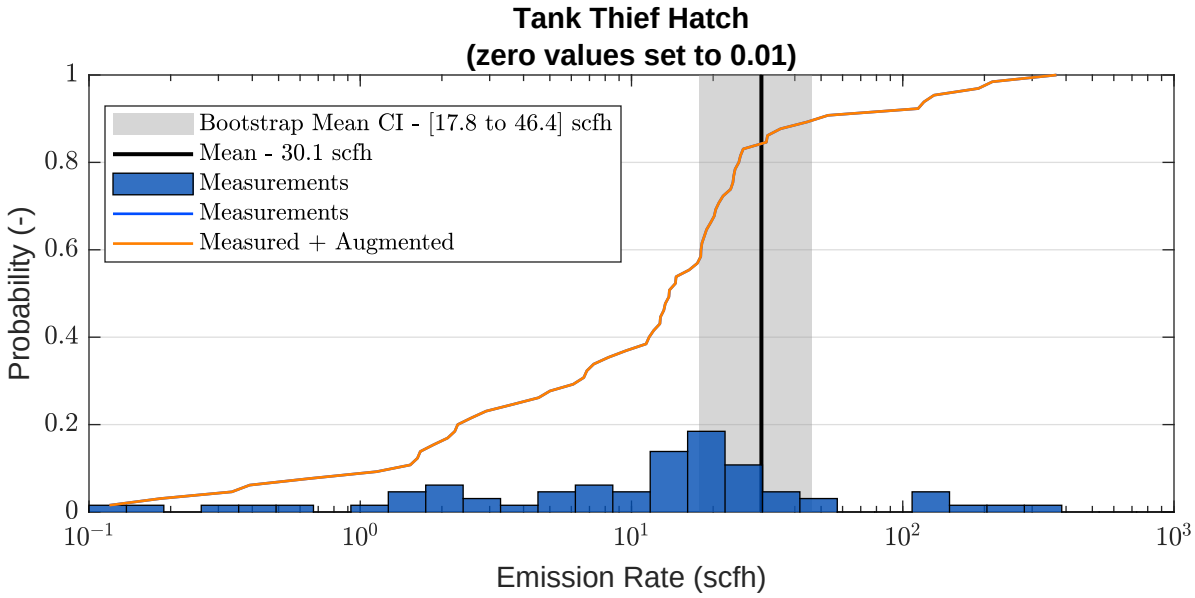

Figure B14: Tank Thief Hatch

Table B27: Leaker Emission Factor for Tank Thief Hatch

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	65	0	0.027×10^{-3}	17.8	30.1	46.4	517	0.412
CH4	65	0	0.0248×10^{-3}	14.2	25.9	41.6	501	0.441

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	65	1.96×10^3 [1.77×10^3 to 2.14×10^3]	100% [100% to 100%]
Exceeded Capacity	1		
Other	5		
Safety	2		
Weather	8		
Total		1.96×10^3 [1.77×10^3 to 2.14×10^3]	

