

RESEARCH REPORT NO. 4
October 20, 1961

A summary of Reference Gas Analyses with Applied Physics Corporation
Infrared Gas Analyser No. 46
March 16 to October 20, 1961

I. Introduction

This report presents a summary of measurements of the concentration of carbon dioxide in specially prepared mixtures in nitrogen gas. The measurements were obtained at the Scripps Institution of Oceanography with the aid of a continuous-flow infrared gas analyser manufactured by the Applied Physics Corporation of Pasadena, California.

Index values proportional to concentration have been calculated from observed differences in scale readings of the analyser. The method of measurement and the calculation of index values are as described in Research Report No. 1, October 15, 1958, and Research Report Nos. 2 and 3, June 1, 1961 (referred to as "Report I", "Report II", and "Report III" hereafter). The format of this report follows closely that of Reports II and III.

II. Succession of Standard Tanks

During the period of this report several standard tanks were retired from use, one substandard tank raised to the status of a standard, and both span tanks replaced. Tank 3759 was retired as a primary standard on May 1, 1961. Tank 2423 was used as a primary standard for the short period March 16 to August 22, 1961. A leak in the reference gas line which was repaired in June caused this and several other tanks to be consumed at an abnormally high rate. On August 22, the high and low span tanks, 2425, and 164, respectively also had to be retired. Three new calibrating tanks were then put into use: Tank 6071 as the primary standard, Tank 2402 as high span, and Tank 7358 as low span. On the closing date of the report Tank 6071 was retired and Tank 2407 became a primary standard.

On June 14, July 19, and July 25, Tank 6071 was used to establish recorder scale factors for the day. On August 21, Tanks 6071 and 2402 were both so used. Computations for these dates were made after final values for these tanks had been determined from data on other days during and before the period of this report.

Final values for all standard tanks used in this report or planned for later use appear in Table 13,

A new "super" primary Tank, 2406, was set aside on April 14 to be run only versus primary tanks. This tank will be run about twice per month. It should serve to test the continuity of the carbon dioxide index over a period of several years.

III. Index Differences

Index differences in column 5 of Table 3 were obtained from the index values of the separate tanks listed in Table 13 as follows:

2425 vs. 3759	343.30 - 314.27 = 29.03
2425 vs. 2423	343.30 - 312.68 = 30.62
3759 vs. 164	314.27 - 290.29 = 23.98
2423 vs. 164	312.68 - 290.29 = 22.39
6071 vs. 164	316.09 - 290.29 = 25.80
2402 vs. 6071	337.94 - 316.09 = 21.85
6071 vs. 7358	316.09 - 279.27 = 36.82

Key to Early Tank Numbering System

A-1	2406
A-2	2419
A-3	2407
A-4	2400
A-5	2427
A-6	193
A-7	2401
A-8	136
A-9	1008
A-10	2403
A-11	2399
A-12	148
A-13	2408
A-14	2420
A-15	2404
A-16	2405
A-17	181
A-18	2402
A-19	132, 2424
A-20	2421
A-22	3751
A-23	3754
A-24	4271
A-25	4273
A-26	4276
A-27	4278
A-28	4283
A-29	4289
A-30	4290
A-31	6052
A-32	6060
A-33	6073
A-34	6078
C-5	164
C-7	221
C-8	1004

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	3759	2425	32.56	12	20.46	-	-	3 238	Mar. 16A
	3759	6071	2.20	11		1.94	316.21	5 238	
	2425	6071	-30.80	10		-	-	3 238	
	2423	6071	4.10	10		3.62	316.30	5 238	
	2423	6081	-3.32	10	20.85*	-2.87	309.81	12D 238	Mar. 16B
	2423	4269	10.89	11		9.40	322.08	12C 239	
	2425	4269	-24.63	10		-21.26	322.04	12C 239	
	2423	C-7 (221)	9.11	11		7.86	320.54	12G 239	
	2425	C-7	-26.33	11		-22.73	320.57	12G 239	
	3759	2425	32.71	10	20.32	-	-	3 240	Mar. 17
	3759	6071	2.27	11		2.01	316.28	5 240	
	2425	6071	-30.67	9		-27.17	316.13	5 240	
	3759	2425	32.69	10		-	-	3 240	
	2423	6071	4.15	10		3.68	316.36	5 241	
	2423	4269	10.71	13		9.49	322.17	12C 241	
	3759	164	-25.99	10	19.56	-	-	3 242	Apr. 13
	164	6071	27.95	11		25.72	316.01	5 242	
	3759	6071	2.02	10		1.86	316.13	5 242	
	6071	6074	-18.53	10		-17.05	299.04	12E 242	
	6071	10063	-6.16	10		-5.69	310.40	12E 242	
	6071	10074	-3.46	10		-3.18	312.91	12B 243	
	6071	10072	-18.23	10		-16.78	299.31	12E 243	
	6071	4293	-20.06	10		-18.46	297.63	12C 243	
	164	4287	3.97	10		3.65	293.94	12D 243	
	164	4296	2.94	10		2.71	293.00	12G 243	
	3759	164	-26.25	10		-	-	3 244	

*Morning and afternoon runs gave different R. S. F.'s. Tank 2425 versus tank 6071 not used to compute index because comparison entered uniquely in R. S. F.

