Note: This material is related to a section in *AP42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the file number, the AP42 chapter and then the section. The file name "rel01_c01s02.pdf" would mean the file relates to AP42 chapter 1 section 2. The document may be out of date and related to a previous version of the section. The document has been saved for archival and historical purposes. The primary source should always be checked. If current related information is available, it will be posted on the AP42 webpage with the current version of the section.

AP42 Section:	7.1
Related	6
Title:	Written communication from Robert Russell to Richard K. Burr, US EPA. Detailed calculations of the K_s and *n* values which appear in the draft copy of API Bulletin 2517 November 28, 1979

11/28/79

Mr. Richard K. Burr
Environmental Protection Agency
Research Triangle Park
North Carolina, 27711

Dear Dick:

Per our phone conversation of today I am enclosing copies of the detailed calculations of the K_s and n values which appear in the draft copy of API Bulletin 2517. As noted in the draft copy, Appendix A, we used a slightly different wind speed calibration for the CBI pilot tank. Therefore I have also enclosed copies of the relevant CBI test data summary sheets which have the API wind speeds recorded in the final column.

In all of our calculations following the determination of S and n for a particular test set we carried 4 figures beyond the decimal point to reduce roundoff errors. The K_s and n values in Table 1 and Table B1 of the draft are

obtained by rounding the numbers in the enclosed Tables 1-4 to the nearest 0.1 units. Given the nature of the data and the calculations we do not believe we can justify numbers more precise than 0.1 units.

In Tables 1-4 the K_s and n values for "tight" seals (Table B1 in API 2517) are in the first line for each case. The K_s and n values for "average" seals (Table 1 in API 2517) follow the symbol ":" in the right hand side of the Tables. These values were obtained by weighting all relevant tests by the expected percent of time that certain seal gap ranges are expected to occur in field tanks (based on the CARB data which you supplied to us). Because of the nature of this data, and the fact that the pilot tank data did not necessarily cover exactly the range of interest, we chose to cover gap ranges of 0; $>0 \leq 5$; $>5 \leq 10$; $>10 \leq 15$ $in^2/(ft$ of tank diameter), as appropriate

for the seal(s) in question, and to round the percent of time to the nearest 5%. The percent of time was determined from the plot of "Cumulative percent of tank inspection" versus "Gap area (in^2/ft Ø)", Figures 5-15.

Figures 1-4 are plots of emission versus wind speed for each case, based on the calculated results. These plots have not been completed and are therefore not enclosed.

If you have any questions feel free to give me a call.

Very truly yours,
Robert L. Russell

CC: K. M. Hanzevack, Exxon
R. E. Hills, Pittsburgh-Des Moines Steel
R. J. Saveman, Chicago Bridge & Iron
J. G. Zabaga, Mobil

Table 1: Calculation of "Average" Seal Condition Emissions

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lbs/yr

Welded Tank With Mechanical Shoe Primary

Case	CBI Emission Tests Number(s)	Gap Area (in²/ft ∅) Primary	Gap Area (in²/ft ∅) Secondary	Percent of Tank Inspections	No. of Points	S^b	n^b	R^2 (K_s)^b	Emissions at Wind Speed (mph) = c: 5	Emissions at Wind Speed (mph) = c: 15	Emission Contribution at Wind Speed (mph) = d: 5	Emission Contribution at Wind Speed (mph) = d: 15
1a	W1, W2, W3, W4, W5	0	—	10	47	0.2095	1.6427	0.7777 (0.8389)	2.9470	17.9122 (11.3 [illegible])	0.2947	1.7912
	W3, W4, W5	1.7 or 3.8	—	80	10	.1973	1.5942	.9704	2.5670	14.7928	2.0536	11.8343
	W6 (use)	9.4	—	10	5	1.5921	1.1088	.9845	9.4839	32.0642	0.9484	3.2064
									Total Emissions		3.2967	16.8319
								∴ e	n = 1.4840	S = 0.3026	K_s = 1.2102	
	SRI-100 CBI WINTER											
1b	C2	0	0	75	6	0.1990	1.1485	0.9874 (0.7960)	1.2636	4.4627	0.9477	3.3470
	C1	0	0.4	25	5	.2160	1.3371	.9518	1.8580	8.0725	.4645	2.0181
									Total Emissions		1.4122	5.3652
								∴ e	n = 1.2150	S = 0.1998	K_s = 0.7993	
1c	f	0, 1.7, 3.8	0	75	—	0.04929	0.9264	— (0.1971)	0.2189	0.6057	0.1642	0.4543
	g	1.7 or 3.8	1.3	25	—	.03920	1.2107	—	.2751	1.0404	.06878	.2601
									Total Emissions		0.2330	0.7144
								∴ e	n = 1.0198	S = 0.04514	K_s = 0.1806	
	W6 - SRI-Y MAY-10											
	W6 SRI-Y MAY-Y											

a. Determined from Figure 5 (Case 1a); Figure 6 (Case 1b); Figure 7 (Case 1c).
b. From regression of log(E) versus log(V) for the indicated test number(s); i.e. $E = SV^n$; (K_s) for "tight" seal only
c. Calculated emissions for the indicated tests at 5 and 15 mph using $E = SV^n$.
d. Calculated emission contribution = (Emissions at Wind Speed (V)) times (Percent of Tank Inspections).
e. $n = [\log(E_{V=15}/E_{V=5})]/[\log(15/5)]$, $S = E_{V=15}/15^n$, $K_s = 4S$, where E is total emissions.

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Table 1: Footnotes, Continued

Footnote	CBI Emission Test(s) Number(s)	Gap Area (in²/ft Ø) Primary	Gap Area (in²/ft Ø) Secondary	Number of Points	S	n	R^2	Emissions at Wind Speed (mph) = 5	Emissions at Wind Speed (mph) = 15
(f) For 0 in²/(ft of Ø) secondary seal over 0, 1.7 or 3.8 in²/(ft of Ø) take delta between W7 and W6 and apply it to W1, W1A, W2, V3, W4, W12, W22, W27, W13, W17, W3, W4, W5.									
1°(g) min(g)	W7	9.4	0	5	0.3776	0.4023	0.9314	0.7215	1.1225
1°(g)	W6	9.4	—	5	1.5921	1.1088	.9845	9.4839	32.0642
	W1, W1A, W2, V3, W4, W12, W22, W27, W13, W17, W3, W4, W5	0, 1.7, 3.8	—	57	.2079	1.6327	.7899	2.8778	17.3005
∴ $E_5 = (0.7215/9.4839)2.8778 = 0.2189$; $E_{15} = (1.1225/32.0642)17.3005 = 0.6057$ ∴ $n = 0.4264$ $S = 0.04927$									
(g) For 1.3 in²/(ft of Ø) secondary seal over 1.7 or 3.8 in²/(ft of Ø) primary take delta between W8 and W6 and apply it to W3, W4, W5									
1°(g) min(g)	W8	9.4	1.3	6	0.3162	0.7254	0.9104	1.0162	2.2548
1°(g)	W6	9.4	—	5	1.5921	1.1088	.9845	9.4839	32.0642
	W3, W4, W5	1.7, 3.8	—	10	.1973	1.5942	.9704	2.5670	14.7928
∴ $E_5 = (1.0162/9.4839)2.5670 = 0.2751$; $E_{15} = (2.2548/32.0642)14.7928 = 1.0403$ ∴ $n = 1.2107$ $S = 0.03920$									

Table 2: Calculation of "Average" Seal Condition Emissions

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Welded Tank With Liquid-Mounted, Resilient Filled Seal

Case	CBI Emission Tests Number(s)	Gap Area (in²/ft ⌀) Primary	Gap Area (in²/ft ⌀) Secondary	Percent of Tank Inspections	No. of Points	S^b	n^b	$\Pi^2 (K_s)^b$	Emissions at Wind Speed (mph) = c: 5	Emissions at Wind Speed (mph) = c: 15	Emission Contribution at Wind Speed (mph) = d: 5	Emission Contribution at Wind Speed (mph) = d: 15
2a	C29	0	—	65	7	0.1174	1.1301	0.9499 (0.4616)	0.7237	2.5048	0.4704	1.6281
	C30, C36, C38	1.3 or 2.6	—	35	22	.5598	0.5930	.6475	2.3562	6.2847	.8247	2.1996
									Total Emissions		1.2951	3.8277
								∴ e	n = 0.9864	S = 0.2648	K_s = 1.0590	
2b	f	0 or 1.3	0	65	—	0.1243	0.9743	— (0.4970)	0.5963	1.7391	0.3876	1.1304
	g	1.3 or 2.6	>0 ≤ 5	35	—	.3376	.8123	—	1.2479	3.0461	.4368	1.0661
									Total Emissions		0.8244	2.1965
								∴ e	n = 0.8920	S = 0.1962	K_s = 0.7847	
2c	h	0 or 1.3	0	75	—	0.1250	0.4562	— (0.5000)	0.2605	0.4300	0.1954	0.3225
	i	1.3 or 2.6	>0 ≤ 5	25	—	.3398	.2940	—	.5454	.7533	.1364	.1883
									Total Emissions		0.3318	0.5108
								∴ e	n = 0.3927	S = 0.1764	K_s = 0.7054	

a. Determined from Figure 8 (Case 2a); Figure 9 (Case 2b); Figure 10 (Case 2c).
b. From regression of log(E) versus log(V) for the indicated test number(s); i.e. $E = S V^n$; (K_s) for "tight" seals only.
c. Calculated emissions for the indicated tests at 5 and 15 mph using $E = S V^n$.
d. Calculated emission contribution = (Emissions at Wind Speed (V)) times (Percent of Tank Inspections).
e. $n = [\log(E_{V=15}/E_{V=5})]/[\log(15/5)]$, $S = E_{V=15}/15^n$, $K_s = 4S$, where E is total emissions.
f, g, h, i. On next page

Table 2: Footnotes, Continued

Footnote	CBI Emission Test(s) Number(s)	Gap Area (in²/ft Ø) Primary	Gap Area (in²/ft Ø) Secondary	Number of Points	S	n	R^2	Emissions at Wind Speed (mph) = 5	Emissions at Wind Speed (mph) = 15
f	For Weathershield with 0 (in² of gap/ft of Ø) over a primary with 0 → 1.3 (in² of gap/ft of Ø) take delta between C35 and C36, C38 and apply it to C29, C30.								
	C35	2.6		8	0.3509	0.9265	0.9529	1.5588	4.3135
	C36, C38	2.6	—	13	.5819	1.0072	.9593	2.9434	8.9004
	C29, C30	0 or 1.3	—	16	.2060	1.0551	.6372	1.1255	3.5872
	∴ $E_5 = (1.5588/2.9434)1.1255 = 0.5961$ and $E_{15} = (4.3135/8.9004)3.5872 = 1.7385$ ∴ $n = 0.9743$, $S = 0.1243$, $K_5 = 0.4970$								
g	For Weathershield with (>0 ≤ 5) (in² of gap/ft of Ø) over a primary with (1.3 → 2.6) (in² of gap/ft of Ø) take delta between C35 and C36, C38 and apply it to C30, C36, C38.								
	C30, C36, C38	1.3 or 2.6	—	22	0.5598	0.8930	0.6475	2.3562	6.2847
	∴ $E_5 = (1.5588/2.9434)2.3562 = 1.2478$ and $E_{15} = (4.3135/8.9004)6.2847 = 3.0458$ ∴ $n = 0.8123$, $S = 0.3376$								
h	For Secondary with 0 (in² of gap/ft of Ø) over a primary with 0 → 1.3 (in² of gap/ft of Ø) take delta between C31 and C36, C38 and apply it to C29, C30.								
	C31	2.6	0	7	0.3532	0.4082	0.8796	0.6813	1.0668
	∴ $E_5 = (0.6813/2.9434)1.1255 = 0.2605$ and $E_{15} = (1.0668/8.9004)3.5872 = 0.4300$ ∴ $n = 0.4562$, $S = 0.1250$, $K_5 = 0.5000$								
i	For Secondary with (>0 ≤ 5) (in² of gap/ft of Ø) over a primary with (1.3 → 2.6) (in² of gap/ft of Ø) take delta between C31 and C36, C38 and apply it to C30, C36, C38.								
	∴ $E_5 = (0.6813/2.9434)2.3562 = 0.5456$ and $E_{15} = (1.0668/8.9004)6.2847 = 0.7533$ ∴ $n = 0.2940$, $S = 0.3398$								