Table B28: Count of Screened and Measured Equipment for *Tank Thief Hatch*

Equipment Type	Measured	Screened
Tank	251	339

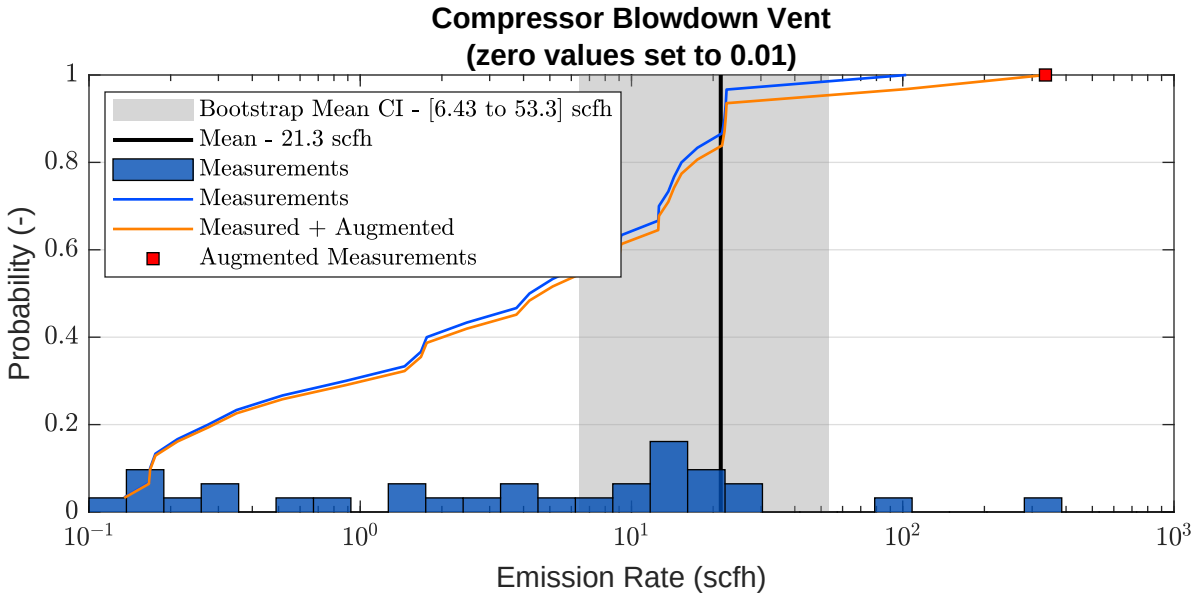

Figure B15: Compressor Blowdown Vent

Table B29: Leaker Emission Factor for Compressor Blowdown Vent

Gas Type	Data: Measured Count	Data: Simulated Count	Statistics (scfh): Min	Lower	Mean	Upper	Max	Fraction of Emissions Due to Largest 5% of Emitters
WholeGas	30	1	0.0051×10^{-3}	6.43	21.3	53.3	2.31×10^{3}	0.594
CH4	30	1	0.00398×10^{-3}	4.68	15.7	38.4	1.5×10^{3}	0.596

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	30	325 [272 to 394]	53% [27% to 77%]
Inaccessible	1		
Incomplete Capture	1	336 [96.7 to 841]	47% [23% to 73%]
Other	1		
Safety	3		
Total		661 [407 to 1.17×10^{3}]	

Table B30: Count of Screened and Measured Equipment for *Compressor Blowdown Vent*

Equipment Type	Measured	Screened
Compressor	435	465

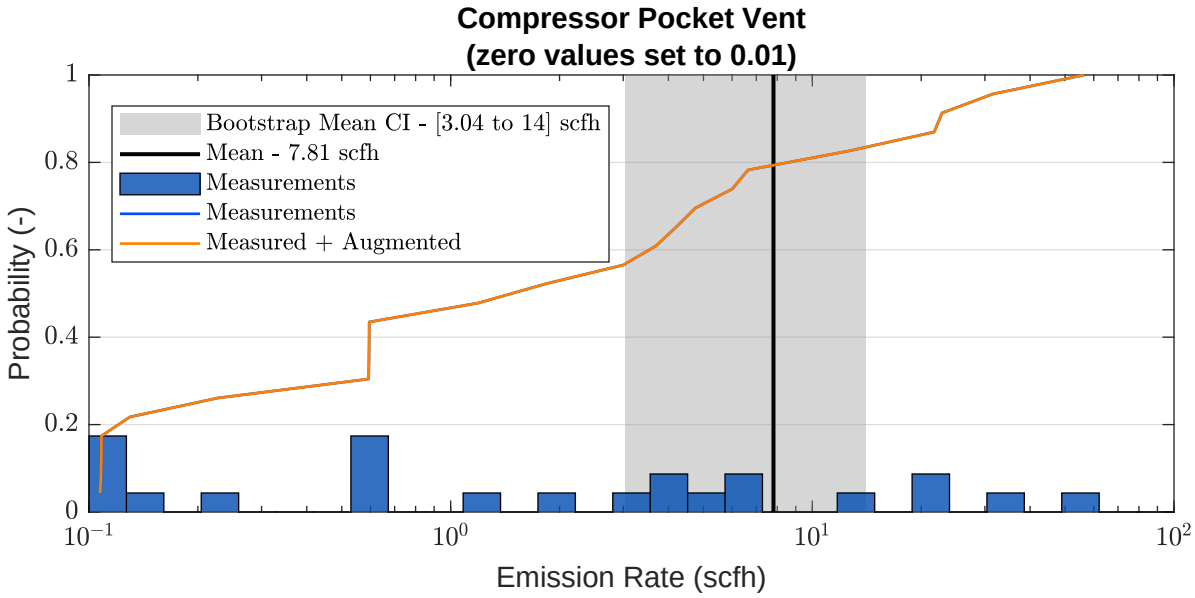

Figure B16: Compressor Pocket Vent

Table B31: Leaker Emission Factor for Compressor Pocket Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	23	0	0.000154	3.04	7.81	14	62.3	0.34
CH4	23	0	0.000135	2.7	6.35	10.7	44.8	0.28

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	23	180 [164 to 198]	100% [100% to 100%]
Inaccessible	3		
Total		180 [164 to 198]	

Table B32: Count of Screened and Measured Equipment for *Compressor Pocket Vent*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
Compressor	443	2	3	4.18	6	16	0.0922	360	388