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	3759	2425	31.74	11	19.67	-	-	3 245	Apr. 14
	2425	6071	-29.74	14		-27.21	316.09	5 245	
	3759	6071	1.99	10		1.82	316.09	5 245	
	6071	C-7	4.64	10		4.25	320.34	12G 245	
	6071	1004	-5.15	10		-4.71	311.38	12G 245	
	6071	2406	-3.15	10		-2.88	313.21	5 246	
	6071	3760	-1.53	9		-1.40	314.69	12G 246	
	6071	6051	-6.57	10		-6.01	310.08	12D 246	
	3759	2425	31.69	9		-	-	3 246	
	3759	2425	31.07	10	19.40	-	-	3 247	Apr. 17
	3759	10074	-1.45	11		-1.34	312.93	12B 247	
	2425	10074	-32.83	10		-30.46	312.84	12B 247	
	2423	10074	0.38	8		0.35	313.03	12B 247	
	6071	10074	-3.45	10		-3.20	312.89	12B 247	
	6071	6067	-4.47	12		-4.15	311.94	12B 248	
	6071	10063	-6.01	10		-5.58	310.51	12E 248	
	6071	10067	3.54	10		3.28	319.37	12D 248	
	6071	10068	-13.37	10		-12.41	303.68	12D 248	
	3759	2425	31.44	10		-	-	3 248	
	3759	2425	31.30	12	19.50	-	-	3 249	Apr. 18
	3759	6071	2.01	10		1.86	316.13	5 249	
	2425	6071	-29.60	10		-27.32	315.98	5 249	
	6071	10069	-4.20	10		-3.88	312.21	12E 249	
	6071	148	25.33	11		23.38	339.47	12E 249	
	2425	148	-4.33	11		-4.00	339.30	12E 250	
	2425	4292	-0.07	10		-0.06	343.06	12B 250	
	6071	10063	-5.99	10		-5.53	310.56	12E 250	
	2423	10063	-2.28	10		-2.10	310.58	12E 250	
	2423	10069	-0.47	11		-0.43	312.25	12E 250	
	6071	10069	-4.22	11		-3.90	312.19	12E 251	
	3759	2425	31.48	10		-	-	3 251	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	3759	164	-25.99	10	19.38	-	-	3 252	Apr. 19
	3759	10077	-37.42	11		-34.76	279.51	12E 252	
	164	10077	-11.84	10		-11.00	279.29	12E 252	
	3759	148	27.32	11		25.37	339.64	12E 252	
	2425	148	-4.31	10		-4.00	339.30	12E 252	
	6071	10063	-6.06	10		-5.63	310.46	12E 253	
	6071	10069	-4.23	10		-3.93	312.16	12E 253	
	6071	4275	-2.06	10		-1.91	314.18	12D 253	
	6071	4272	-2.14	10		-1.99	314.10	12D 254	
	2423	10069	-0.45	10		-0.42	312.26	12E 254	
	2423	10077	-35.75	10		-33.20	279.48	12E 254	
	164	10077	-11.88	10		-11.03	279.26	12E 254	
	3759	2425	31.16	11	19.76	-	-	3 255	Apr. 27
	3759	6071	1.99	8		1.81	316.08	5 255	
	2425	6071	-29.93	10		-27.26	316.04	5 255	
	6071	2400	-5.73	10		-5.22	310.87	12A 255	
	6071	4291	21.18	10		19.29	335.38	12A 255	
	6071	4286	3.90	10		3.55	319.64	12A 256	
	6071	2407	2.87	10		2.61	318.70	12A 256	
	6071	7364	3.42	10		3.12	319.21	12A 256	
	6071	7358	-39.79	10		-36.25	279.84	12A 256	
	3759	164	-26.28	10		-	-	3 257	
	6071	2427	-0.33	10		0.30	315.79	{ 12A 257 12D	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	3759	164	-25.93	10	19.56	-	-	3 258	Apr. 28
	3759	6071	1.97	10		1.81	316.08	5 258	
	164	6071	28.20	10		25.95	316.24	5 258	
	164	10077	-12.04	10		-11.08	279.21	12E 258	
	164	7351	-18.84	10		-17.34	272.95	12A 258	
	164	7358	-12.52	10		-11.52	278.77	12A 259	
	3759	193	-2.40	10		-2.21	312.06	12D 259	
	2423	193	-0.82	10		-0.75	311.93	12D 259	
	6071	193	-4.53	11		-4.17	311.92	12D 259	
	6071	4286	3.81	10		3.51	319.60	12A 260	
	6071	2407	2.79	10		2.57	318.66	12A 260	
	2423	164	-24.30	10		-	-	3 260	
	3759	2425	31.26	13	19.43	-	-	3 261	May 1
	3759	6071	1.92	10		1.78	316.05	5 261	
	2425	6071	-29.55	12		27.38	315.92	5 261	
	6071	7364	3.46	10		3.21	319.30	12A 261	
	6071	7355	2.28	11		2.11	318.20	12A 261	
	2423	7355	6.08	11		5.63	318.31	12A 262	
	2423	7364	7.32	10		6.78	319.46	12A 262	
	2423	2407	6.85	10		6.35	319.03	12A 262	
	2423	4286	7.75	10		7.18	319.86	12A 262	
	2423	193	-0.83	11		-0.77	311.91	12D 262	
	6071	193	-4.59	10		-4.25	311.84	12D 263	
	3759	193	-2.51	10		-2.33	311.94	12D 263	
	2423	2425	32.98	5		-	-	3 263	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	2423	2425	34.02	10	19.94	-	-	3 264	June 9
	2423	6071	3.89	11		3.51	316.19	5 264	
	2425	6071	-30.07	10		-27.14	316.16	5 264	
	2423	2406	0.54	10		0.49	313.17	5 264	
	6071	2406	-3.27	10		-2.95	313.14	5 264	
	2425	4291	-9.19	12		-8.30	335.00	12A 265	
	2425	2402	-6.06	10		5.47	337.83	5 265	
	6071	4286	-6.95	11		-6.27	309.82	5 265	
	4286	4270	9.47	10		8.55	318.21	12D 265	
	4286	4272	-1.91	9		-1.72	307.94	12D 265	
	2423	2425	33.78	10		-	-	3 266	
	6071	164	-28.47	11	19.87	-	-	3 267	June 14
	6071	4286	-7.34	11		-6.65	309.44	5 267	
	164	4286	21.28	10		19.28	309.57	5 267	
	4286	4275	-5.40	10		4.89	304.77	12D 267	
	4286	7364	-8.23	10		-7.46	302.20	12D 267	
	4286	7355	-2.32	10		-2.10	307.56	12D 268	
	4286	2401	-15.78	10		14.29	295.37	12C 268	
	4286	3754	-12.85	10		11.65	298.01	12C 268	
	4286	3755	-7.23	10		6.55	303.11	12C 269	
	6071	164	-28.34	10		-	-	3 269	
	2423	164	-24.65	10	19.82	-	-	3 270	June 15
	2423	6071	3.68	11		3.34	316.02	5 270	
	164	6071	28.41	10		25.80	316.09	5 270	
	6071	2406	3.16	10		-2.87	313.22	5 270	
	6071	4286	-6.98	10		-6.34	309.75	5 270	
	2423	2406	0.59	10		0.54	313.22	5 271	
	164	7351	-18.47	10		-16.77	273.52	12A 271	
	164	7358	-12.07	10		-10.96	279.33	5 271	
	4286	10074	3.36	11		3.05	312.71	12B 271	
	2423	164	-24.58	9		-	-	3 271	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	2423	2425	34.02	10	19.96	-	-	3 272	June 22
	2423	6071	3.78	10		3.41	316.09	5 272	
	2425	6071	-30.11	10		-27.15	316.15	5 272	
	6071	2406	-3.47	11		-3.13	312.96	5 272	
	2423	2406	0.50	10		0.45	313.13	5 272	
	2425	4291	-9.05	10		-8.16	335.14	12A 273	
	2423	2425	33.75	11	19.87	-	-	3 274	June 26
	2423	6071	3.54	11		3.21	315.89	5 274	
	2425	6071	-30.33	10		-27.48	315.82	5 274	
	6071	2406	-3.05	11		-2.76	313.33	5 274	
	2423	2406	0.74	10		0.67	313.35	5 274	
	2425	4291	-9.11	10		-8.25	335.05	12A 275	
	2425	2402	-6.01	10		-5.44	337.86	5 275	
	6071	4286	-7.33	7		-6.64	309.45	5 275	
	2423	2425	33.80	10		-	-	3 275	
	2423	164	-24.49	10	19.74	-	-	3 276	June 27
	2423	6071	3.79	10		3.46	316.14	5 276	
	164	6071	28.51	11		26.00	316.29	5 276	
	2423	2406	0.69	10		0.63	313.31	5 276	
	6071	2406	-2.97	11		-2.71	313.38	5 276	
	164	7351	-18.34	10		-16.72	273.57	12A 277	
	164	7358	-11.97	10		-10.91	279.38	5 277	
	6071	4286	-7.04	10		-6.42	309.67	5 277	
	2423	164	-24.47	10		-	-	3 277	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	164	-24.31	10	16.91*	-	-	3 278	July 19
	6071	4286	-6.17	13		-6.57	309.52	5 278	
	164	4286	18.12	12		19.29	309.58	5 278	
	4286	3754	-11.15	10		-11.87	297.79	12C 278	
	4286	2401	-13.32	10		-14.18	295.48	12C 278	
	4286	10075	-10.60	12		-11.28	298.38	12D 279	
	4286	A-9 (1008)	-5.92	10		-6.30	303.36	12C 279	
	4286	3758	0.94	12		1.00	310.66	12D 279	
	4286	4297	-1.86	10		-1.98	307.68	12C 279	
	4286	10066	-1.38	13		-1.47	308.19	12C 279	
	6071	164	-24.10	11		-	-	3 280	
	6071	164	24.31	10	16.99	-	-	3 281	July 25
	6071	4286	-6.15	11		-6.52	309.57	5 281	
	164	4286	18.12	11		19.20	309.49	5 281	
	4286	4271	8.26	10		8.75	318.41	12C 281	
	4286	3756	-9.40	4		9.96	299.70	12C 281	
	6071	164	24.64	5		-	-	3 282	
	2423	2425	33.25	10	19.55	-	-	3 283	Aug. 2
	2423	6071	3.59	11		3.31	315.99	5 283	
	2425	6071	-29.67	10		-27.32	315.98	5 283	
	6071	2406	-3.31	11		-3.05	313.04	5 283	
	2423	2406	0.62	11		0.57	313.25	5 283	
	2425	4291	-8.97	10		-8.26	335.04	12A 284	
	2425	2402	-5.90	11		-5.43	337.87	5 284	
	6071	4286	-6.95	10		-6.40	309.69	5 284	
	4286	A-8**(136)	14.76	10		13.59	323.25	12C 284	
	4286	3752	11.78	11		10.85	320.51	12C 284	
	4286	3751	14.70	10		13.53	323.19	12C 285	
	2423	2425	33.23	10		-	-	3 285	