Table 3: Calculation of "Average" Seal Condition Emissions

Welded Tank With Vapor-Mounted Resilient-Filled Seal

Case	CBI Emission Tests: Number(s)	Gap Area (in²/ft ⌀): Primary	Gap Area (in²/ft ⌀): Secondary	Percent of Tank Inspections	No. of Points	S^b	n^b	$\beta^2(K_s)^b$	Emissions at Wind Speed (mph) = c: 5	Emissions at Wind Speed (mph) = c: 15	Emission Contribution at Wind Speed (mph) = d: 5	Emission Contribution at Wind Speed (mph) = d: 15
3a	13,15,16,17,19, 20,21,22,25,31	0	—	65	66	0.2491	1.7282	0.9317 (0.9964)	4.0210	26.8469	2.6137	17.4505
	23	1	—	35	13	.5296	2.3888	.9239	24.7541	341.5032	8.6634	119.5261
									Total Emissions		11.2776	136.9766
								∴e	n=2.2729	S=0.2907	K_s=1.1630	
3b	f	"tight" case		—	—	—	—	—	n=1.5724 (3.3139)	S=0.2638 (18.6499)	K_s=1.0550	
	g	"Average" case		—	—	—	—	—	n=2.1785	S=0.2155	K_s=0.8619	
											7.1805	78.6253
3c	29,32,33,34A	0 or 1	0	75	20	0.08752	1.5326	0.8021 (0.3501)	1.0312	5.5537	0.7734	4.1653
	30A,30B,34B	1	1	25	16	.003493	4.2171	.9010	3.0962	318.3413	.7740	79.5853
									Total Emissions		1.5474	83.7506
								∴e	n=3.6330	S=0.004469	K_s=0.01788 h	

h. These values give a line which crosses the "tight" rim-mounted secondary at ~4 mph (See Figure 3A). To avoid this unreasonable crossing the calculated curve is rotated around the calculated emissions at 8.5 mph so as to intersect the "tight" rim-mounted secondary curve at 2 mph, i.e. $E_{8.5}=0.004469(8.5)^{3.6330}=10.6363$ and $E_2=0.08752(2)^{1.5326}=0.2532$. ∴ $n=2.5833$, $S=0.04225$, $K_s=0.1690$.

a. Determined from Figure 11 (Case 3a); Figure 12 (Case 3c).
b. From regression of log(E) versus log(V) for the indicated test number(s); i.e. $E=SV^n$; (K_s) for "tight" seals only.
c. Calculated emissions for the indicated tests at 5 and 15 mph using $E=SV^n$.
d. Calculated emission contribution = (Emissions at Wind Speed (V)) times (Percent of Tank Inspections).
e. $n=[\log(E_{V=15}/E_{V=5})]/[\log(15/5)]$, $S=E_{V=15}/15^n$, $K_s=4S$, where E is total emissions.
f,g On next page.

Table 3: Footnotes (Continued)

f, g. Because no experiments were done with a weathershield over a vapor-mounted seal it is assumed that the efficiency observed for the weathershield over a liquid-mounted seal applies. Therefore for a "tight" case apply the delta between Case 2b ("tight") and Case 2a ("tight") to Case 3a ("tight"); and for an "average" case apply the delta between Case 2b ("average") and Case 2a ("average") to Case 3a ("average"). i.e.

From Table 2: $E_5^{2bt} = 0.5963$ (Note: subscript indicates wind speed in mph; superscript indicates case number (2b) and whether it is for a "tight" (t) or "average" (a) seal. $E_{15}^{2bt} = 1.7391$; $E_5^{2at} = 0.7237$; $E_{15}^{2at} = 2.5048$; $E_5^{2ba} = 0.8244$; $E_{15}^{2ba} = 2.1965$; $E_5^{2aa} = 1.2951$; $E_{15}^{2aa} = 3.8277$

and From Table 3: $E_5^{3at} = 4.0210$; $E_{15}^{3at} = 26.8469$; $E_5^{3aa} = 11.2776$; $E_{15}^{3aa} = 136.9766$. Therefore $E_5^{3bt} = (0.5963/0.7237)\,4.0210 = 3.3131$; $E_{15}^{3bt} = (1.7391/2.5048)\,26.8469 = 18.6400$; $E_5^{3ba} = (0.8244/1.2951)\,11.2776 = 7.1788$; and $E_{15}^{3ba} = (2.1965/3.8277)\,136.9766 = 78.6031$.

$\therefore$ for "tight" case: $n = [\log(18.6400/3.3131)]/\log(3) = 1.5724$;

$S = (18.6400)/15^{1.5724} = 0.2638$; and $K_S = 1.0550$.

$\therefore$ for "average" case: $n = [\log(78.6031/7.1788)]/\log(3) = 2.1785$;

$S = (78.6031)/15^{2.1785} = 0.2155$; and $K_S = 0.8619$

Table 4: Calculation of "Average" Seal Condition Emissions

Riveted Tank With Mechanical Shoe Primary

Case	CBI Emission Tests: Number(s)	Gap Area (in²/ft ⌀): Primary	Gap Area (in²/ft ⌀): Secondary	Percent of Tank Inspections	No. of Point Sets	S^b	n^b	R^2 [b]	Emissions at Wind Speed (mph) = [c]: 5	Emissions at Wind Speed (mph) = [c]: 15	Emission Contribution at Wind Speed (mph) = [d]: 5	Emission Contribution at Wind Speed (mph) = [d]: 15
4a	W1, W1R, W2, V3, W11, W12, W22, W27, W17, W19	0	—	5	47	0.2095	1.6427	0.7777	2.9470	17.9122	0.1474	0.8956
	W3, W4, W5	1.7 or 3.8	—	80	10	.1973	1.5942	.9704	2.5670	14.7928	2.0535	11.8343
	W6	9.4	—	10	5	1.5921	1.1088	.9845	9.4839	32.0642	0.9484	3.2064
	W26	13.3	—	5	5	0.5622	1.2219	.9854	4.0176	15.3800	.2009	0.7690
									Total Emissions		3.3502	16.7053
								∴ [e]	n=1.4625	S=0.3183	K_s=1.2732	
4b	f											
								∴ [e,f]	n=1.2054	S=0.3485	K_s=1.3939	
4c	g	0	0	20	—	0.04929	0.9264	—	0.2189	0.6057	0.0438	.1211
	h		>0≤5	70	—	.03920	1.2107	—	.2751	1.0404	.1926	.7282
	i		>5≤10	10	—	.2108	1.7688	—	3.6325	25.3545	0.3633	2.5360
									Total Emissions		0.5997	3.3853
								∴ [e]	n=1.5754	S=0.04751	K_s=0.1900	

a. Determined from Figure 13 (Case 4a); Figure 14 (Case 4b); Figure 15 (Case 4c).
b. From regression of log(E) versus log(V) for the indicated test number(s); i.e. $E = SV^n$.
c. Calculated emissions for the indicated tests at 5 and 15 mph using $E = SV^n$.
d. Calculated emission contribution = (Emissions at Wind Speed (V)) times (Percent of Tank Inspections).
e. $n = [\log(E_{V=15}/E_{V=5})]/[\log(15/5)]$, $S = E_{V=15}/15^n$, $K_s = 4S$ where E is total emissions.
f, g, h, i. On next page.

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Table 4: Footnotes, Continued

Footnote	CBI Emission Test(s) Number(s)	Gap Area (in²/ft ∅) Primary	Gap Area (in²/ft ∅) Secondary	Number of Points	S	n	R²	Emissions at Wind Speed (mph) = 5	Emissions at Wind Speed (mph) = 15	
f. For > 0 ≤ 10 in²/(ft of ∅) secondary seal over a > 0 ≤ 15 in²/(ft of ∅) primary seal take delta between C1 and W3, W4, W5 and apply it to Case 4a										
	C1	0	0.4	5	0.2160	1.3371	0.9818	1.8580	8.0725	
	W3, W4, W5	1.7 or 3.8	—	10	.1973	1.5942	.9704	2.5670	14.7428	
	Case 4a	—	—	—	.3183	1.4625	—	3.3503	16.7059	
	∴ $E_5 = (1.8580/2.5670)3.3503 = 2.4250$; $E_{15} = (8.0725/14.7428)16.7059 = 9.1165$							∴ n = 1.2054	S = 0.3485	$K_5 = 1.3939$
g. Same as for footnote f for Table 1										
h. Same as for footnote g for Table 1										
i. For > 5 ≤ 10 in²/(ft of ∅) secondary seal over a > 5 ≤ 10 in²/(ft of diam) in primary seal take delta between W24, W25 and W26 and apply it to W6.										
∴	W24, W25	13.3	0.7 or 2.66	16	0.07445	1.8819	0.7798	1.5391	12.1661	
	W26	13.3	—	5	.5622	1.2219	.9854	4.0176	15.3800	
	W6	9.4	—	5	1.5421	1.1088	.9845	9.4839	32.0642	
	∴ $E_5 = (1.5391/4.0176)9.4839 = 3.6332$; $E_{15} = (12.1661/15.3800)32.0642 = 25.3634$									
								∴ n = 1.7688	S = 0.2108	

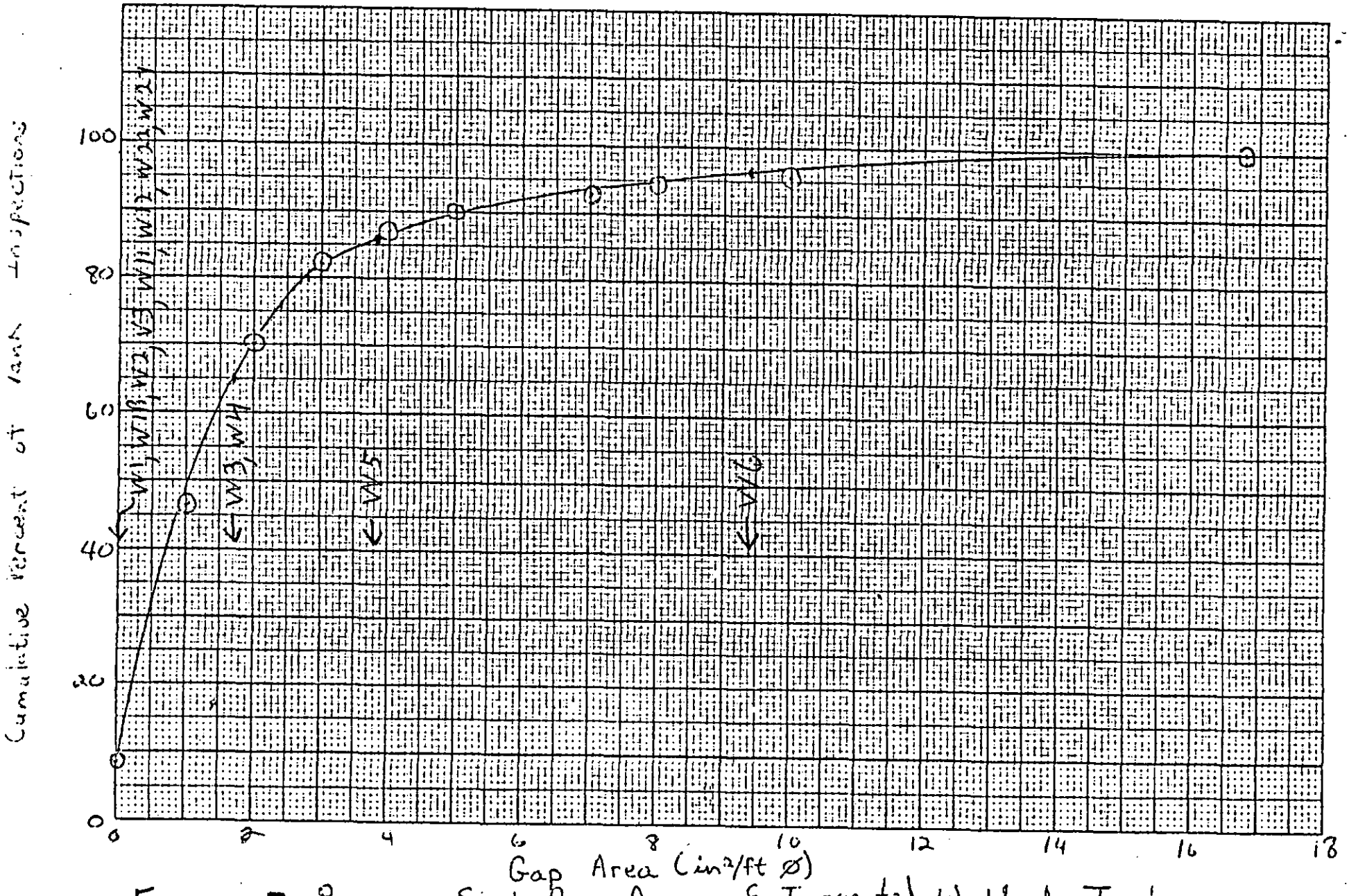

Figure 5: Primary Seal Gap Area of Inspected Welded Tanks With Primary Mechanical Shoe Seals