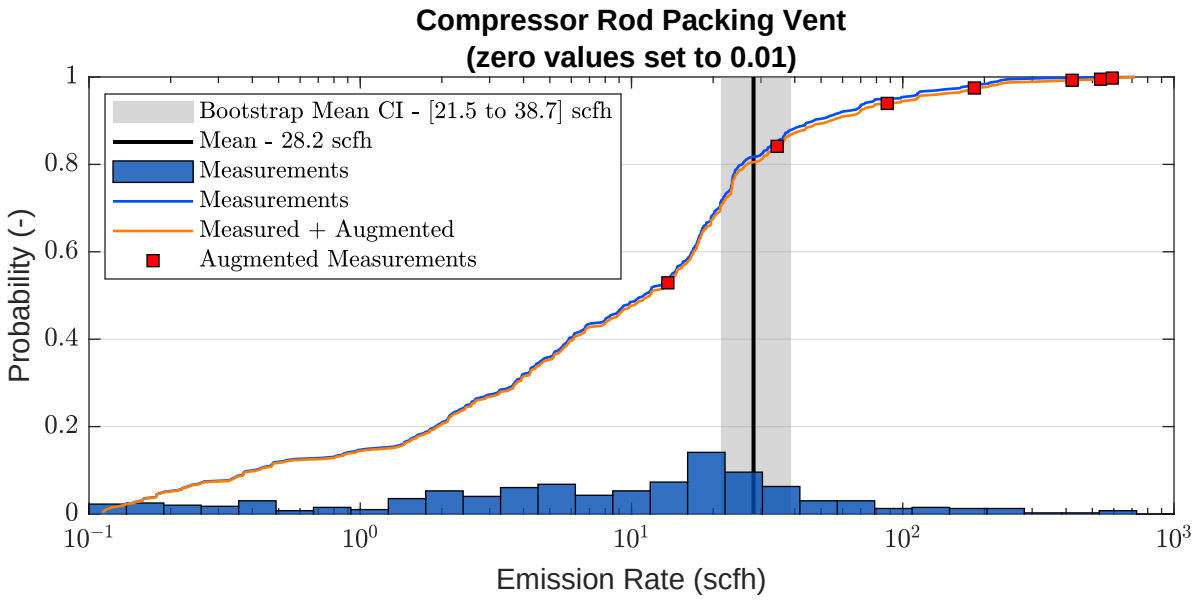

Figure B17: Compressor Rod Packing Vent

Table B33: Leaker Emission Factor for Compressor Rod Packing Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	390	7	0.00742×10^{-3}	21.5	28.2	38.7	32.1×10^{3}	0.464
CH4	390	7	0.00472×10^{-3}	18.3	24.4	32.9	65.7×10^{3}	0.489

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	390	9.3×10^{3} [8.97×10^{3} to 9.62×10^{3}]	84% [67% to 91%]
Cannot Measure	32		
Exceeded Capacity	1		
Inaccessible	17		
Incomplete Capture	7	1.87×10^{3} [958 to 4.63×10^{3}]	16% [9.3% to 33%]
Other	13		
Safety	5		
Weather	1		
Total		11.2×10^{3} [10.2×10^{3} to 13.9×10^{3}]	

Table B34: Count of Screened and Measured Equipment for *Compressor Rod Packing Vent*

Equipment Type	Measured	Screened
Compressor	435	465

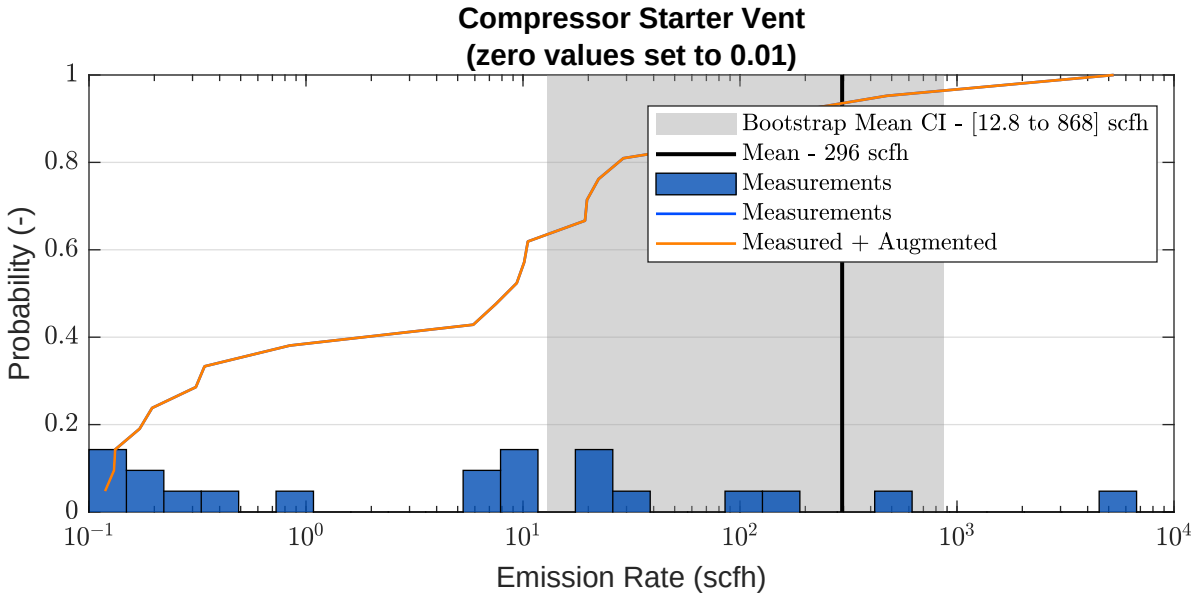

Figure B18: Compressor Starter Vent

Table B35: Leaker Emission Factor for Compressor Starter Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	21	0	0.00293×10^{-3}	12.8	296	868	7.72×10^{3}	0.865
CH4	21	0	0.00258×10^{-3}	9.76	289	837	7.72×10^{3}	0.879