*Low Recorder Scale Factor on account of using recorder for analyser No. 55

**Tank 136

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	2423	164	-24.34	12	19.54	-	-	3 286	Aug. 3
	2423	6071	3.60	11		3.32	316.00	5 286	
	164	6071	27.98	10		25.77	316.06	5 286	
	6071	2406	-3.05	11		-2.81	313.28	5 286	
	2423	2406	0.67	12		0.62	313.30	5 286	
	164	7351	-18.19	11		-16.76	273.53	12A 287	
	164	7358	-11.72	12		-10.80	279.49	5 287	
	6071	4286	-6.87	10		-6.33	309.76	5 287	
	2423	164	-24.19	10		-	-	3 287	
	2423	2425	33.39	10	19.60	-	-	3 288	Aug. 10
	2423	6071	3.55	10		3.26	315.94	5 288	
	2425	6071	-29.85	10		-27.41	315.89	5 288	
	6071	2406	-3.05	10		-2.80	313.29	5 288	
	2423	2406	0.54	10		0.50	313.18	5 288	
	2425	4291	-8.97	11		-8.24	335.06	12A 289	
	2425	2402	-6.00	10		-5.51	337.79	5 289	
	6071	4286	-6.90	10		-6.34	309.75	5 289	
	4286	7344	5.14	10		4.72	314.38	12D 289	
	4286	6081	0.29	11		0.27	309.93	12D 289	
	2423	2425	33.24	10		-	-	3 290	
	2423	164	-24.21	10	19.50	-	-	3 291	Aug. 15
	2423	6071	3.64	10		3.36	316.04	5 291	
	164	6071	28.05	11		25.89	316.18	5 291	
	164	7351	-18.06	10		-16.67	273.62	12A 291	
	164	7358	-11.87	10		-10.96	279.33	5 291	
	2423	2406	0.54	11		0.50	313.18	5 292	
	6071	2406	-3.10	11		-2.86	313.23	5 292	
	6071	4286	-6.84	9		-6.31	309.78	5 292	
	4286	3755	-5.72	12		-5.28	304.38	12E 292	
	4286	3756	-13.55	13		-12.51	297.15	12E 292	
	2423	164	-24.18	11		-	-	3 293	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	2423	2425	33.47	10	19.62	-	-	3 294	Aug. 16
	2423	6071	3.58	11		3.28	315.96	5 294	
	2425	6071	-29.76	10		-27.30	316.00	5 294	
	6071	2406	-3.18	10		-2.92	313.17	5 294	
	2423	2406	0.59	10		0.54	313.22	5 294	
	2425	4291	-9.07	10		-8.32	334.98	12A 295	
	2425	2402	-6.04	10		-5.54	337.76	5 295	
	6071	4286	-6.95	11		-6.38	309.71	5 295	
	4286	7344	5.07	10		4.65	314.31	12D 295	
	4286	1008	46.29	10		42.47	352.13	12C 295	
	2423	2425	33.33	10		-	-	3 296	
	6071	2402	23.74	10	19.52	-	-	3 297	Aug. 21
	6071	4286	-6.98	11		-6.44	309.65	5 297	
	2402	4286	-30.74	11		-28.35	309.59	5 297	
	2402	1008	15.56	11		14.35	352.29	12C 297	
	4286	1008	46.21	11		42.61	352.27	12C 297	
	4286	4271	8.16	14		7.52	317.18	12C 298	
	4286	6060	9.90	10		9.13	318.79	12C 298	
	4286	3758	10.36	10		9.55	319.21	12C 298	
	4286	3754	10.74	10		9.90	319.56	12C 298	
	4286	10075	12.66	10		11.67	321.33	12C 298	
	4286	136	13.09	10		12.07	321.73	12D 299	
	6071	2402	23.58	10		-	-	3 299	
	2423	164	-24.18	10	19.43	-	-	3 300	Aug. 22
	2423	6071	3.74	11		3.46	316.14	5 300	
	164	6071	27.99	10		25.93	316.22	5 300	
	164	7351	-18.25	11		-16.91	273.38	12A 300	
	164	7358	-11.95	10		-11.07	279.22	5 300	
	2423	2406	0.55	10		0.51	313.19	5 301	
	6071	2406	-3.05	11		-2.83	313.26	5 301	
	6071	4286	-7.03	11		-6.51	309.58	5 301	
	4286	2401	-0.40	11		-0.37	309.29	12C 301	
	2423	164	-24.08	10		-	-	3 301	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	7358	-39.59	11	19.36	-	-	3 302	Aug. 28
	6071	4286	-6.97	11		-6.48	309.61	5 302	
	7358	4286	32.77	10		30.47	309.74	5 302	
	4286	11076	-7.99	11		-7.43	302.23	12C 302	
	4286	11082	-3.78	10		-3.51	306.15	12C 302	
	6071	11089	-5.77	12		-5.36	310.73	12E 303	
	6071	2401	-7.34	10		-6.82	309.27	12C 303	
	6071	7358	-39.47	10		-	-	3 303	
	6071	2402	23.64	10	19.48	-	-	3 304	Sept. 1
	6071	4286	-7.13	11		-6.59	309.50	5 304	
	2402	4286	-30.74	10		-28.40	309.54	5 304	
	4286	2401	-0.40	10		-0.37	309.29	12C 304	
	4286	11082	-4.44	10		-4.10	305.56	12C 304	
	4286	3759	8.82	10		8.15	317.81	12C 305	
	4286	1008	46.19	10		42.68	352.34	12C 305	
	4286	11085	4.19	11		3.87	313.53	12C 305	
	6071	11085	-2.29	11		-2.12	313.97	12C 305	
	6071	2402	23.69	10		-	-	3 305	
	6071	7358	-38.00	10	18.60	-	-	3 306	Sept. 4
	6071	4286	-6.53	11		-6.32	309.77	5 306	
	7358	4286	31.58	10		30.56	309.83	5 306	
	4286	11092	-17.60	11		-17.03	292.63	12C 306	
	7358	11092	14.30	10		13.84	293.11	12C 306	
	4286	11085	4.13	10		4.00	313.66	12C 307	
	4286	2401	-0.52	10		-0.50	309.16	12C 307	
	4286	2400	1.12	11		1.08	310.74	12A 307	
	6071	2400	-5.25	11		-5.08	311.01	12A 307	
	6071	7358	-38.04	10		-	-	3 307	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	2402	22.45	13	18.56	-	-	3 308	Sept. 5
	6071	4286	-6.61	11		-6.41	309.68	5 308	
	2402	4286	-29.35	10		-28.46	309.48	5 308	
	4286	11085	4.01	10		3.89	313.55	12C 308	
	4286	2401	-0.31	10		-0.30	309.36	12C 308	
	4286	1008	44.35	10		43.01	352.67	12C 309	
	4286	7344	4.89	8		4.74	314.40	12D 309	
	4286	11092	-16.71	10		-16.21	293.45	12C 309	
	4286	11094	-1.79	10		-1.74	307.92	12C 309	
	6071	7358	-37.79	10		-	-	3 309	
	6071	7358	-37.37	10	18.48	-	-	3 310	Sept. 6
	6071	2406	-3.03	10		-2.95	313.14	5 310	
	6071	11092	-23.35	11		-22.74	293.35	12C 310	
	7358	11092	14.47	10		14.09	293.36	12C 310	
	4286	11078	-22.27	10		-21.09	287.97	12E 310	
	4286	2400	1.14	10		1.11	310.77	12A 311	
	4286	10071	9.71	10		9.46	319.12	12E 311	
	4286	3757	2.09	10		2.04	311.70	12C 311	
	6071	11085	-2.52	10		-2.45	313.64	12C 311	
	6071	2402	22.69	10		-	-	3 311	
	6071	2402	23.70	10	19.59	-	-	3 312	Sept. 8
	6071	4286	-7.06	10		-6.49	309.60	5 312	
	2402	4286	-30.56	11		-28.08	309.86	5 312	
	4286	136	13.21	10		12.14	321.80	12D 312	
	4286	3751	18.60	10		17.09	326.75	12D 312	
	4286	3752	12.20	10		11.21	320.87	12D 313	
	4286	6067	2.75	11		2.53	312.19	12B 313	
	6071	2402	24.13	10		-	-	3 313	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	2402	23.98	10	19.58	-	-	3 314	Sept. 12