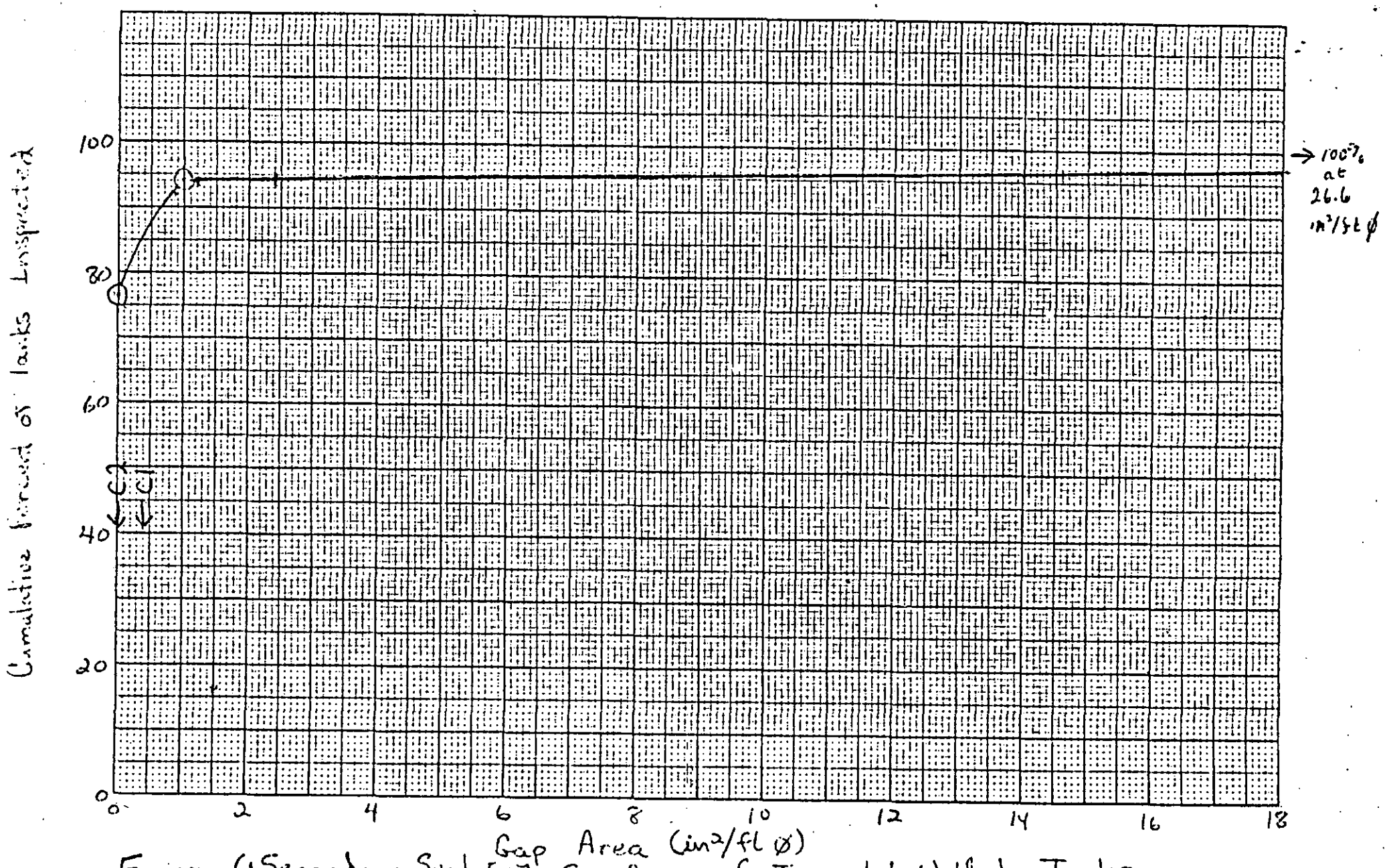

Figure 6: Secondary Seal [2] Gap Area of Inspected Welded Tanks with Primary Mechanical Shoe Seals

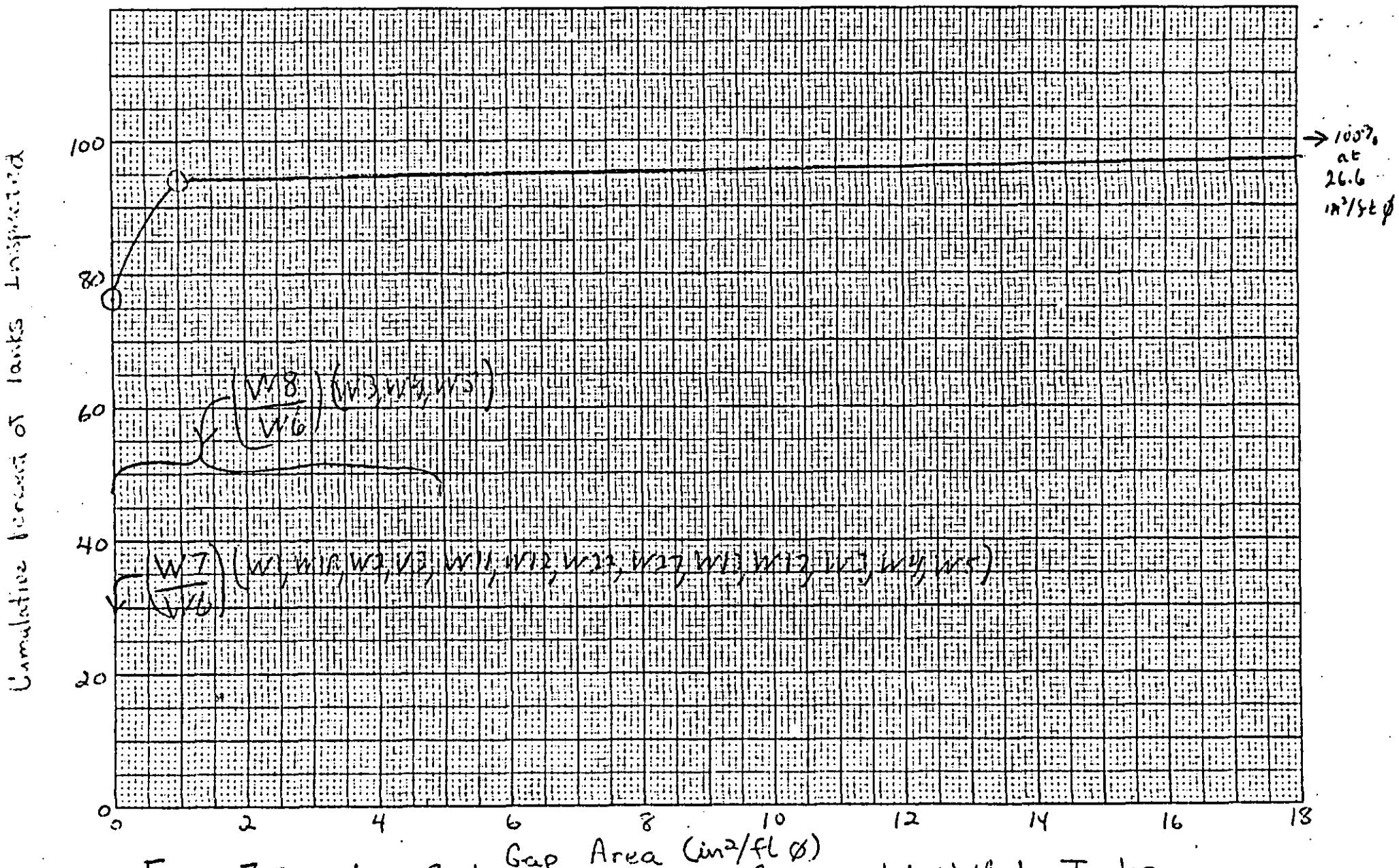

Figure 7: Secondary Seal [2] Gap Area of Inspected Welded Tanks With Primary Mechanical Shoe Seals

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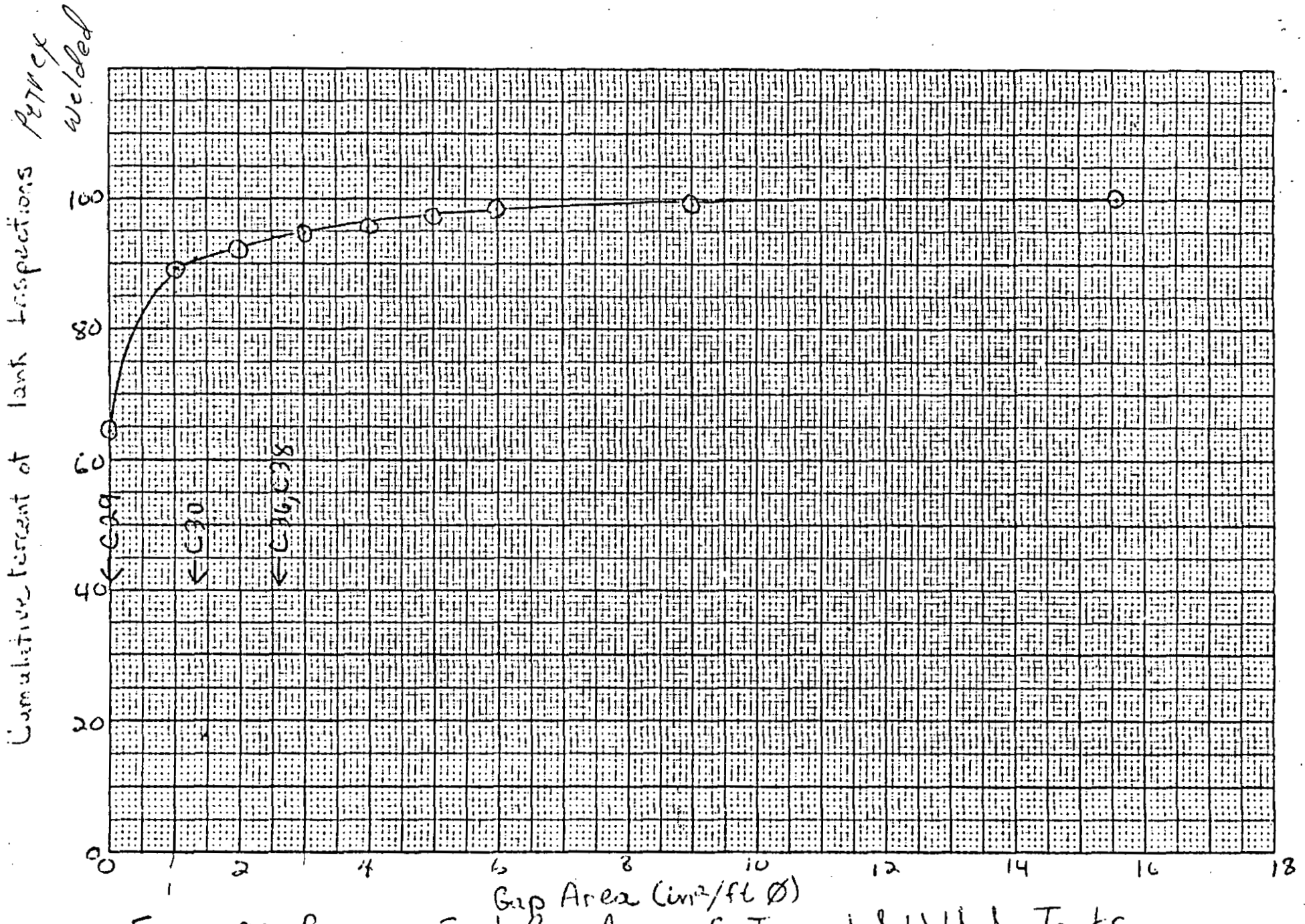

