Refrigerant Tracking Scenarios

Leak Rate Calculation Methods:

Annualizing method

EPA defines the annualizing leak rate calculation method as follows:

$$\text{Leak Rate (\% per year)} = \frac{\text{pounds of refrigerant added}}{\text{pounds of refrigerant in full charge}} \times \frac{365 \text{ days/year}}{\text{shorter of \#days since refrigerant last added or 365 days}} \times 100\%$$

If the owner/operator chooses to use the annualizing method, for the first refrigerant addition in calendar year 2019 the second term would be 365/365 (or "1"). For subsequent additions the second term would be 365 divided by the shorter of the number of days since refrigerant was last added or 365.

Rolling Average method

EPA defines the annualizing leak rate calculation method as follows:

$$\text{Leak Rate (\% per year)} = \frac{\text{pounds of refrigerant added over past 365 days}^{\dagger}}{\text{pounds of refrigerant in full charge}} \times 100\%$$

† Or since the last successful follow-up verification test showing all identified leaks were repaired, if that period is less than one year.

If the owner/operator chooses to use the rolling average method, for refrigerant additions in calendar year 2019 the numerator would be the pounds of refrigerant added since the shorter of January 1, 2019 or the last successful follow-up verification test, if one was conducted in 2019. For additions in 2020 and beyond the numerator would be the pounds of refrigerant added since the shorter of 365 days or the last successful follow-up verification test.

Annualized calculation example:

Date of Service	Service_Call_ID	Equipment_ID	Ref. Equipment Type	Max Leak Rate (%)	Optimal Charge	Leak Found	Leak Fixed	Follow-up Leak Date	New Added	Leak Rate (%)	Exceeded
20 Dec 2018	181220-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	Yes	20 Dec 2018	1	0%	No
	Notes: **Service date did not fall in the 2019 calendar year**										
05 Jan 2019	190105-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	Yes	11 Jan 2019	150	**27.27%**	**Yes**
	Notes: (150/550) * (365/365) * 100% = 27.27%										
01 Apr 2019	190401-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	No	No		0	0%	No
	Notes: no leak found, nothing added										
01 Jul 2019	190701-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	No		2	0.75%	No
	Notes: (2/550) * (365/**177**) * 100% = 0.75% **177** = # of days since last added										

11 Oct 2019	191011-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	Yes	21 Oct 2019	34	**22.12%**	**Yes**
	Notes: (34/550) * (365/**102**) * 100% = 22.12% **102** = # of days since last added										

Rolling Average calculation example:

Date of Service	Service_Call_ID	Equipment_ID	Ref. Equipment Type	Max Leak Rate (%)	Optimal Charge	Leak Found	Leak Fixed	Follow-up Leak Date	New Added	Leak Rate (%)	Exceeded
20 Dec 2018	181220-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	Yes	20 Dec 2018	1	0%	No
	Notes: **Service date did not fall in the 2019 calendar year**										
05 Jan 2019	190105-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	Yes	11 Jan 2019	150	**27.27%**	**Yes**
	Notes: (150/550) * 100% = 27.27%										
01 Apr 2019	190401-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	No	No		0	0%	No
	Notes: (**0**/550) * 100% = 0% **0** lbs were added since last documented repair on 11 Jan 2019 (Follow-up Leak Date)										
01 Jul 2019	190701-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	No		2	0.36%	No
	Notes: (**2**/550) * 100% = 0.36% **2** lbs were added since last documented repair on 11 Jan 2019 (Follow-up Leak Date)										
11 Oct 2019	191011-0001	0000000001	Commercial Refrigeration > 500 pounds	20%	550	Yes	Yes	21 Oct 2019	34	**6.55%**	**No**
	Notes: (36/550) * 100% = 6.55% 2+34 lbs were added since last documented repair on 11 Jan 2019 (Follow-up Leak Date)										