	6071	4286	-6.75	11		-6.21	309.88	5 314	
	2402	4286	-30.68	10		-28.20	309.74	5 314	
	4286	2427	6.69	9		6.15	315.81	12D 314	
	4286	10067	10.31	10		9.48	319.14	12D 314	
	4286	7344	5.30	10		4.87	314.53	12D 315	
	4286	10074	3.29	10		3.02	312.68	12B 315	
	4286	11089	1.14	9		1.05	310.71	12E 315	
	4286	10068	-6.51	10		-5.98	303.68	12D 315	
	6071	7358	39.43	10		-	-	3 315	
	6071	7358	-39.92	10	19.48	-	-	3 316	Sept. 13
	6071	4286	-6.87	11		-6.35	309.74	5 316	
	7358	4286	32.99	10		30.48	309.75	5 316	
	4286	10064	-12.04	10		-11.13	298.53	12E 316	
	4286	11078	-24.09	10		-22.26	287.40	12E 316	
	7358	11078	9.51	10		8.79	288.06	12E 317	
	4286	10065	-13.64	10		-12.60	297.06	12E 317	
	4286	10072	-11.21	10		-10.36	299.30	12E 317	
	4286	11089	1.05	11		0.97	310.63	12E 317	
	6071	11089	-5.47	11		-5.05	311.04	12E 317	
	6071	7358	-39.74	10		-	-	3 318	
	6071	2402	23.77	10	19.58	-	-	3 319	Sept. 14
	6071	2406	-3.26	10		-3.00	313.09	5 319	
	6071	4286	-7.11	11		-6.54	309.55	5 319	
	2402	4286	-30.82	10		-28.33	309.61	5 319	
	4286	148	32.77	10		30.13	339.79	12E 319	
	4286	11080	28.40	9		26.11	335.77	12E 320	
	4286	4292	36.65	10		33.69	343.35	12B 320	
	2402	11080	-2.65	11		-2.44	335.50	12E 320	
	6071	11089	-5.60	10		-5.15	310.94	12E 320	
	6071	11089	-5.59	11		-5.14	310.95	12E 320	
	6071	2402	23.84	10		-	-	3 321	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub)		Observed	No. Of	Recorder	Computed		Table and	
	Standard	Compared	Scale	Compari-	Scale	Index	Computed	Sheet	Date of
	Tank No.	Tank No.	Difference	sons	Factor	Difference	Index	No.	Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	2402	23.74	10	19.55	-	-	3 322	Sept. 21
	6071	4286	-6.91	11		-6.36	309.73	5 322	
	2402	4286	-30.63	11		-28.20	309.74	5 322	
	2402	11080	-3.01	11		-2.77	335.17	12E 322	
	2406	11080	24.48	10		22.54	335.76	12E 322	
	2406	11089	-2.57	11		-2.37	310.85	12E 323	
	4286	11089	1.37	11		1.26	310.92	12E 323	
	4286	2407	6.17	9		5.68	315.34	5 323	
	4286	7344	5.21	10		4.80	314.46	12D 323	
	6071	7358	-39.68	10	19.50	-	-	3 324	Sept. 25
	6071	11089	-5.76	8		-5.32	310.77	12E 324	
	7358	11089	34.30	11		31.66	310.93	12E 324	
	7358	11078	9.18	11		8.47	287.74	12E 324	
	4286	11078	-23.22	9		-21.43	288.23	12E 324	
	4286	2407	6.24	11		5.76	315.42	5 325	
	2406	2407	2.65	10		2.45	315.67	5 325	
	4286	7344	5.36	10		4.95	314.61	12D 325	
	4286	2400	1.22	10		1.13	310.79	12A 325	
	6071	2402	23.72	10		-	-	3 325	
	6071	7358	-39.86	11	19.41	-	-	3 326	Oct. 7
	6071	4286	-6.83	11		6.33	309.76	5 326	
	7358	4286	32.98	10		30.58	309.85	5 326	
	4286	11633	-23.26	10		-21.57	288.09	12F 326	
	4286	11111	-14.66	10		-13.59	296.07	12F 326	
	4286	11669	-10.95	10		-10.15	299.51	12F 327	
	4286	11589	-6.66	5		-6.18	303.48	12F 327	
	6071	7358	-39.42	10		-	-	3 327	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	2402	23.91	10	19.73	-	-	3 328	Oct. 10
	6071	4286	-7.11	10		-6.49	309.60	5 328	
	6071	4286	-7.01	10		-6.40	309.69	5 328	
	2402	4286	-31.02	10		-28.30	309.64	5 328	
	4286	11080	28.69	10		26.17	335.83	12E 328	
	4286	2407	6.34	10		5.78	315.44	5 329	
	4286	11089	1.58	6		1.44	311.10	12E 329	
	4286	11089	1.70	3		1.55	311.21	12E 329	
	4286	C-7	11.50	10		10.49	320.15	12G 329	
	4286	1004	1.84	10		1.68	311.34	12G 329	
	6071	2402	24.01	10		-	-	3 330	
	6071	2402	23.95	11	19.64	-	-	3 331	Oct. 14
	2402	10074	-27.24	11		-24.97	312.97	12B 331	
	6071	10074	-3.50	11		-3.21	312.88	12B 331	
	2402	4292	5.74	10		5.26	343.20	12B 331	
	6071	1004	-5.04	10		-4.62	311.47	12G 331	
	6071	3760	-1.69	10		-1.55	314.54	12G 332	
	6071	2407	-0.65	10		-0.60	315.49	5 332	
	6071	7350	-2.19	10		-2.01	314.08	12A 332	
	6071	2406	-3.19	10		-2.92	318.17	12G 332	
	6071	10074	-3.55	11		-3.25	312.84	12B 332	
	2402	10074	-27.37	10		-25.08	312.86	12B 333	
	6071	2402	23.78	10	19.69	-	-	3 334	Oct. 16
	6071	4286	-7.14	11		-6.53	309.56	5 334	
	2402	4286	-31.03	11		-28.37	309.57	5 334	
	4286	11083	-4.53	4		-4.14	305.52	12F 334	
	4286	11081	-7.55	6		-6.90	302.76	12E 334	
	4286	11081	-6.41	10		-5.86	303.80	12E 335	
	4286	11073	-11.86	10		-10.84	298.82	12E 335	
	4286	2407	6.36	10		5.81	315.47	5 335	
	2402	4292	5.61	10		5.13	343.07	12B 335	
	2402	2399	-3.48	10		-3.18	334.76	12B 335	
	6071	2399	20.57	9		18.80	334.89	12B 336	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compari- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	7358	-39.85	10	19.57	-	-	3 337	Oct. 17
	6071	4287	-24.13	11		-22.19	293.90	12D 337	
	7358	4287	16.00	10		14.72	293.99	12D 337	
	6071	2406	-3.15	10		-2.90	313.19	5 337	
	6071	2407	-0.74	10		-0.68	315.41	5 337	
	6071	1004	-5.09	10		-4.68	311.41	12G 338	
	6071	3760	-1.67	10		-1.54	314.55	12G 338	
	6071	6051	-6.59	10		-6.06	310.03	12D 338	
	6071	2400	-5.69	10		-5.23	310.86	12A 338	
	6071	10074	-3.58	10		-3.29	312.80	12B 338	
	6071	4296	-25.23	11		-23.21	292.88	12G 339	
	7358	4296	14.88	10		13.69	292.96	12G 339	
	6071	7358	-40.25	10	19.68	-	-	3 340	Oct. 18
	6071	4286	-7.12	11		-6.51	309.58	5 340	
	7358	4286	33.15	10		30.32	309.59	5 340	
	4286	3760	5.44	10		4.98	314.64	12G 340	
	4286	6051	0.35	10		0.32	309.98	12D 340	
	4286	7350	4.83	10		4.42	314.08	12A 341	
	4286	2406	3.80	12		3.48	313.14	5 341	
	4286	2407	6.41	10		5.86	315.52	5 341	
	7358	4296	14.97	10		13.69	292.96	12G 341	
	7358	4287	15.91	11		14.55	293.82	12D 341	
	6071	4287	-24.35	10		-22.27	293.82	12D 342	
	6071	6051	-6.77	10		-6.19	309.90	12D 342	