Figure 8: Primary Seal Gap Area of Inspected Welded Tanks With Primary Resilient Filled Seals

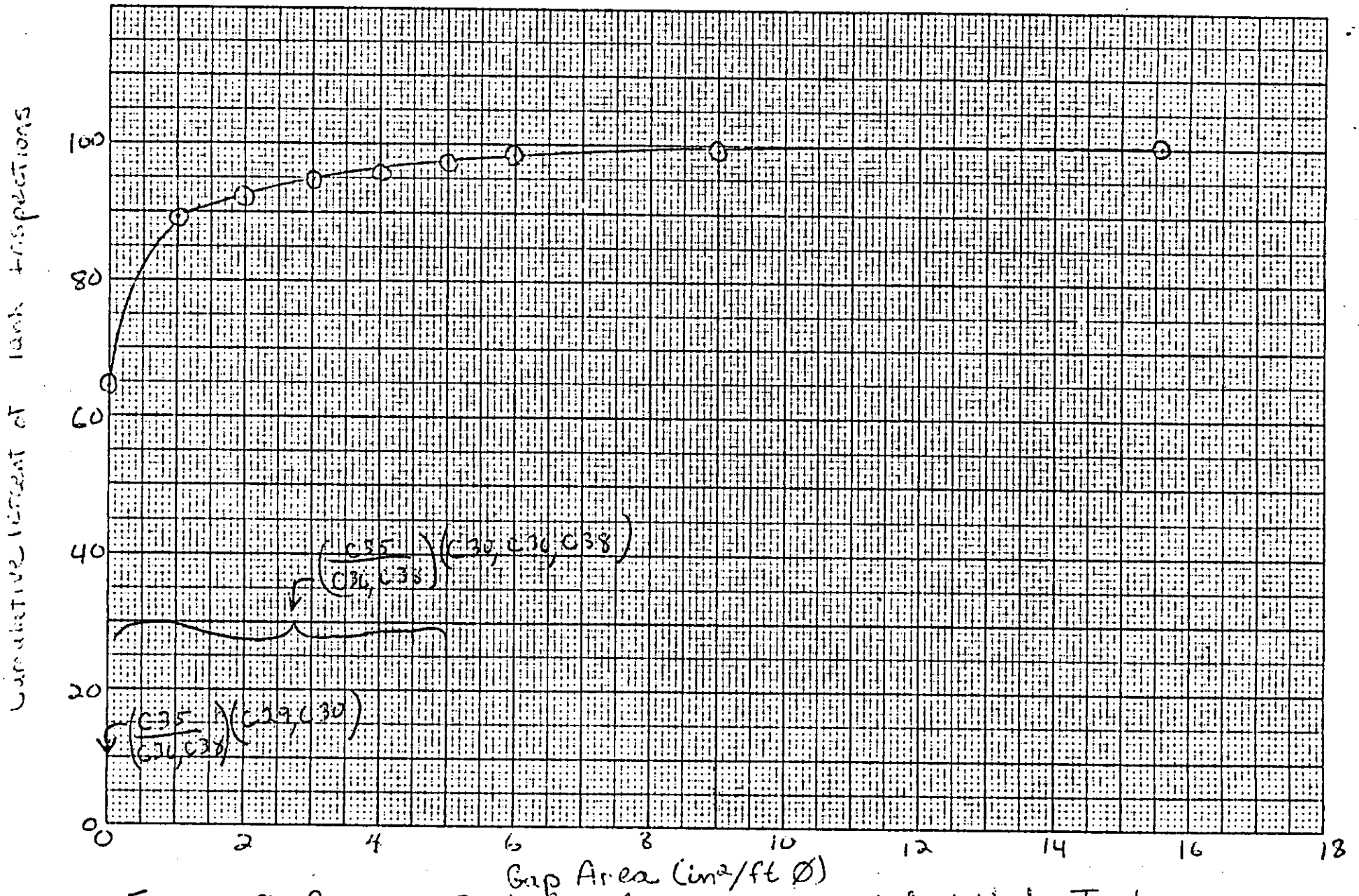

Figure 9: Primary Seal Gap Area of Inspected Welded Tanks With Primary Resilient Filled Seals (Also applies to Weathershield)

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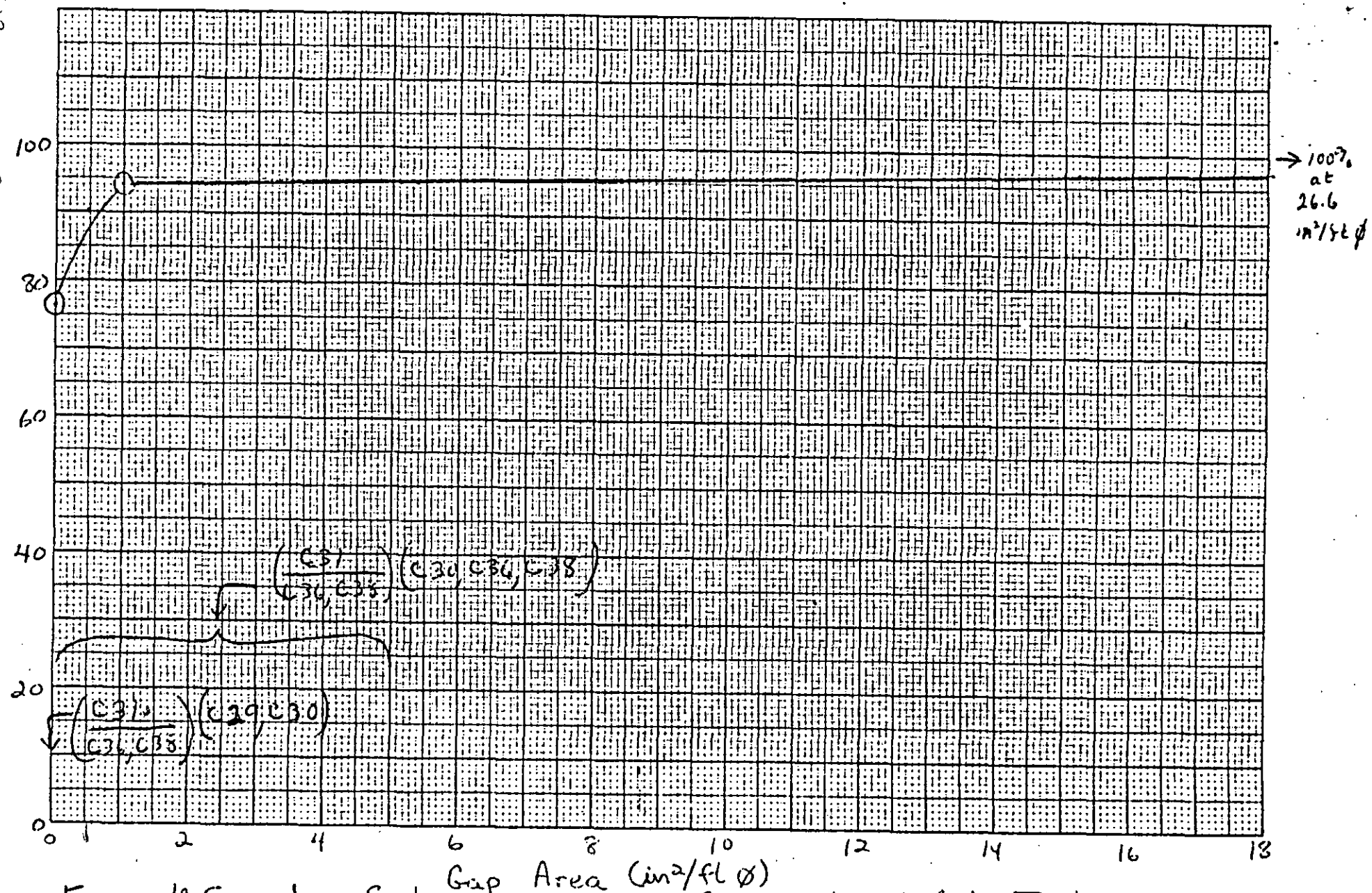

Figure 10: Secondary Seal [2] Gap Area of Inspected Welded Tanks with Primary Mechanical Shoe Seals (Assumed to apply to secondaries over resilient filled primaries.)

CLEARPRINT PAPER CO. NO. C210. 50 DIVISIONS PER INCH BOTH WAYS. 150 RA 100 DIVISIONS.
CLEARPRINT CHARTS
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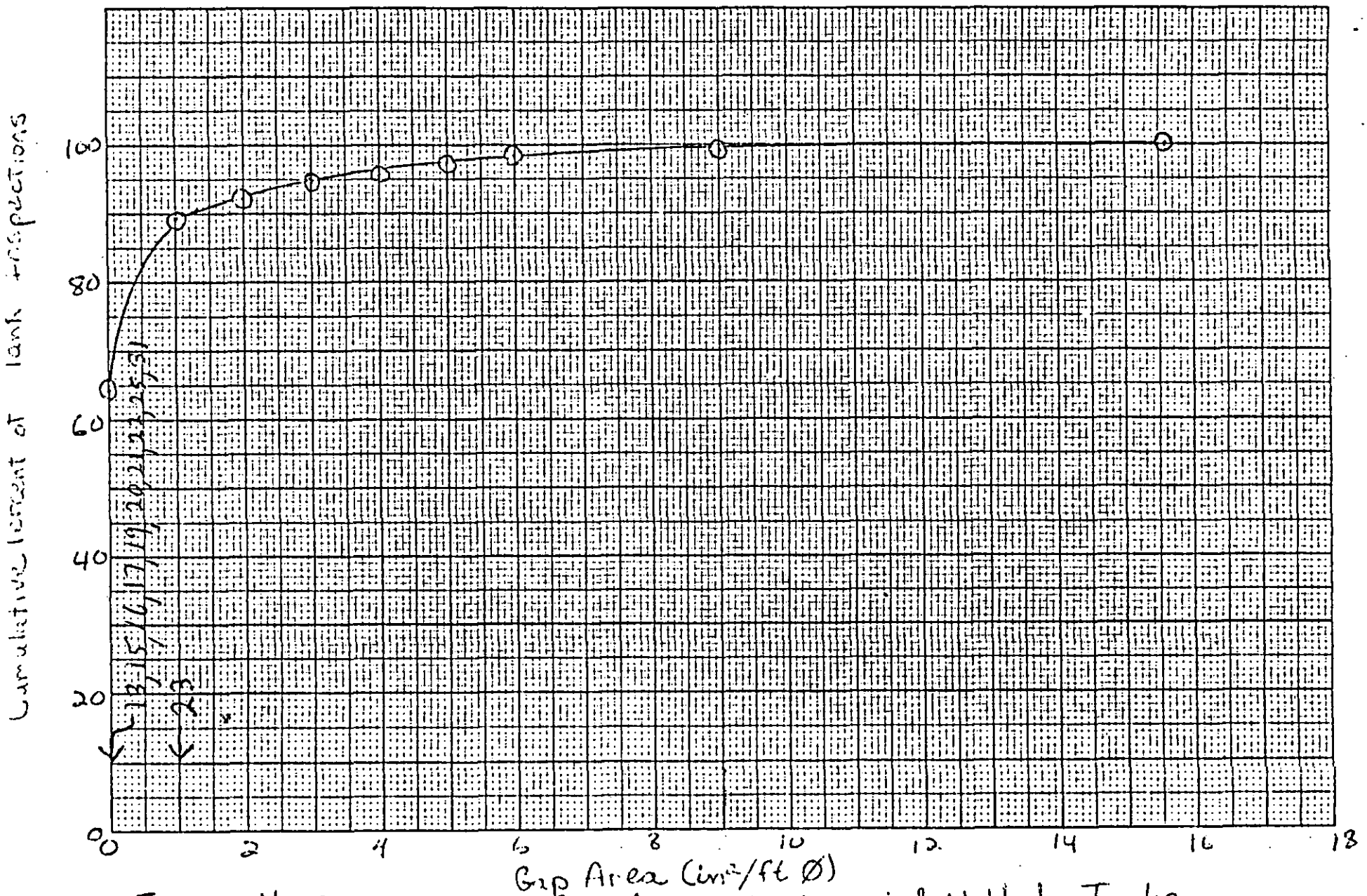