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	21	6.13×10^{3} [4.93×10^{3} to 7.43×10^{3}]	100% [100% to 100%]
Inaccessible	6		
Other	1		
Total		6.13×10^{3} [4.93×10^{3} to 7.43×10^{3}]	

Table B36: Count of Screened and Measured Equipment for *Compressor Starter Vent*

Equipment Type	Measured	Screened
Compressor	435	465

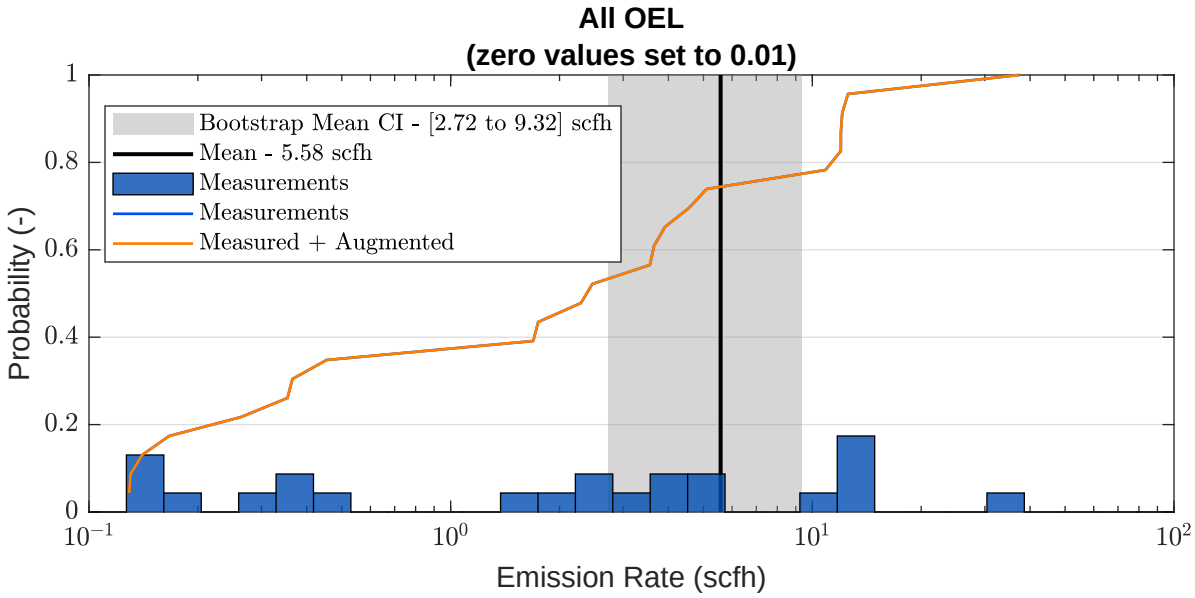

Figure B19: All OEL

Table B37: Leaker Emission Factor for All OEL

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	23	0	0.00596×10^{-3}	2.72	5.58	9.32	46.7	0.307
CH4	23	0	0.000833×10^{-3}	2.21	4.52	7.53	36.6	0.302

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	23	128 [116 to 141]	100% [100% to 100%]
Other	1		
Safety	1		
Total		128 [116 to 141]	

Table B38: Count of Screened and Measured Equipment for *All OEL*

Equipment Type	Statistics (components per unit)						Top 5%	Units Measured	Units Screened
	Count	Min	Lower	Mean	Upper	Max			
AGRU	7	0	0	0.571	3	3	-	8	8
Compressor	283	0	0	0.622	6	15	0.589	429	459
Dehydrator	63	0	0	0.46	3	4	0.355	119	126
Separator	182	0	0	0.225	2	3	0.417	310	320
Tank	54	0	0	0.278	3	3	0.54	150	176
YardPiping	42	0	0	0.881	6.7	10	0.386	43	43