Table 1. Reference Gas Comparisons with Analyser No. 46

Col:	1	2	3	4	5	6	7	8	9
	(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. Of Compara- sons	Recorder Scale Factor	Computed Index Difference	Computed Index	Table and Sheet No.	Date of Analysis
	<u>Span 310</u>								<u>1961</u>
	6071	2402	24.02	10	19.69	-	-	3 343	Oct. 20
	6071	2407	-0.61	10		-0.56	315.53	5 343	
	2402	2407	-24.45	10		-22.35	315.59	5 343	
	6071	2407	-0.65	10		-0.59	315.50	5 343	
	7358	2407	39.69	10		36.28	315.55	5 343	
	6071	2407	-0.67	10		-0.61	315.48	5 344	
	2407	2406	-2.72	10		-2.49	312.98	5 344	
	6071	2406	-3.27	10		-2.99	313.10	5 344	
	6071	2407	-0.84	10		-0.77	315.32	5 344	
	2402	2407	-24.66	10		-22.54	315.40	5 344	
	6071	2407	-0.70	10		-0.64	315.45	5 345	

Table 3. Recorder Scale Factors of Analyser No. 46

Col:	1	2	3	4	5	6	7	8
	(Sub)		Observed			Recorder Scale		
	Standard	Compared	Scale	No. of	Index	Factor		Date of
	Tank No.	Tank No.	Difference	Comparisons	Difference	Single	Wt'd	Analysis
						Set	Average	
<u>Span 310</u>								<u>1961</u>
	3759	2425	32.56	12	29.03	20.19**		Mar. 16
	3759	6071	2.20	11				
	2425	6071	-30.80	10				
	3759	2425	33.00*	10*	29.03	20.46		Mar. 16A
				10			20.46	
	2423	4269	10.89	11				
	2425	4269	-24.63	10				
	2423	2425	35.52*	10*	30.62	20.88		Mar. 16B
	2423	C-7	9.11	11				
	2425	C-7	-26.33	11				
	2423	2425	35.44*	11*	30.62	20.83		
				21			20.85	
	3759	2425	32.71	10	29.03	20.28		Mar. 17
	3759	6071	2.27	11				
	2425	6071	-30.67	9				
	3759	2425	32.94*	9*	29.03	20.42		
	3759	2425	32.69	10	29.03	20.27		
				30			20.32	
	3759	164	-25.99	10	23.98	19.51		Apr. 13
	164	6071	27.95	11				
	3759	6071	2.02	10				
	3759	164	-25.93*	10*	23.98	19.46		
	3759	164	-26.25	10	23.98	19.70		
				30			19.56	

**Omitted from average

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub)		Observed			Recorder Scale		
Standard Tank No.	Compared Tank No.	Scale Difference	No. of Comparisons	Index Difference	Factor		Date of Analysis
					Single Set	Wt'd Average	
<u>Span 310</u>							<u>1961</u>
3759	2425	31.74	11	29.03	19.68		Apr. 14
3759	6071	1.99	10				
2425	6071	-29.74	14				
3759	2425	31.73*	10*	29.03	19.67		
3759	2425	31.69	9	29.03	19.65		
			30			19.67	
3759	2425	31.07	10	29.03	19.26		Apr. 17
3759	10074	-1.45	11				
2425	10074	-32.83	10				
3759	2425	31.38*	10*	29.03	19.46		
3759	2425	31.44	10	29.03	19.49		
			30			19.40	
3759	2425	31.30	12	29.03	19.41		Apr. 18
3759	6071	2.01	10				
2425	6071	-29.60	10				
3759	2425	31.61*	10*	29.03	19.60		
3759	2425	31.48	10	29.03	19.52		
			32			19.50	
3759	164	-25.99	10	23.98	19.51		Apr. 19
3759	10077	-37.42	11				
164	10077	-11.84	10				
3759	164	-25.58*	10*	23.98	19.20		
3759	148	27.32	11				
2425	148	-4.31	10				
3759	2425	31.63*	10*	29.03	19.61		
2423	10077	-35.75	10				
164	10077	-11.88	10				
2423	164	-23.87*	10*	22.39	19.19		
			40			19.38	