Figure 11: Primary Seal Gap Area of Inspected Welded Tanks With Primary Resilient Filled Seals

CLEARPRINT CHART
CLEARPRINT PAPER CO. NO. C210. 50 DIVISIONS PER INCH BOTH WAYS. 150 TO 100 DIVISIONS. PRINTED IN U.S.A. ON CLEARPRINT TECHNICAL PAPER NO. 1013

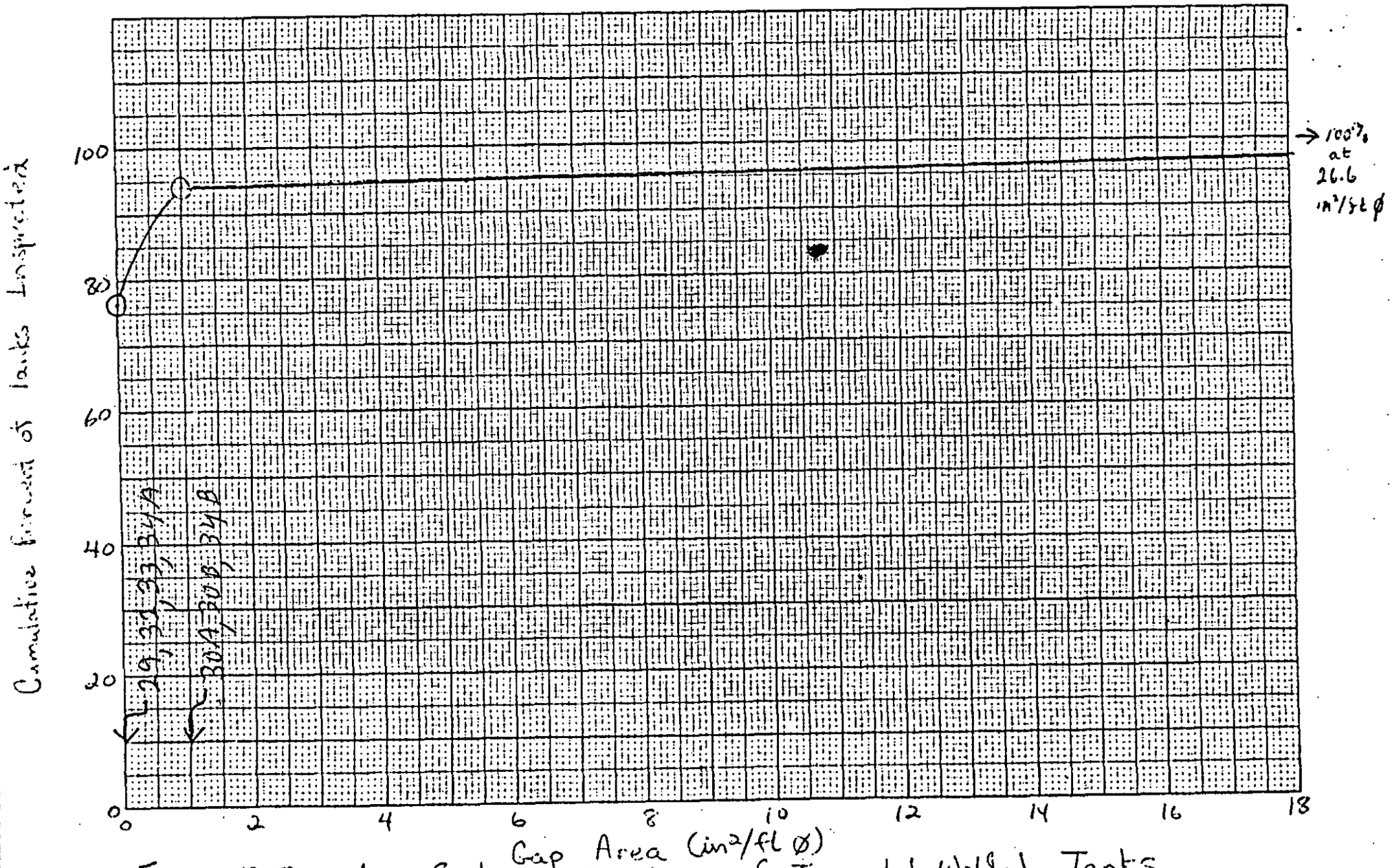

Figure 12: Secondary Seal [2] Gap Area of Inspected Welded Tanks with Primary Mechanical Shoe Seals (Assumed to apply to secondaries over resilient-filled primaries)

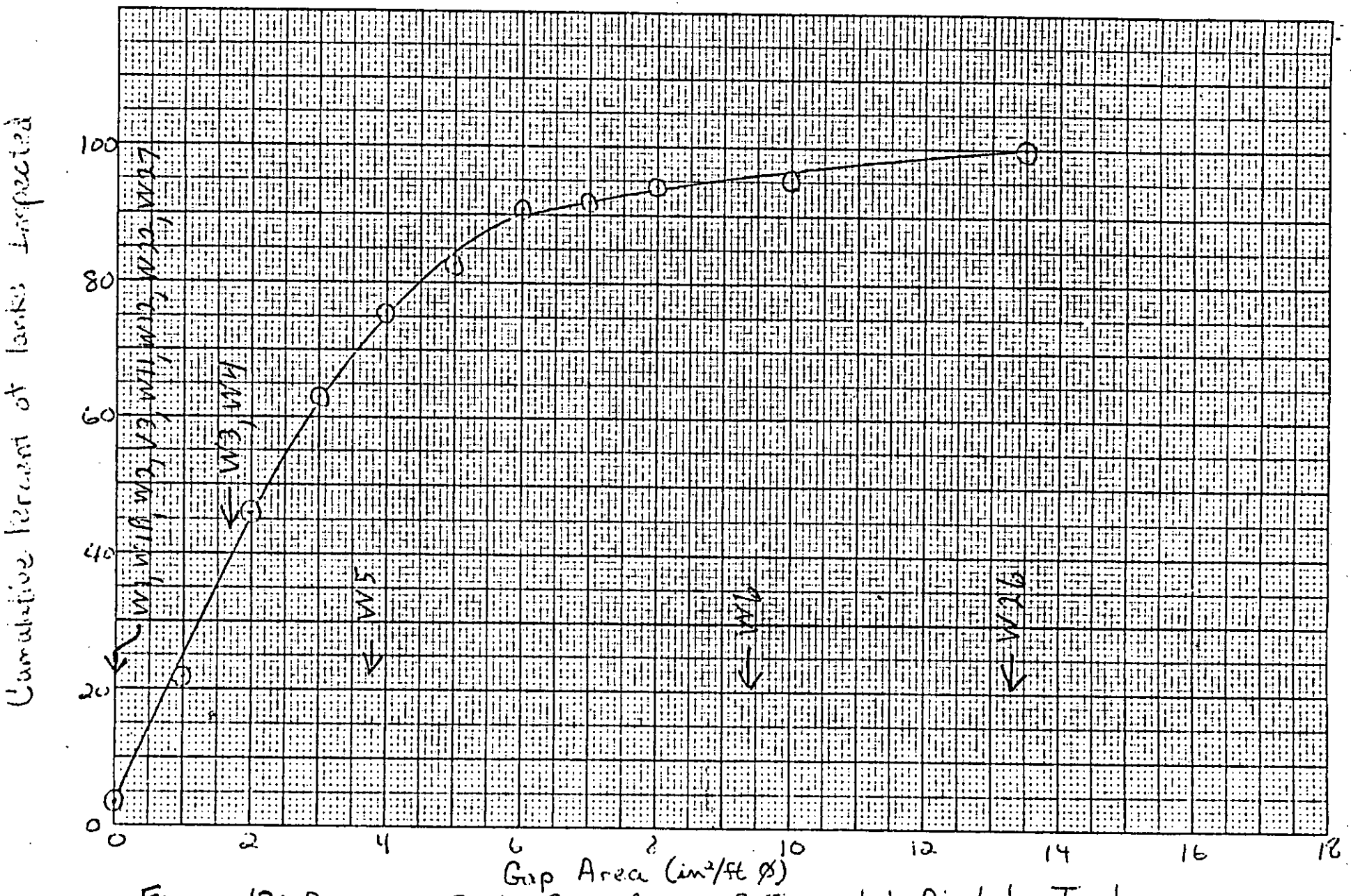

Figure 13: Primary Seal Gap Area of Inspected Riveted Tanks With Primary Mechanical Shoe Seals

CLEARPRINT PAPER CO. NO. C710. 50 DIVISIONS PER INCH BOTH WAYS. 150 BY 100 DIVISIONS. CLEARPRINT CHARTS PRINTED IN U.S.A. ON CLEARPRINT TECHNICAL PAPER NO. 1012

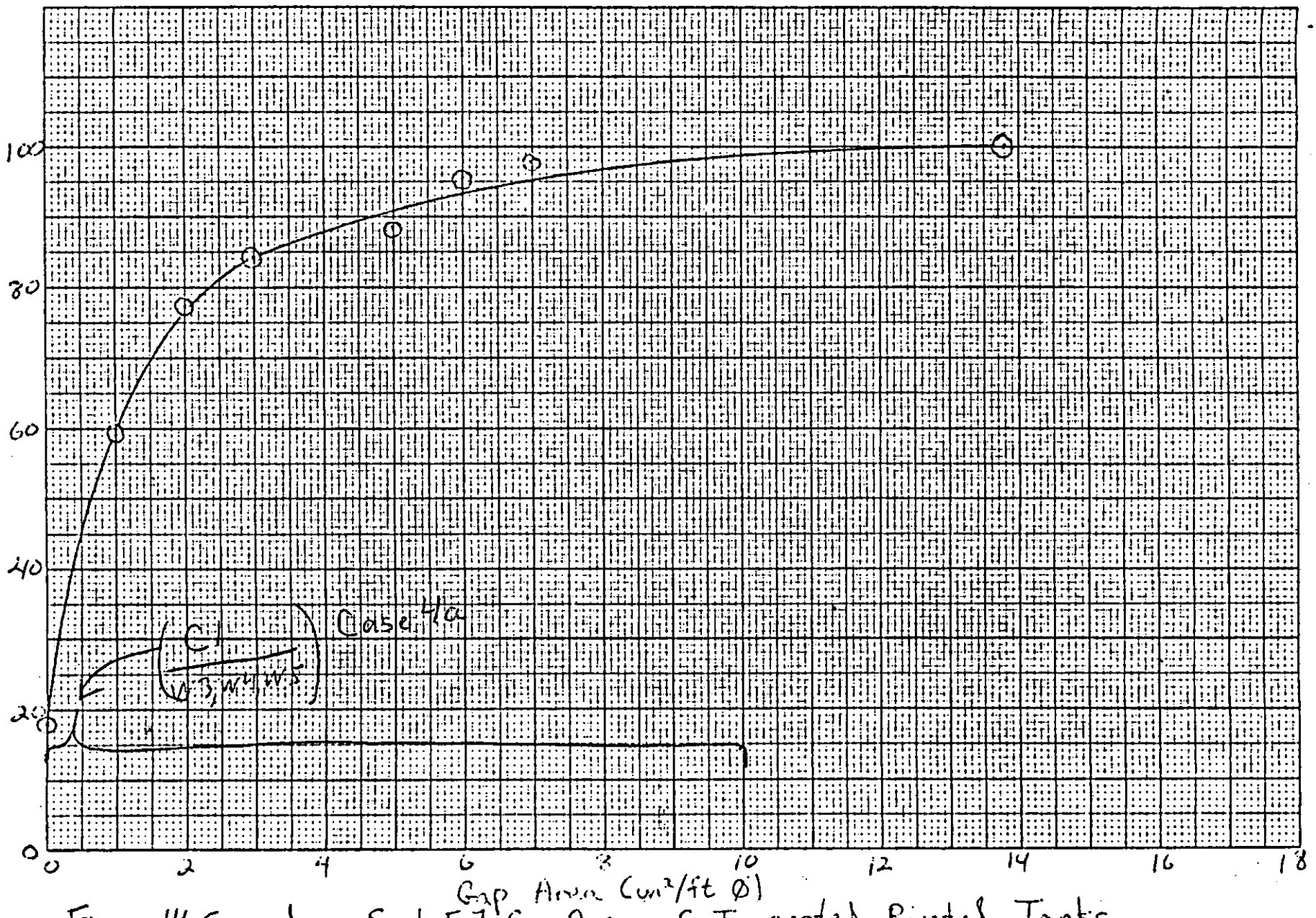

Figure 14: Secondary Seal [2] Gap Area of Inspected Riveted Tanks with Mechanical Shoe Seals