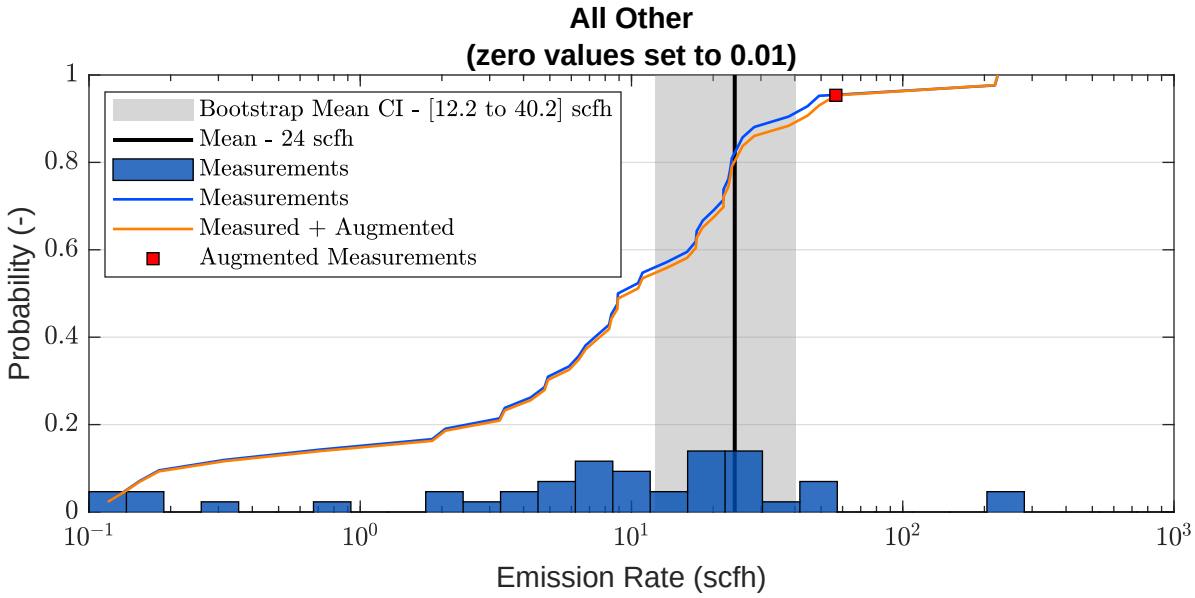

Figure B20: All Other

Table B39: Leaker Emission Factor for All Other

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	42	1	0.0287×10^{-3}	12.2	24	40.2	322	0.436
CH4	42	1	0.0263×10^{-3}	10.2	20.6	34.9	311	0.463

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	42	977 [867 to 1.11×10^3]	95% [93% to 96%]
Cannot Measure	2		
Inaccessible	4		
Incomplete Capture	1	56.7 [44.5 to 75.2]	5.5% [4.2% to 7.3%]
Other	9		
Safety	3		
Total		1.03×10^3 [922 to 1.17×10^3]	

No activity data. Opportunistic measurements only.

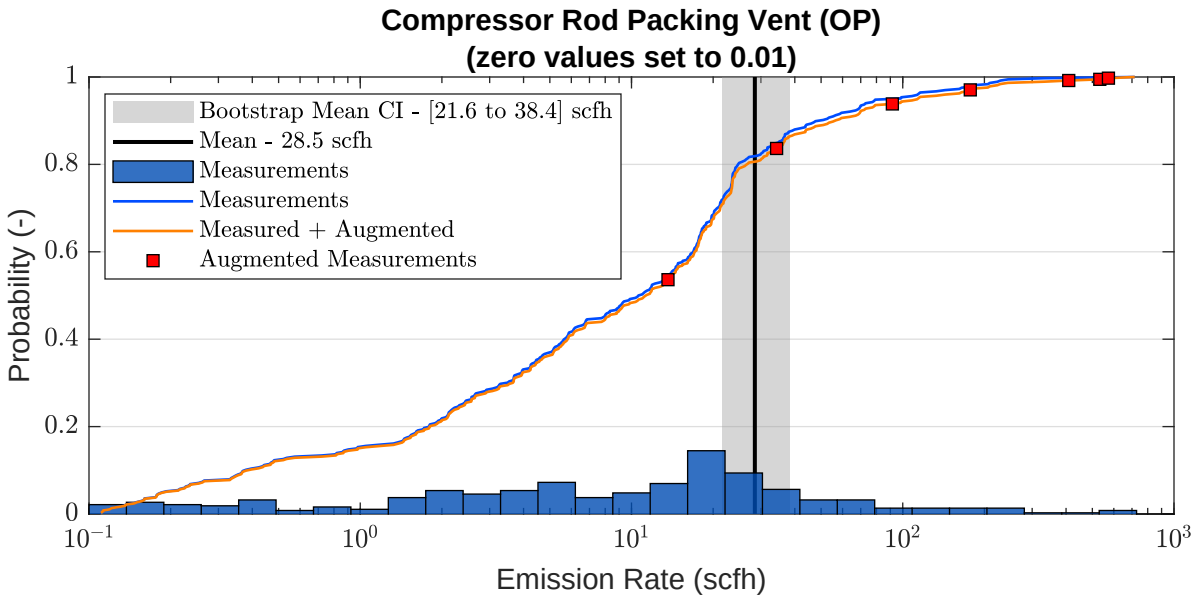

Figure B21: Compressor Rod Packing Vent (OP)

Table B40: Leaker Emission Factor for Compressor Rod Packing Vent (OP)

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	366	7	0.00742×10^{-3}	21.6	28.5	38.4	35.9×10^{3}	0.47
CH4	366	7	0.00472×10^{-3}	18.5	24.9	33.6	22.7×10^{3}	0.495

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	366	8.82×10^{3} [8.52×10^{3} to 9.13×10^{3}]	83% [67% to 90%]
Cannot Measure	27		
Exceeded Capacity	1		
Inaccessible	16		
Incomplete Capture	7	1.83×10^{3} [958 to 4.4×10^{3}]	17% [9.8% to 33%]
Other	11		
Safety	5		
Weather	1		
Total		10.7×10^{3} [9.69×10^{3} to 13.3×10^{3}]	

Table B41: Count of Screened and Measured Equipment for *Compressor Rod Packing Vent (OP)*