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub)		Observed			Recorder Scale		
Standard	Compared	Scale	No. of	Index	Factor		Date of
Tank No.	Tank No.	Difference	Comparisons	Difference	Single	Wt'd	Analysis
					Set Average		
<u>Span 310</u>							<u>1961</u>
3759	2425	31.16	11	29.03	19.32**		Apr. 27
3759	6071	1.99	8				
2425	6071	-29.93	10				
3759	2425	31.92*	8*	29.03	19.79		
3759	164	-26.28	10	23.98	19.73		
			18			19.76	
3759	164	-25.93	10	23.98	19.46		Apr. 28
3759	6071	1.97	10				
164	6071	28.20	10				
3759	164	-26.23*	10*	23.98	19.69		
2423	164	-24.30	10	22.39	19.54		
			30			19.56	
3759	2425	31.26	13	29.03	19.38		May 1
3759	6071	1.92	10				
2425	6071	-29.55	12				
3759	2425	31.47*	10*	29.03	19.51		
2423	2425	32.98	5	30.62	19.39		
			28			19.43	
2423	2425	34.02	10	30.62	20.00		June 9
2423	6071	3.89	11				
2425	6071	-30.07	10				
2423	2425	33.96*	10*	30.62	19.96		
2423	2425	33.78	10	30.62	19.86		
			30			19.94	

**Omitted from wt. av.: R. S. F. changing because of nitrogen purge.

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub)		Observed			Recorder Scale		
Standard	Compared	Scale	No. of	Index	Factor		Date of
Tank No.	Tank No.	Difference	Comparisons	Difference	Single Wt'd		Analysis
					Set Average		
<u>Span 310</u>							<u>1961</u>
6071	164	-28.47	11	25.80	19.86		June 14
6071	4286	-7.34	11				
164	4286	21.28	10				
6071	164	-28.62*	10*	25.80	19.97		
6071	164	-28.34	10	25.80	19.77		
			31			19.87	
2423	164	-24.65	10	22.39	19.82		June 15
2423	6071	3.68	11				
164	6071	28.41	10				
2423	164	-24.73*	10*	22.39	19.88		
2423	164	-24.58	9	22.39	19.76		
			29			19.82	
2423	2425	34.02	10	30.62	20.00		June 22
2423	6071	3.78	10				
2425	6071	-30.11	10				
2423	2425	33.89*	10*	30.62	19.92		
			20			19.96	
2423	2425	33.75	11	30.62	19.84		June 26
2423	6071	3.54	11				
2425	6071	-30.33	10				
2423	2425	33.87*	10*	30.62	19.91		
2423	2425	33.80	10	30.62	19.87		
			31			19.87	

Table 3. Recorder Scale Factors of Analyser No. 46

Col:	1	2	3	4	5	6	7	8
	(Sub)		Observed			Recorder Scale		
	Standard	Compared	Scale	No. of	Index	Factor		Date of
	Tank No.	Tank No.	Difference	Comparisons	Difference	Single	Wt'd	Analysis
						Set	Average	
<u>Span 310</u>								
	2423	164	-24.49	10	22.39	19.69		<u>1961</u>
								June 27
	2423	6071	3.79	10				
	164	6071	28.51	11				
	2423	164	-24.72*	10*	22.39	19.87		
	2423	164	-24.47	10	22.39	19.67		
				30			19.74	
	6071	164	-24.31	10	25.80	16.96		July 19
	6071	4286	-6.17	13				
	164	4286	18.12	12				
	6071	164	-24.29*	12*	25.80	16.95		
	6071	164	-24.10	11	25.80	16.81		
				33			16.91	
	6071	164	-24.31	10	25.80	16.96		July 25
	6071	4286	-6.15	11				
	164	4286	18.12	11				
	6071	164	-24.27*	11*	25.80	16.93		
	6071	164	-24.64	5	25.80	17.19		
				26			16.99	
	2423	2425	33.25	10	30.62	19.55		Aug. 2
	2423	6071	3.59	11				
	2425	6071	-29.67	10				
	2423	2425	33.26*	10*	30.62	19.55		
	2423	2425	33.23	10	30.62	19.54		
				30			19.55	

Table 3. Recorder Scale Factors of Analyser No. 46

Col:	1	2	3	4	5	6	7	8
	(Sub)		Observed			Recorder Scale		
	Standard	Compared	Scale	No. of	Index	Factor		Date of
	Tank No.	Tank No.	Difference	Comparisons	Difference	Single	Wt'd	Analysis
						Set	Average	
<u>Span 310</u>								<u>1961</u>
	2423	164	-24.34	12	22.39	19.57		Aug. 3
	2423	6071	3.60	11				
	164	6071	27.98	10				
	2423	164	-24.38*	10*	22.39	19.60		
	2423	164	-24.19	10	22.39	19.45		
				32			19.54	
	2423	2425	33.39	10	30.62	19.63		Aug. 10
	2423	6071	3.55	10				
	2425	6071	-29.85	10				
	2423	2425	33.40*	10*	30.62	19.64		
	2423	2425	33.24	10	30.62	19.54		
				30			19.60	
	2423	164	-24.21	10	22.39	19.46		Aug. 15
	2423	6071	3.64	10				
	164	6071	28.05	10				
	2423	164	-24.41*	10*	22.39	19.62		
	2423	164	-24.18	11	22.39	19.44		
				31			19.50	
	2423	2425	33.47	10	30.62	19.68		Aug. 16
	2423	6071	3.58	11				
	2425	6071	-29.76	10				
	2423	2425	33.34*	10*	30.62	19.60		
	2423	2425	33.33	10	30.62	19.59		
				30			19.62	

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub)		Observed			Recorder Scale		
Standard	Compared	Scale	No. of	Index	Factor		Date of
Tank No.	Tank No.	Difference	Comparisons	Difference	Single Wt'd		Analysis
					Set Average		
<u>Span 310</u>							<u>1961</u>
6071	2402	23.74	10	21.85	19.56		Aug. 21
6071	4286	-6.98	11				
2402	4286	-30.74	11				
6071	2402	23.76*	11*	21.85	19.57		
6071	2402	23.58	10	21.85	19.43		
			31			19.52	
2423	164	-24.18	10	22.39	19.44		Aug. 22
2423	6071	3.74	11				
164	6071	27.99	10				
2423	164	-24.25*	10*	22.39	19.49		
2423	164	-24.08	10	22.39	19.36		
			30			19.43	
6071	7358	-39.59	11	36.82	19.35		Aug. 28
6071	4286	-6.97	11				
7358	4286	32.77	10				
6071	7358	-39.74*	10*	36.82	19.43		
6071	7358	-39.47	10	36.82	19.30		
			31			19.36	
6071	2402	23.64	10	21.85	19.47		Sept. 1
6071	4286	-7.13	11				
2402	4286	-30.74	10				
6071	2402	23.61*	10*	21.85	19.45		
6071	2402	23.69	10	21.85	19.52		
			30			19.48	