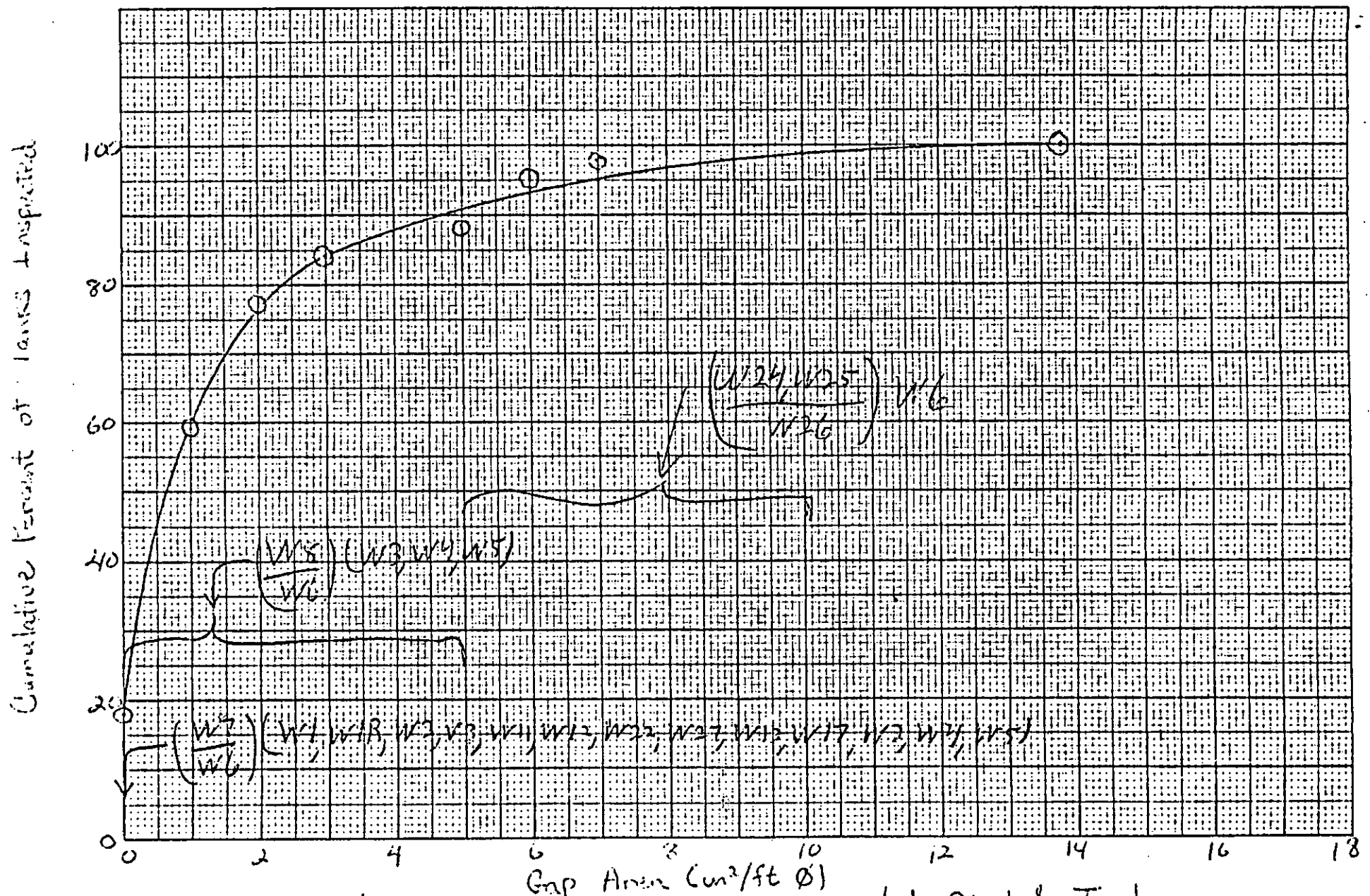

Figure 15: Secondary Seal [2] Gap Area of Inspected Riveted Tanks with Mechanical Shoe Seals

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. Liquid Level (in)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
13	11,150	70.6	4.64	7.00	7.67	14.3	13.4	12.3
	8,900	70.3	4.62	7.25	7.98	11.9	10.3	9.8
	6,650	70.3	4.62	7.20	7.93	8.82	7.4	7.3
	4,925	70.1	4.61	6.30	7.00	5.73	5.2	5.4
(60)	3,150	70.1	4.61	3.05	3.37	1.77	3.1	3.5
	10,950	69.9	4.60	9.00	9.96	18.3	13.1	12.1
	8,400	69.8	4.59	7.30	8.10	11.4	9.6	9.3
	7,000	69.5	4.57	7.20	8.03	9.41	7.8	7.7
	5,225	69.5	4.57	6.30	7.03	6.14	5.6	5.8
	2,925	69.5	4.57	3.40	3.79	1.86	2.9	3.2
	10,825	69.3	4.55	8.10	9.09	16.5	12.9	12.0
15 (60)	2,500	70.1	4.60	2.00	2.21	0.926	2.4	2.8
16	2,100	70.4	4.44	1.60	1.85	0.649	2.0	2.3
	4,250	70.3	4.43	5.7	6.60	4.69	4.4	4.7
(60)	6,450	70.7	4.45	9.0	10.4	11.2	7.1	7.1
	5,950	71.3	4.50	7.6	8.64	8.60	6.5	6.6
	7,975	69.9	4.40	8.4	9.81	13.1	9.1	8.8
	10,575	69.9	4.40	9.0	10.5	18.6	12.6	11.7
17	2,800	69.9	4.40	1.90	2.22	1.04	2.7	3.1
(60)	3,000	69.9	4.40	2.80	3.27	1.64	3.0	3.3
18	2,480	65.1-70.5	4.40	1.80-2.75	—	—	—	
19	2276	70.4	4.40	2.08	2.43	0.925	2.1	2.5
(60)	2368	69.9	4.40	2.26	2.64	1.05	2.2	2.6
	2465	70.0	4.40	2.65	3.09	1.28	2.4	2.7

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 2 OF

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
19 cont.	2725	70.0	4.40	2.56	2.99	1.36	2.6	3.0
20	2200	70.2	4.40	2.0	2.34	0.859	2.1	2.4
	4200	70.1	4.40	4.5	5.25	3.69	4.3	4.6
	6000	70.1	4.40	7.2	8.41	8.44	6.5	6.6
(60)	8000	70.1	4.40	7.6	8.87	11.9	9.1	8.8
	9600	70.1	4.40	7.8	9.11	14.6	11.2	10.6
	11,800	70.1	4.40	7.8	9.11	18.0	14.3	13.0
	9500	70.3	4.40	6.0	7.01	11.1	11.1	10.5
21	11800	69.9	4.40	6.8	7.94	15.7	14.3	13.0
	9600	70.0	4.40	7.0	8.17	13.1	11.2	10.6
	7600	69.9	4.40	7.6	8.87	11.3	8.6	8.4
	5800	70.1	4.40	6.5	7.59	7.36	6.3	6.4
	5000	69.9	4.40	5.7	6.66	5.57	5.3	5.5
	4000	69.7	4.40	3.9	4.55	3.05	4.1	4.4
(60)	4000	69.8	4.40	3.8	4.44	2.97	4.1	4.4
	3200	69.1	4.40	3.2	3.74	2.00	3.2	3.5
	3300	69.1	4.40	2.8	3.27	1.80	3.3	3.6
	2100	69.1	4.40	2.5	2.92	1.03	2.0	2.3
	2100	69.1	4.40	2.3	2.69	0.943	2.0	2.3
	6600	69.4	4.40	8.8	10.3	11.3	7.3	7.3
	6600	69.4	4.40	7.9	9.22	10.2	7.3	7.3
	8600	69.1	4.40	8.1	9.46	13.6	9.9	9.5
	8600	69.0	4.40	8.0	9.34	13.4	9.9	9.5
	10800	69.4	4.40	6.5	7.59	13.7*	12.9	11.9
	10100	69.4	4.40	5.8	6.77	11.4	11.9	11.2

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 3 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass/day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
22	2825	69.5	4.35	4.0	4.73	2.24	2.8	3.1
	3035	69.6	4.35	4.7	5.56	2.82	3.0	3.4
(60)	2970	69.6	4.35	4.5	5.33	2.65	2.9	3.3
	2815	69.9	4.35	4.8	5.68	2.68	2.7	3.1
	2815	69.9	4.35	5.9	6.98	3.29	2.7	3.1
	2700	70.5	4.35	6.0	7.10	3.21	2.6	3.0
23	11850	69.5	4.35	77.5	91.7	182	14.3	13.1
	11225	69.5	4.35	75.3	89.1	167	13.5	12.4
	11525	68.8	4.35	74.0	87.6	169	13.9	12.7
	9550	68.6	4.35	65.0	76.9	123	11.2	10.5
	7550	68.1	4.35	68.0	80.5	102	8.5	8.3
	5950	68.3	4.35	66.0	78.1	77.8	6.5	6.6
(60)	4300	68.4	4.35	43.0	50.9	36.6	4.5	4.7
	2400	68.4	4.35	5.2	6.15	2.47	2.3	2.7
	8250	69.2	4.35	74.0	87.6	121	9.4	9.1
	8075	69.9	4.35	74.0	87.6	118	9.2	8.9
	1950	69.6	4.35	6.7	7.93	2.59	1.8	2.2
	3250	70.3	4.35	16.0	18.9	10.3	3.2	3.6
	3150	70.8	4.35	34.0	40.2	21.2	3.1	3.5
24	11500	67.5	4.22	14.4	17.7	34.0	13.8	12.7
	9500	66.9	4.22	11.0	13.5	21.5	11.1	10.5
	7400	66.6	4.22	11.0	13.5	16.7	8.3	8.2
(60)	6200	66.8	4.22	15.0	18.4	19.1	6.8	6.8
	4500	67.2	4.22	17.0	20.9	15.7*	4.7	5.0
	2200	67.4	4.22	3.6	4.42	1.63	2.1	2.4
	3800	67.5	4.22	7.0	8.59	5.46	3.9	4.2
	6300	67.6	4.22	12.4	15.2	16.0	6.9	7.0

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 4 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass/day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
24 cont	8300	6.78	4.22	15.0	18.4	25.6	9.5	9.2
	9600	67.8	4.22	13.0	16.0	25.6	11.2	10.6
	12000	67.8	4.22	17.5	21.5	43.1	14.5	13.3
(60)	2200	67.9	4.22	8.4	10.3	3.79	2.1	2.4
	2200	68.0	4.22	3.0	3.68	1.35	2.1	2.4
25	2000	69.7	4.22	2.4	2.94	0.985	1.9	2.2
	3000	70.0	4.22	1.5	1.84	0.924	3.0	3.3
	4100	68.9	4.22	5.0	6.14	4.21	4.2	4.5
	4900	69.3	4.22	5.4	6.63	5.43	5.2	5.4
(60)	6800	69.4	4.22	8.2	10.1	11.4	7.6	7.5
	8700	69.5	4.22	7.5	9.20	13.4	10.0	9.6
	10000	69.8	4.22	6.5	7.98	13.3	11.8	11.0
	10800	69.7	4.22	6.3	7.73	14.0	12.9	11.9
	11800	69.7	4.22	5.8	7.12	14.1	14.3	13.0
	8700	69.7	4.22	8.5	10.4	15.2	10.0	9.6
26	2900	68.0	3.17	12.0	20.5	9.94	2.8	
	4875	68.0	3.17	15.8	27.0	22.0	5.2	
	7000	67.9	3.17	16.5	28.2	33.0	7.8	
	8850	68.0	3.17	15.0	25.6	37.9	10.2	
	10400	68.0	3.17	15.0	25.6	44.6	12.3	
	7150	67.9	3.17	15.0	25.6	30.6	8.0	
	2850	68.1	3.18	15.0	25.5	12.2	2.8	
28A	10350	71.2	3.30	11.0	17.9	31.1	12.3	
	8000	71.3	3.31	14.0	22.8	30.5	9.1	
	6050	71.3	3.31	11.5	18.7	18.9	6.6	
	4325	71.1	3.29	8.5	13.9	10.1	4.5	