Equipment Type	Measured	Screened
Compressor	435	465

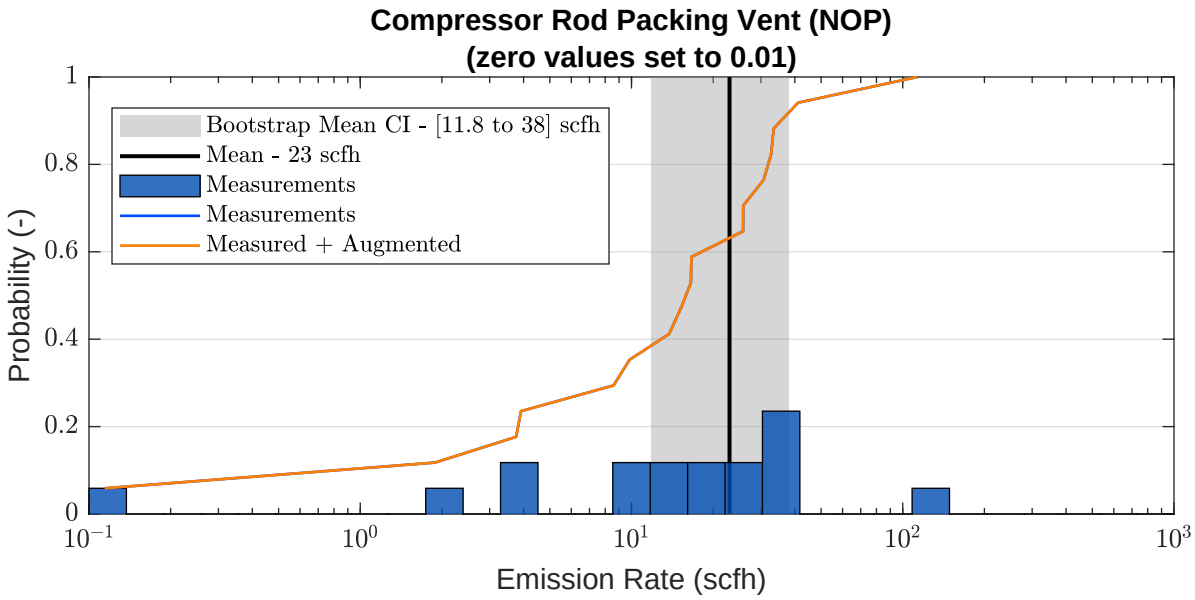

Figure B22: Compressor Rod Packing Vent (NOP)

Table B42: Leaker Emission Factor for Compressor Rod Packing Vent (NOP)

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	17	0	0.000106	11.8	23	38	139	N/A
CH4	17	0	0.000319	10.1	20.1	34	120	N/A

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	17	393 [302 to 492]	100% [100% to 100%]
Cannot Measure	5		
Other	2		
Total		393 [302 to 492]	

Table B43: Count of Screened and Measured Equipment for *Compressor Rod Packing Vent (NOP)*

Equipment Type	Measured	Screened
Compressor	435	465

B.3 Other Leak Measurement Data for Components

This section includes a detailed overview of component categories with too few measurements to develop robust emission factors.

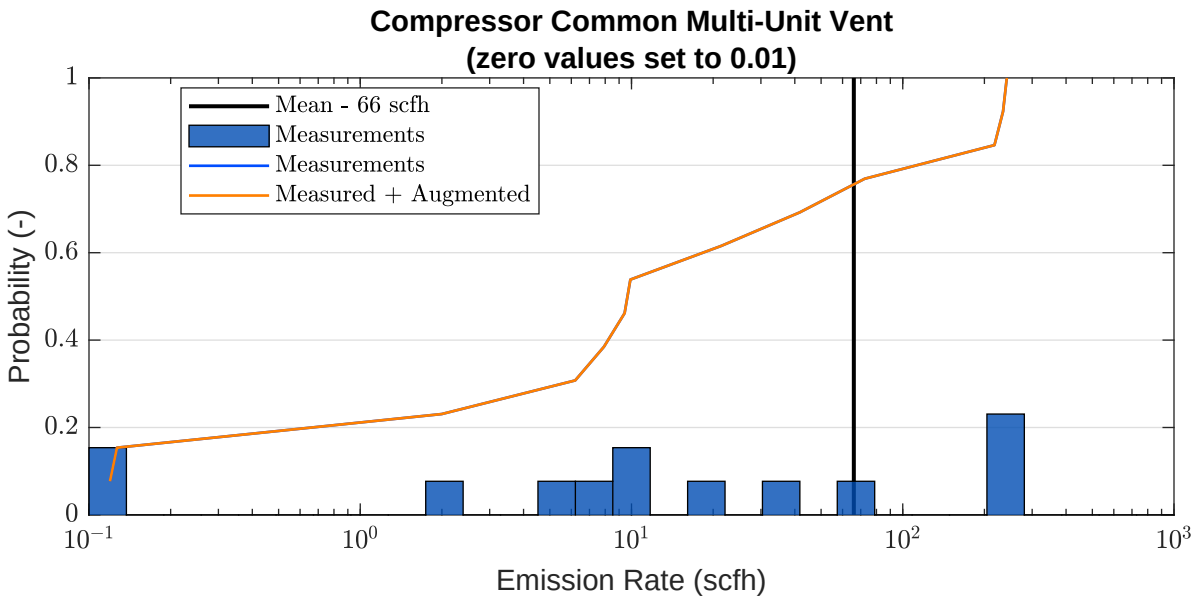

Figure B23: Compressor Common Multi-Unit Vent

Table B44: Leak Data for Compressor Common Multi-Unit Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	13	0	0.0127×10^{-3}	19.3	66	123	338	N/A
CH4	13	0	0.0109×10^{-3}	17.6	57.3	106	289	N/A