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub)		Observed			Recorder Scale		
Standard	Compared	Scale	No. of	Index	Factor		Date of
Tank No.	Tank No.	Difference	Comparisons	Difference	Single Wt'd		Analysis
					Set Average		
<u>Span 310</u>							<u>1961</u>
6071	7358	-38.00	10	36.82	18.58		Sept. 4
6071	4286	-6.53	11				
7358	4286	31.58	10				
6071	7358	-38.11*	10*	36.82	18.63		
6071	7358	-38.04	10	36.82	18.60		
			30			18.60	
6071	2402	22.45	13	21.85	18.49		Sept. 5
6071	4286	-6.61	11				
2402	4286	-29.35	10				
6071	2402	22.74*	10*	21.85	18.73		
6071	7358	-37.79	10	36.82	18.47		
			33			18.56	
6071	7358	-37.37	10	36.82	18.27		Sept. 6
6071	11092	-23.35	11				
7358	11092	14.47	10				
6071	7358	-37.82*	10*	36.82	18.49		
6071	2402	22.69	10	21.85	18.69		
			40			18.48	
6071	2402	23.70	10	21.85	19.52		Sept. 8
6071	4286	-7.06	10				
2402	4286	-30.56	11				
6071	2402	23.50*	10*	21.85	19.36		
6071	2402	24.13	10	21.85	19.88		
			30			19.59	

Table 3. Recorder Scale Factors of Analyser No. 46

Col:	1	2	3	4	5	6	7	8
	(Sub)		Observed			Recorder Scale		
	Standard	Compared	Scale	No. of	Index	Factor		Date of
	Tank No.	Tank No.	Difference	Comparisons	Difference	Single	Wt'd	Analysis
						Set Average		
<u>Span 310</u>								
	6071	2402	23.98	10	21.85	19.75		<u>1961</u>
	6071	4286	-6.75	11				Sept. 12
	2402	4286	-30.68	10				
	6071	2402	23.93*	10*	21.85	19.71		
	6071	7358	-39.43	10	36.82	19.28		
				30			19.58	
	6071	7358	-39.92	10	36.82	19.52		Sept. 13
	6071	4286	-6.87	11				
	7358	4286	32.99	10				
	6071	7358	-39.86*	10*	36.82	19.49		
	6071	7358	-39.74	10	36.82	19.43		
				30			19.48	
	6071	2402	23.77	10	21.85	19.58		Sept. 14
	6071	4286	-7.11	11				
	2402	4286	-30.82	10				
	6071	2402	23.71*	10*	21.85	19.53		
	6071	2402	23.84	10	21.85	19.64		
				40			19.58	
	6071	2402	23.74	10	21.85	19.56		Sept. 21
	6071	4286	-6.91	11				
	2402	4286	-30.63	11				
	6071	2402*	23.72*	11*	21.85	19.54		
				31			19.55	
	6071	7358	-39.68	10	36.82	19.40		Sept. 25
	6071	11089	-5.76	8				
	7358	11089	34.30	11				
	6071	7358	-40.06*	8*	36.82	19.58		
	6071	2402	23.72	10	21.85	19.54		
				28			19.50	

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub)		Observed			Recorder Scale		
Standard	Compared	Scale	No. of	Index	Factor		Date of
Tank No.	Tank No.	Difference	Comparisons	Difference	Single	Wt'd	Analysis
					Set	Average	
<u>Span 310</u>							<u>1961</u>
6071	7358	-39.86	11	36.82	19.49		Oct. 7
6071	4286	-6.83	11				
7358	4286	32.98	10				
6071	7358	-39.81*	10*	36.82	19.46		
6071	7358	-39.42	10	36.82	19.27		
			31			19.41	
6071	2402	23.91	10	21.85	19.70		Oct. 10
6071	4286	-7.11	10				
2402	4286	-31.02	10				
6071	2402	23.91*	10*	21.85	19.70		
6071	2402	24.01	10	21.85	19.78		
			30			19.73	
6071	2402	23.95	11	21.85	19.73		Oct. 14
6071	10074	-3.50	11				
2402	10074	-27.24	11				
6071	2402	23.74*	11*	21.85	19.56		
6071	10074	-3.55	11				
2402	10074	-27.37	10				
6071	2402	23.82*	10*	21.85	19.62		
			32			19.64	
6071	2402	23.78	10	21.85	19.59		Oct. 16
6071	4286	-7.14	11				
2402	4286	-31.03	11				
6071	2402	23.89*	11*	21.85	19.68		
6071	2399	20.57	9				
2402	2399	-3.48	10				
6071	2402	24.05*	9*	21.85	19.81		
			30			19.69	

Table 3. Recorder Scale Factors of Analyser No. 46

Col: 1	2	3	4	5	6	7	8
(Sub) Standard Tank No.	Compared Tank No.	Observed Scale Difference	No. of Comparisons	Index Difference	Recorder Scale Factor Single Wt'd Set Average		Date of Analysis
<u>Span 310</u>							<u>1961</u>
6071	7358	-39.85	10	36.82	19.48		Oct. 17
6071	4287	-24.13	11				
7358	4287	16.00	10				
6071	7358	-40.13*	10*	36.82	19.62		
6071	4296	-25.23	11				
7358	4296	14.88	10				
6071	7358	-40.11*	10*	36.82	19.61		
			30			19.57	
6071	7358	-40.25	10	36.82	19.68		Oct. 18
6071	4286	-7.12	11				
7358	4286	33.15	10				
6071	7358	-40.27*	10*	36.82	19.69		
6071	4287	-24.35	10				
7358	4287	15.91	11				
6071	7358	-40.26*	10*	36.82	19.68		
			30			19.68	
6071	2402	24.02	10	21.85	19.79		Oct. 20
6071	2407	-0.61	10				
2402	2407	-24.45	10				
6071	2402	23.84*	10*	21.85	19.65		
6071	2407	-0.65	10				
7358	2407	39.69	10				
6071	7358	-40.34*	10*	36.82	19.71		
6071	2407	-0.84	10				
2402	2407	-24.66	10				
6071	2402	23.82*	10*	21.85	19.62		
			40			19.69	