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 5 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass/day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
28A cont	2650	70.8	3.28	5.5	9.04	4.01	2.6	
28B	9750	70.5	3.27	13.0	21.4	35.0	11.4	10.8
	7775	70.3	3.26	12.0	19.9	25.8	8.8	8.6
	6150	70.2	3.25	9.7	16.1	16.6	6.7	6.8
29	9675	65.1	3.30	1.10	6.79	2.90	11.3	9.7
	6700	66.4	3.37	0.70	1.12	1.25	7.4	6.7
(52.5)	4800	66.2	3.36	0.67	1.07	0.860	5.1	4.8
	3625	66.4	3.37	0.89	1.42	0.860	3.7	3.6
	11700	66.7	3.38	2.06	3.27	6.40	14.1	11.7
30A	11475	66.6	3.38	21.6	34.3	65.8	13.8	11.5
	9650	66.6	3.38	21.5	34.1	55.1	11.3	9.6
(52.5)	5950	66.6	3.38	1.64	2.60	2.59	6.5	5.9
	4275	66.6	3.38	0.97	1.54	1.10	4.4	4.3
	3800	66.5	3.37	0.96	1.53	0.972	3.9	3.8
30B	3750	67.1	3.40	0.75	1.18	0.742	3.8	3.7
	5575	67.5	3.42	0.70	1.10	1.02	6.0	5.6
(52.5)	8875	67.7	3.43	23.1	3.61	53.6	10.3	8.9
	10250	67.5	3.42	27.8	43.5	74.7	12.1	10.2
	11180	67.4	3.42	32.7	51.2	95.8	13.4	11.2
31	11550	67.7	3.43	5.47	8.54	16.5	13.9	11.5
(52.5)	9775	67.2	3.41	4.30	6.76	11.1	11.5	9.8

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 6 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb/mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
32	3500	63.6	2.80	0.62	1.22	0.712	3.5	3.5
	5650	62.5	2.80	0.49	0.961	0.909	6.1	5.6
(52.5)	7700	63.6	2.80	0.51	1.00	1.29	8.7	7.7
	9850	63.6	2.80	0.64	1.26	2.07	11.6	9.8
	11000	63.3	2.80	0.76	1.49	2.74	13.1	11.0
33	11000	63.4	2.70	0.74	1.51	2.78	13.1	11.0
	10000	63.5	2.70	0.67	1.37	2.29	11.8	10.0
(52.5)	7500	63.6	2.70	0.50	1.02	1.28	8.5	7.5
	5600	63.6	2.70	0.50	1.02	0.957	6.0	5.6
	3500	63.7	2.70	0.64	1.31	0.766	3.5	3.5
34A	3550	65.2	2.75	0.55	1.10	0.654	3.6	3.5
	6550	65.2	2.75	0.66	1.32	1.45	7.2	6.5
(52.5)	8650	65.0	2.75	1.21	2.42	3.51	10.0	8.6
	10450	65.0	2.75	1.76	3.52	6.16	12.4	10.4
	12450	64.8	2.75	1.54	3.08	6.42	15.2	12.4
34B	2800	64.6	2.75	1.00	2.00	0.938	2.7	2.8
	4600	64.5	2.75	1.75	3.50	2.70	4.8	4.6
	6600	64.3	2.75	3.75	7.51	8.29	7.3	6.6
(52.5)	8800	64.2	2.75	32.0	64.1	94.3	10.2	8.8
	11300	63.8	2.75	40.0	80.1	151	13.6	11.3
	12500	64.0	2.75	34.0	68.1	142	15.2	12.5

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 7 OF

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W1	10,500	42.4	4.81	4.10	4.30	7.55	12.5	10.5
	12,400	44.5	4.96	4.80	4.85	9.96	15.1	12.4
	10,900	44.2	4.94	4.50 (1)	4.57	8.33	13.0	10.9 (1)
(50")	8,800	44.4	49.6	4.80 (1)	4.85	7.14	10.2	8.8 (1)
	4,350	44.3	4.95	5.50 (1)	5.57	4.05	4.5	4.3 (1)
W2	12,450	44.3	5.07	4.70	4.62	9.62	15.2	12.4
	10,000	46.4	5.23	4.50	4.26	7.13	11.8	10.0
(50")	7,550	46.8	5.26	4.20	3.94	4.98	8.5	7.5
	4,650	46.8	5.26	2.50	2.35	1.83	4.9	4.1
W1R	6,550	46.7	5.23	4.40	4.16	4.56	7.2	6.5
	5,000	46.6	5.22	3.70	3.51	2.94	5.3	5.0
(50")	8,950	46.6	5.22	4.80	4.55	6.81	10.4	8.9
	11,450	46.7	5.23	4.90	4.63	8.87	13.8	11.4
W3	12,000	49.0	5.33	5.40	5.00	10.0	14.5	12.0
(50")	9,700	49.1	5.34	4.60	4.24	6.88	11.4	9.7
	6,850	49.2	5.35	3.60	3.31	3.79	7.6	6.8
	4,500	49.4	5.37	3.30	3.02	2.48	4.7	4.5
W4 (50")	4,400	49.5	5.35	3.60	3.31	2.44	4.6	4.4

NOTES: (1) These data points are considered void since the test conditions were changed too quickly to permit the data to represent steady state.

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 10 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W5	4,450	49.2	5.33	2.60	2.40	1.79	4.6	4.4
	6,500	48.9	5.31	3.40	3.16	3.44	7.2	6.5
(50")	8,550	49.1	5.32	4.80	4.44	6.35	9.8	8.5
	10,450	49.0	5.31	5.20	4.83	8.44	12.4	10.4
	12,250	48.8	5.30	6.30	5.86	12.0	14.9	12.2
W6	4,350	49.0	5.28	12.5	11.7	8.51	4.5	4.3
	6,350	49.1	5.29	11.5	10.7	11.4	7.0	6.3
(50")	8,400	49.1	5.29	12.2	11.4	16.0	9.6	8.4
	10,500	49.0	5.28	13.7	12.8	22.5	12.5	10.5
	12,400	48.8	5.27	13.7	12.8	26.6	15.1	12.4
W7	12,300	50.9	5.31	0.50	0.46	0.95	15.0	12.3
	10,200	51.0	5.31	0.65	0.60	1.02	12.1	10.2
(50")	6,250	51.0	5.31	0.88	0.82	0.86	6.9	6.2
	4,500	51.2	5.33	0.95	0.88	0.66	4.7	4.5
	2,300	50.6	5.28	1.45	1.36	0.52	2.2	2.3

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 11 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W8	2,400	50.5	5.28	1.75	1.64	0.657	2.3	2.4
	4,350	50.8	5.30	1.25	1.16	0.846	4.5	4.3
	6,600	50.8	5.30	1.20	1.12	1.23	7.3	6.6
(50")	8,450	50.8	5.30	0.90	0.84	1.19	9.7	8.4
	10,050	54.1	5.26	1.10	1.03	1.74	11.9	10.0
	12,100	53.8	5.25	1.20	1.13	2.29	14.7	12.1
W9	2,700	53.4	5.11	2.6	2.53	1.14	2.6	2.7
	4,450	53.4	5.11	2.3	2.24	1.67	4.6	4.4
	6,550	52.8	5.07	4.0	3.93	4.31	7.2	6.5
(50")	8,650	52.7	5.06	5.7	5.62	8.13	10.0	8.6
	12,700	53.3	5.11	6.0	5.84	12.4	15.5	12.7
	10,350	52.6	5.05	7.3	7.21	12.5	12.3	10.3
	9,050	52.4	5.03	4.5	4.47	6.76	10.5	9.0
W10	12,500	52.3	4.92	0.20	0.204	0.427	15.2	12.5
	8,300	52.3	4.99	0.31	0.311	0.432	9.5	8.3
(50")	6,200	53.5	5.00	0.40	0.400	0.415	6.8	6.2
	4,300	53.6	5.01	0.50	0.499	0.359	4.5	4.3
	2,250	53.3	4.99	0.55	0.551	0.208	2.1	2.2
W11	12250	49.1	5.23	8.9	8.42	17.3	14.9	12.2
	10600	49.0	5.23	5.7	5.39	9.56	12.6	10.6
	8600	49.4	5.26	5.2	4.88	8.66	9.9	8.6
(50")	6600	50.0	5.30	4.1	3.81	4.21	7.3	6.6
	4350	49.8	5.29	2.8	2.61	1.90	4.5	4.3

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 12 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W12	4500	44.2	4.57	3.1	3.46	2.60	4.7	4.5
	2450	42.4	4.45	2.4	2.76	1.13	2.3	2.4
	12200	43.0	4.49	7.4	8.43	17.2	14.8	12.2
(50)	11500	43.7	4.52	6.5	7.35	14.1	13.8	11.5
	10750	43.8	4.54	5.6	6.30	11.3	12.8	10.7
	9800	44.0	4.55	4.8	5.38	8.83	11.5	9.8
W13	12600	45.0	4.48	11.0	12.6	26.5	15.4	12.6
(50)	6500	45.8	4.53	7.7	8.68	9.44	7.2	6.5
W14	12650	53.0	5.03	32.9	32.7	69.1	15.4	12.6
(50)	9800	55.5	4.79	24.9	26.2	43.0	11.5	9.8
W15	7450	55.8	4.71	12.5	13.4	16.8	8.4	7.4
	12200	56.0	4.72	24.2	26.0	53.0	14.8	12.2
(50)	4500	55.8	4.71	7.0	7.53	5.67	4.7	4.5
	6050	55.6	4.69	10.0	10.8	10.9	6.6	6.0
	9750	55.2	4.56	17.5	19.6	31.9	11.4	9.7
W16	12750	52.2	4.28	15.8	19.1	40.7	15.6	12.7
	9550	52.3	4.29	10.5	12.6	20.2	11.2	9.5
(50)	6700	52.4	4.29	7.1	8.54	9.58	7.4	6.7
	3550	52.5	4.30	4.9	5.88	3.49	3.6	3.5

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 13 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No.	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W17	3550	52.4	4.32	4.9	5.85	3.47	3.6	3.5
	6600	52.0	4.28	6.2	7.48	8.26	7.3	6.6
50"	9550	51.0	4.23	9.3	11.4	18.2	11.2	9.5
	12600	51.2	4.24	13.9	17.0	35.8	15.4	12.6
	11500	50.7	4.22	10.6	13.0	25.0	13.8	11.5
	4850	50.6	4.20	5.3	6.54	5.31	5.1	4.8
	8300	49.9	4.17	7.4	9.21	12.8	9.5	8.3
W18	10,950	68.8	4.06	6.3	8.09	14.8	13.1	12.1
	9,300	70.5	4.15	6.2	7.76	12.1	10.8	10.3
(58.5)	7,650	71.9	4.24	5.4	6.59	8.43	8.7	8.4
	5,850	73.8	4.36	4.6	5.43	5.31	6.4	6.5
	3,900	75.3	4.45	3.5	4.03	2.63	4.0	4.3
	2,550	76.4	4.52	3.8	4.30	1.83	2.4	2.8
	11,650	77.9	4.62	7.0	7.71	15.0	14.0	12.9
	2,600	78.8	4.68	3.2	3.27	1.42	2.5	2.9
W19	12,925	81.4	4.83	7.0	7.30	15.8	15.8	12.9
	7,075	75.8	4.48	4.8	5.48	6.49	7.9	7.1
(48.5)	9,300	76.5	4.53	6.0	6.77	10.5	10.8	9.3
	5,025	77.4	4.58	4.2	4.67	3.93	5.3	5.0
	11,200	77.4	4.58	6.2	6.90	12.9	13.4	11.2
W20	11,200	75.8	4.48	7.0	8.00	15.0	13.4	11.2
(48.5)	7,150	76.4	4.53	5.6	6.31	7.55	8.0	7.1