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	13	865 [728 to 1.02×10^3]	100% [100% to 100%]
Exceeded Capacity	2		
Inaccessible	2		
Other	2		
Total		865 [728 to 1.02×10^3]	

Table B45: Count of Screened and Measured Equipment for *Compressor Common Multi-Unit Vent*

Equipment Type	Measured	Screened
Compressor	435	465

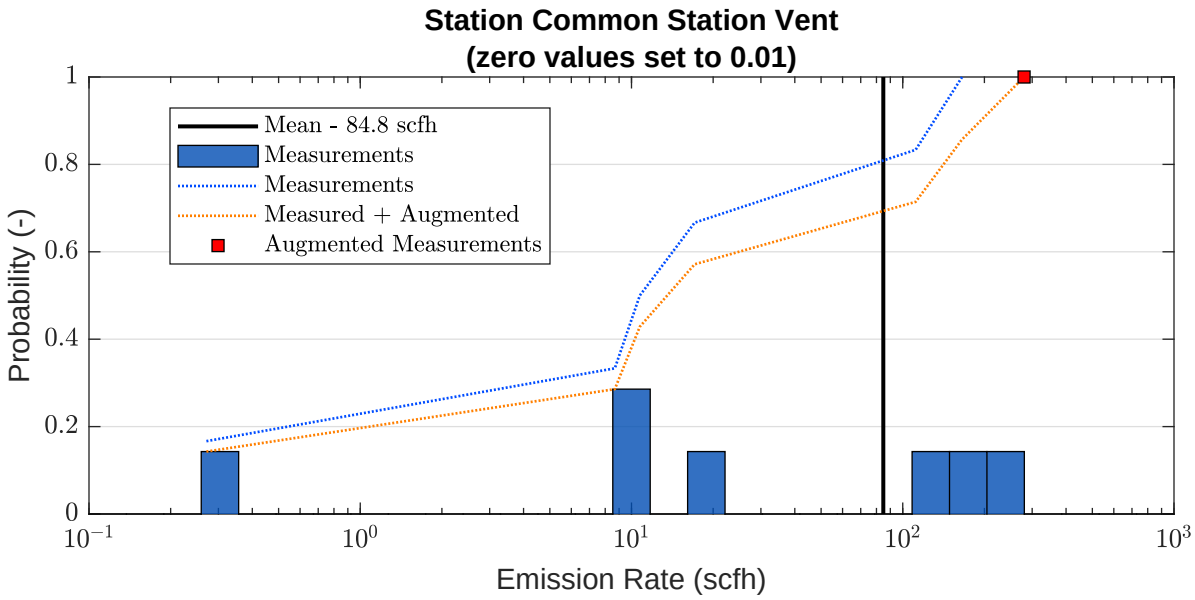

Figure B24: Station Common Station Vent

Table B46: Leak Data for Station Common Station Vent

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	6	1	0.0139×10^{-3}	13.3	84.8	183	1.07×10^{3}	N/A
CH4	6	1	0.0533×10^{-3}	13.7	75.2	159	948	N/A

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	6	314 [172 to 468]	53% [29% to 72%]
Exceeded Capacity	2		
Inaccessible	1		
Incomplete Capture	1	280 [147 to 614]	47% [28% to 71%]
Other	2		
Total		594 [350 to 969]	

Table B47: Count of Screened and Measured Equipment for *Station Common Station Vent*