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 14 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W21	5,850	77.0	5.82	7.1	5.87	5.74	6.4	5.8
	9,150	78.1	5.91	7.0	5.67	8.68	10.6	9.1
(48.5)	11,000	78.2	5.92	8.1	6.55	12.1	13.1	11.0
	6,950	78.0	5.90	7.0	5.68	6.61	7.8	6.9
	4,700	77.8	5.88	5.7	4.65	3.65	4.9	4.7
W22	3,800	77.5	6.12	2.00	1.55	0.984	3.9	3.8
	11,200	79.2	6.26	3.00	2.25	4.22	13.4	11.2
	9,450	79.5	6.30	3.30	2.46	3.89	11.0	9.4
(48.5")	7,900	79.6	6.30	3.15	2.35	3.10	9.0	7.9
	5,650	79.4	6.29	2.60	1.94	1.83	6.1	5.6
	1,900	79.8	6.32	2.30	1.71	0.542	1.7	1.9
W23	11,500	82.4	6.07	5.10	3.99	7.68	13.8	
	9,750	82.4	6.07	4.60	3.60	5.87	11.4	
	8,000	81.6	6.00	4.10	3.26	4.36	9.1	
	3,750	82.4	6.07	2.55	1.99	1.25	3.8	
	5,800	83.1	6.12	1.25	0.967	0.938	6.3	
	4,650	81.6	6.00	2.20	1.75	1.36	4.9	
W24	12,950	84.4	6.38	3.40	2.49	5.40	15.9	12.9
	11,350	84.4	6.38	4.75	3.48	6.61	13.7	11.3
	9,450	84.1	6.35	3.75	2.76	4.37	11.0	9.4
(48.5")	7,500	84.0	6.34	2.15	1.59	1.99	8.5	7.5
	5,750	84.3	6.37	1.50	1.10	1.06	6.2	5.7
	3,850	84.4	6.38	1.50	1.10	0.708	3.9	3.8
	5,050	83.9	6.33	1.75	1.30	1.09	5.4	5.0

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 15 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
W25	13,150	84.3	5.93	5.30	4.27	9.40	16.1	13.1
	9,350	83.1	5.84	5.40	4.44	6.95	10.9	9.3
	11,150	83.9	5.91	8.20	6.64	12.4	13.4	11.1
	7,700	87.1	6.15	3.65	2.81	3.62	8.7	7.7
	4,800	85.1	5.99	3.20	2.55	2.05	5.1	4.8
(48.5")	4,950	63.5	4.47	2.20	2.52	2.09	5.2	4.9
	9,800	49.4	3.64	4.40	6.42	10.5	11.5	9.8
	7,900	49.7	3.66	1.40	2.03	2.68	9.0	7.9
	4,000	49.7	3.66	1.65	2.39	1.60	4.1	4.0
W26	3,900	49.6	3.54	3.10	4.67	3.05	4.0	3.9
	11,500	49.6	3.54	4.10	6.17	11.9	13.8	11.5
(48.5")	9,700	48.9	3.51	3.60	5.47	8.88	11.4	9.7
	7,750	48.4	3.48	3.10	4.76	6.17	8.8	7.7
	6,100	48.7	3.50	3.35	5.11	5.22	6.7	6.1
W27	11,150	48.6	3.49	2.50	3.83	7.14	13.4	11.1
	9,650	48.3	3.48	2.35	3.61	5.83	11.3	9.6
(48.5")	7,700	48.4	3.48	2.05	3.15	4.06	8.7	7.7
	6,100	48.5	3.49	2.60	3.98	4.06	6.7	6.1
	5,100	48.6	3.49	1.90	2.91	2.48	5.4	5.1
	2,950	49.0	3.51	2.10	3.19	1.58	2.9	2.9
W28	11,100	48.2	3.35	12.4	19.9	36.9	13.3	11.1
	9,250	48.7	3.38	12.4	19.6	30.5	10.8	9.2
(48.5")	7,600	48.3	3.36	12.2	19.5	24.8	8.6	7.6
	5.450	48.5	3.37	12.5	19.9	18.2	5.9	5.4
	4,150	48.1	3.35	11.6	18.6	12.9	4.3	4.1

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 16 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to indicated vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass/day)	Wind Speed (mph)	NOTES Corrected Wind Speed (mph)
V1	2600	52.0	0.75	1.90	1.90	0.826	2.5	Normalized
	4350	51.8	0.75	1.20	1.20	0.873	4.5	to 0.75
	7250	51.8	0.75	1.20	1.20	1.46	8.1	psia
(50)	9750	50.2	0.73	0.95	0.977	1.59	11.4	vapor
	12400	50.5	0.73	1.05	1.08	2.24	15.1	pressure.
	2750	50.6	0.73	1.30	1.34	0.615	2.7	
	3650	50.9	0.74	1.35	1.37	0.836	3.7	
	6050	51.4	0.75	1.15	1.15	1.16	6.6	
V2	2900	51.0	2.40	2.00	2.09	1.01	2.8	Normalized
	5700	51.7	2.43	2.25	2.32	2.21	6.2	to 2.50
	7800	52.1	2.43	2.48	2.40	3.23	8.9	psia
	10450	52.2	2.44	2.50	2.57	4.49	12.4	vapor
	12300	52.6	2.45	1.95	1.99	4.10	15.0	pressure.
	6350	52.6	2.45	2.10	2.15	2.28	7.0	
	2250	52.6	2.45	1.25	1.28	0.481	2.1	
V3	12250	52.2	5.27	5.00	4.68	9.60	14.9	12.2 Normalized
	6300	51.9	5.25	4.10	3.86	4.07	6.9	6.3 to 5.00
(50)	4500	50.2	5.13	2.85	2.76	2.08	4.7	4.5 psia
	3400	49.7	5.09	2.70	2.64	1.50	3.4	3.4 vapor
	2350	49.3	5.07	2.00	1.97	0.773	2.2	2.3 pressure

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 19 OF

CBI

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level)	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
C1	12,700	50.3	3.94	2.15	2.86	6.08	15.5	12.7
	10,950	50.5	3.95	2.15	2.85	5.22	13.1	10.9
	8,800	50.6	3.96	2.13	2.82	4.15	10.2	8.8
(50 3/8")	6,825	50.7	3.97	2.05	2.70	3.09	7.6	6.8
	4,580	51.5	4.02	1.55	2.01	1.54	4.8	4.6
	2,350	50.9	3.99	2.10	2.75	1.08	2.2	2.3
C2	12,500	51.1	4.00	1.38	1.80	3.77	15.2	12.5
	10,500	51.0	3.99	1.35	1.77	3.11	12.5	10.5
(50 3/8")	8,350	50.8	3.98	1.25	1.64	2.30	9.6	8.3
	6,250	51.0	3.99	1.00	1.31	1.37	6.9	6.2
	4,200	51.6	4.03	1.14	1.48	1.04	4.3	4.2
	2,200	52.1	4.06	1.10	1.41	0.520	2.1	2.2
C3 (50 3/8")	12,100	53.1	4.10	1.10	1.40	2.83	14.7	12.1
C4	1,125	56.4	5.65	14.0	12.0	2.26	1.0	1.1
(50 3/8")	1,240	58.0	5.78	4.4	3.67	0.761	1.1	1.2
	1,470	60.0	5.95	6.5	5.22	1.28	1.3	1.5
	1,990	59.6	5.92	2.0	1.62	0.538	1.8	2.0
	1,610	60.2	5.97	6.0	4.80	1.29	1.4	1.6

SUBJECT | MADE BY | CHKD BY | EV | By | Chkd | CHARGE NO.

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
C28	953	40.5	2.73	34.9	70.4	11.2	18.0	
	869	40.7	2.80	35.4	69.5	10.1	16.4	
	880	40.5	2.73	31.0	62.6	9.21	16.6	
	707	41.9	2.85	19.0	36.6	4.32	13.3	
	643	42.3	2.87	19.6	37.4	4.02	12.1	
	643	42.6	2.88	18.9	35.9	3.87	12.1	
	632	42.9	2.90	22.2	41.9	4.43	11.9	
	461	43.4	2.92	32.7	61.2	4.72	8.7	
	215	43.8	2.94	27.5	51.1	1.84	4.1	
	495	43.6	2.93	40.2	75.0	6.21	9.3	
C29P	12,585	37.9	4.37	0.30	0.353	0.744	15.4	
	10,791	38.0	4.37	0.28	0.330	0.595	12.9	
	9,063	40.2	4.51	0.34	0.385	0.584	10.5	
	7,315	43.0	4.69	0.51	0.551	0.675	8.2	
	7,389	41.6	4.60	0.72	0.797	0.985	8.3	
	6,142	44.3	4.77	0.53	0.561	0.577	6.7	
	4,111	45.3	4.85	0.53	0.550	0.378	4.2	
	2,528	48.4	5.07	1.18	1.16	0.491	2.4	
C29 (50)	12,187	49.3	5.13	1.04	1.01	2.05	14.8	12.2
	10,583	50.2	5.20	0.87	0.829	1.47	12.6	10.6
	9,163	49.0	5.71	1.47	1.24	1.91	10.7	9.2
	7,862	49.6	5.76	1.06	0.887	1.17	8.9	7.9
	5,515	50.0	5.80	0.94	0.780	0.720	5.9	5.5
	4,106	50.2	5.81	0.88	0.729	0.501	4.2	4.1
	2,248	50.5	5.83	1.04	0.857	0.322	2.1	2.2

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 31 OF

Location Plainfield

Table 2 - Summary of Emission Test Data
*Normalized to 5.0 psia vapor pressure

Test No. (Liquid Level (in))	Air Flow Rate (scfm)	Product Temp. (°F)	Vapor Press. (psia)	(Outlet-Inlet) Concentration (ppmv) (Propane Basis) Measured	Calculated*	Emissions (Propane Basis) (lb mass / day)	Wind Speed (mph)	Notes Corrected Wind Speed (mph)
C30	12,456	51.0	5.87	2.76	2.26	4.70	15.2	12.4
	10,473	51.3	5.90	2.10	1.70	2.99	12.4	10.5
	9,275	51.3	5.90	1.99	1.62	2.51	10.8	9.3
	8,982	51.4	5.91	2.06	1.67	2.51	10.4	9.0
(50)	7,127	51.4	5.91	2.22	1.80	2.14	8.0	7.1
	7,376	51.4	5.91	2.24	1.81	2.24	8.3	7.4
	5,159	51.3	5.90	2.30	1.87	1.61	5.5	5.2
	4,415	50.8	5.86	2.89	2.37	1.75	4.6	4.4
	2,749	51.0	5.87	2.64	2.16	0.992	2.7	2.7
C31	12,674	50.7	5.36	0.45	0.413	0.875	15.5	12.7
	10,474	50.7	5.36	0.60	0.550	0.964	12.4	10.5
	8,618	50.9	5.37	0.71	0.650	0.937	9.9	8.6
(50)	7,218	51.0	5.38	0.78	0.712	0.860	8.1	7.2
	5,202	51.0	5.38	0.83	0.758	0.659	5.6	5.2
	4,276	51.2	5.40	0.94	0.854	0.611	4.4	4.3
	2,680	51.6	5.43	1.31	1.18	0.530	2.6	2.7
C32	12,582	52.0	5.50	2.43	2.16	4.54	15.3	
	10,592	51.9	5.48	3.21	2.86	5.07	12.6	
	9,247	51.9	5.48	2.57	2.29	3.55	10.8	
	7,207	52.0	5.50	2.73	2.42	2.92	8.1	
	5,264	52.0	5.50	4.16	3.69	3.25	5.6	
	4,115	52.2	5.52	3.97	3.51	2.42	4.2	
	2,812	51.5	5.47	4.66	4.17	1.96	2.7	

SUBJECT	MADE BY	CHKD BY	REV	By		CHARGE NO.
	DATE	DATE		Chkd		
				Date		SHT 32 OF