Equipment Type	Measured	Screened
YardPiping	157	162

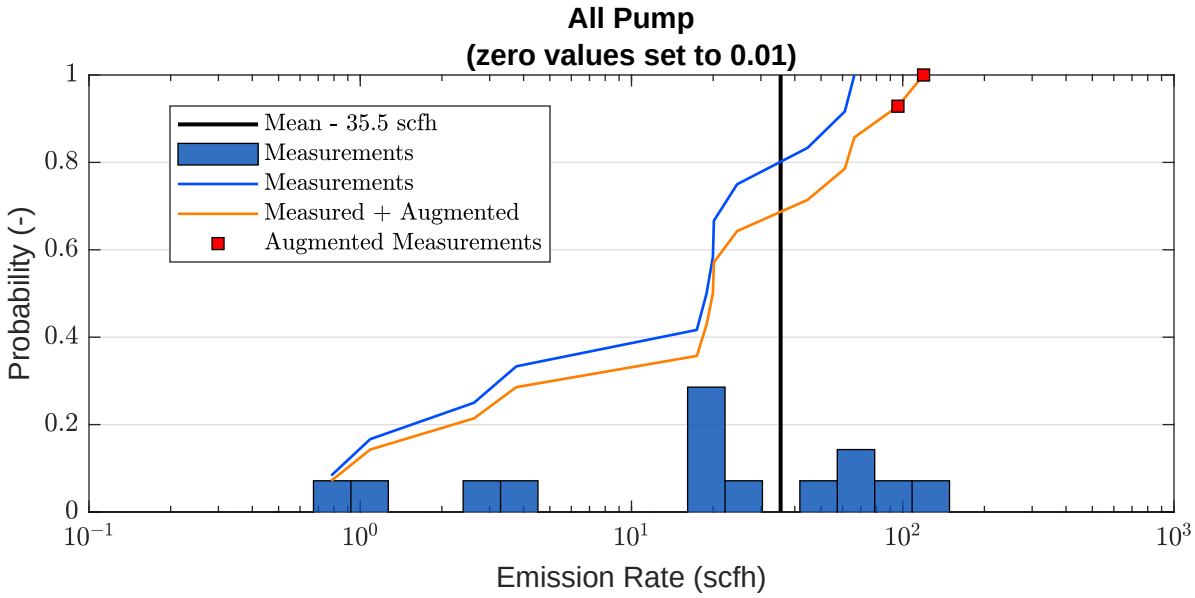

Figure B25: All Pump

Table B48: Leak Data for All Pump

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	12	2	0.721	16.7	35.5	61.9	743	N/A
CH4	12	2	0.539	11.7	26.8	47.9	640	N/A

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	12	281 [252 to 325]	58% [40% to 75%]
Incomplete Capture	2	215 [95.3 to 426]	42% [25% to 60%]
Other	1		
Total		497 [368 to 717]	

No activity data. Opportunistic measurements only.

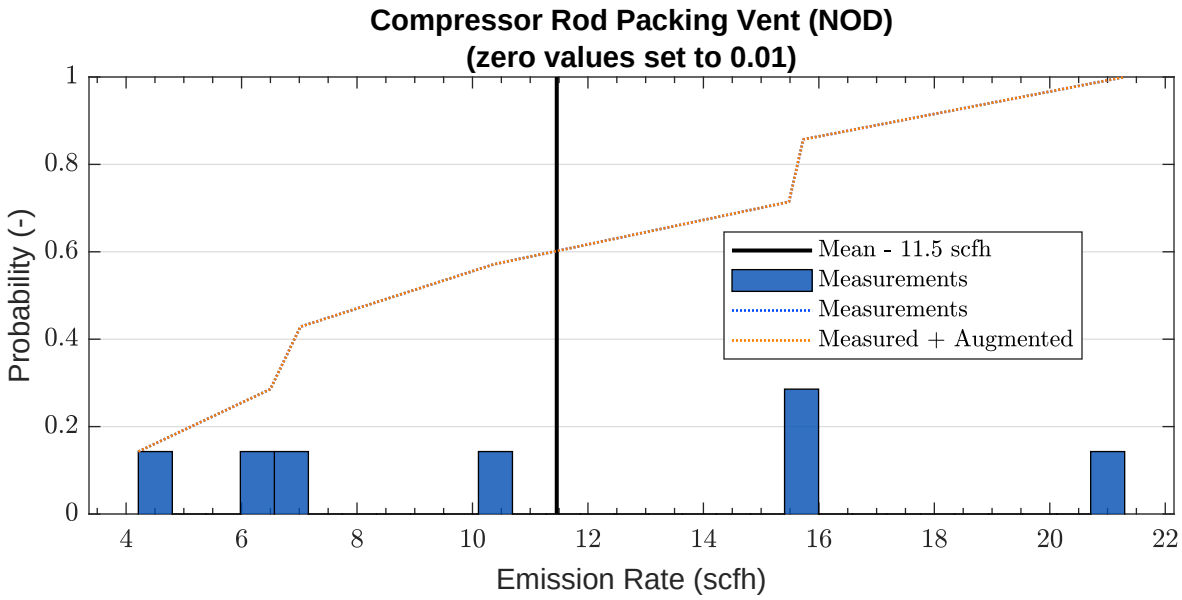

Figure B26: Compressor Rod Packing Vent (NOD)

Table B49: Leak Data for Compressor Rod Packing Vent (NOD)

Gas Type	Data		Statistics (scfh)					Fraction of Emissions Due to Largest 5% of Emitters
	Measured Count	Simulated Count	Min	Lower	Mean	Upper	Max	
WholeGas	7	0	2.53	7.17	11.5	16.3	28.7	N/A
CH4	7	0	2.26	5.7	9.27	13	20.8	N/A

Unmeasured Sources and Corrections

ID	Count	Total Emissions (scfh)	Fraction of Total
Measured	7	80.6 [68.5 to 92]	100% [100% to 100%]
Inaccessible	1		
Total		80.6 [68.5 to 92]	

Table B50: Count of Screened and Measured Equipment for *Compressor Rod Packing Vent (NOD)*

Equipment Type	Measured	Screened
Compressor	435	465

References

[1] N. R. Draper and H. Smith, "Resampling Procedures (Bootstrapping)," in *Applied Regression Analysis*, pp. 585–591, John Wiley & Sons, Ltd, 2014.