Table 5. Index Values of Standards and Substandards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set						
	Analysers	Standard	Compared	No. of	Index	No. of		Compared	Tank	Date of	Dates of Use
		Tank No.	Tank No.	Compara-		Compara-		No.	Pressure	Analysis	
				sons		sons			(P.S.I.)		
										<u>1961</u>	
	46	4286	2407	9	315.34			1280	2170	Sept. 21	
	46	4286	2407	11	315.42			1270	2150	Sept. 25	
	46	2406	2407	10	315.67			1900	2150	Sept. 25	
	46	4286	2407	10	315.44			1180	2110	Oct. 10	
	46	6071	2407	10	315.49			400	2130	Oct. 14	
	46	4286	2407	10	315.47			1140	2140	Oct. 16	
	46	6071	2407	10	315.41			320	2110	Oct. 17	
	46	4286	2407	10	315.52			1080	2090	Oct. 18	
	46	6071	2407	10	315.53			270	2090	Oct. 20	
	46	2402	2407	10	315.59			1190	2070	Oct. 20	
	46	6071	2407	10	315.50			260	2060	Oct. 20	
	46	7358	2407	10	315.55			1680	2050	Oct. 20	
	46	6071	2407	10	315.48			250	1850	Oct. 20	
	46	6071	2407	10	315.32			250	2040	Oct. 20	
	46	2402	2407	10	315.40			1160	2050	Oct. 20	
	46	6071	2407	10	315.45	160	315.47	Final Value*	250	2050	Oct. 20
	46	3759	6071	11	316.21			640	2150	Mar. 16A	
	46	2423	6071	10	316.30			900	2120	Mar. 16A	
	46	3759	6071	11	316.28			620	2110	Mar. 17	
	46	2425	6071	9	316.13			900	2070	Mar. 17	
	46	2423	6071	10	316.36			830	2070	Mar. 17	
	46	164	6071	11	316.01			1040	2000	Apr. 13	
	46	3759	6071	10	316.13			580	2000	Apr. 13	
	46	2425	6071	14	316.09			860	1910	Apr. 14	
	46	3759	6071	10	316.09			540	1890	Apr. 14	
	46	3759	6071	10	316.13			420	1700	Apr. 18	
	46	2425	6071	10	315.98			730	1680	Apr. 18	
	46	3759	6071	8	316.08			320	1520	Apr. 27	
	46	2425	6071	10	316.04			670	1500	Apr. 27	
	46	3759	6071	10	316.08			225	1330	Apr. 28	

*Tank converted to Primary Standard on October 20, 1961

Table 5. Index Values of Standards and Substandards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared	Tank		
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
										<u>1961</u>	
	46	164	6071	10	316.24			890	1320	Apr. 28	
	46	3759	6071	10	316.05			190	1230	May 1	
	46	2425	6071	12	315.92			630	1220	May 1	
	46	2423	6071	11	316.19			600	1160	June 9	
	46	2425	6071	10	316.16			590	1150	June 9	
	46	2423	6071	11	316.02			590	1010	June 15	
	46	164	6071	10	316.09			750	1000	June 15	
	46	2423	6071	10	316.09			550	1000	June 22	
	46	2425	6071	10	316.15			490	1000	June 22	
	46	2423	6071	11	315.89			530	970	June 26	
	46	2425	6071	10	315.82			480	960	June 26	
	46	2423	6071	10	316.14			490	950	June 27	
	46	164	6071	11	316.29			700	950	June 27	
	46	2423	6071	11	315.99			480	890	Aug. 2	
	46	2425	6071	10	315.98			400	890	Aug. 2	
	46	2423	6071	11	316.00			420	870	Aug. 3	
	46	164	6071	10	316.06			660	850	Aug. 3	
	46	2423	6071	10	315.94			380	820	Aug. 10	
	46	2425	6071	10	315.89			375	820	Aug. 10	
	46	2423	6071	10	316.04			340	810	Aug. 15	
	46	164	6071	11	316.18			610	810	Aug. 15	
	46	2423	6071	11	315.96			310	800	Aug. 16	
	46	2425	6071	10	316.00			330	790	Aug. 16	
	46	2423	6071	11	316.14			270	760	Aug. 22	
	46	164	6071	10	316.22	405	316.09	Final Value*	570	760	Aug. 22

*Tank converted to Primary Standard on August 22, 1961

Table 5. Index Values of Standards and Substandards

Col:	1	2	3	4	5	6	7	8	9	10	11
	Analysers	(Sub) Standard Tank No.	Compared Tank No.	Single No. of Compari- sons	Set Index	Wt'd. Av. No. of Compari- sons		Compared Tank No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
										<u>1960</u>	
	46	7344	2402	12	338.01				1490	Mar. 11*	
	46	3759	2402	9	338.00				-	Jul. 26*	
	46	3759	2402	10	338.06				1480	Jul. 28*	
	46	1004	2402	10	338.27				1490	Jul. 28*	
	46	3759	2402	10	337.89				1480	Jul. 29*	
										<u>1961</u>	
	46	2425	2402	10	337.83			580	1440	Jun. 9**	
	46	2425	2402	10	337.86			450	1460	Jun. 26**	
	46	2425	2402	11	337.87			400	1460	Aug. 2**	
	46	2425	2402	10	337.79			360	1440	Aug. 10**	
	46	2425	2402	10	337.76	102	337.94	Final Value***	320	1430	Aug. 16**

*Data in Report III, Table 12C, Former Antarctic and Monsoon High Span Tank

**Data in Report IV, Table 12A

***Tank converted to Primary Span Standard on August 21

Table 5. Index Values of Standards and Substandards

[illegible]

Year	Month	Value	Final	Value***
1960	July 25*	1400	2250	2250
	July 27*	1550	2240	2240
	July 27*	880	2240	2240
	July 27*	1310	2240	2240
	July 29*	2230	2220	2220
	July 29*	2210	2220	2220
1961	Apr. 27**	1380	1930	1930
	Apr. 28**	830	1920	1920
	June 15**	740	1860	1860
	June 27**	700	2100	2100
	Aug. 3**	620	1900	1900
	Aug. 15**	600	1870	1870
	Aug. 22**	580	1850	1850
1962	June 9	1120	2210	2210
	June 14	1050	2160	2160
	June 14	780	2150	2150
	June 15	990	2130	2130
	June 26	950	2080	2080
	June 27	930	2080	2080
	July 19	940	2040	2040
	July 19	690	2040	2040
	July 25	910	1990	1990
	July 25	670	1980	1980
	Aug. 2	880	1970	1970
	Aug. 3	850	1940	1940
	Aug. 10	810	1960	1960
	Aug. 15	800	1880	1880
1963	June 11	309.82	309.82	309.82
	June 11	309.44	309.44	309.44
	June 10	309.57	309.57	309.57
	June 10	309.75	309.75	309.75
	June 7	309.45	309.45	309.45
	June 10	309.67	309.67	309.67
	June 13	309.52	309.52	309.52
	June 12	309.58	309.58	309.58
	June 11	309.57	309.57	309.57
	June 11	309.49	309.49	309.49
	June 10	309.69	309.69	309.69
	June 10	309.76	309.76	309.76
	June 10	309.75	309.75	309.75
	June 9	309.78	309.78	309.78

*Data in Report III, Table 12A, Former Monsoon Low Span Tank
**Data in Report IV, Table 12A
***Tank converted to Primary Span Standard on August 28

Table 5. Index Values of Standards and Substandards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared	Tank		
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
										<u>1961</u>	
46		6071	4286	11	309.71			790	1870	Aug. 16	
46		6071	4286	11	309.65			770	1850	Aug. 21	
46		2402	4286	11	309.59			1400	1840	Aug. 21	
46		6071	4286	11	309.58			740	1780	Aug. 22	
46		6071	4286	11	309.61			720	1780	Aug. 28	
46		7358	4286	10	309.74			1820	1770	Aug. 28	
46		6071	4286	11	309.50			700	1710	Sept. 1	
46		2402	4286	10	309.54			1400	1690	Sept. 1	
46		6071	4286	11	309.77			650	1670	Sept. 4	
46		7358	4286	10	309.83			1790	1670	Sept. 4	
46		6071	4286	11	309.68			640	1580	Sept. 5	
46		2402	4286	10	309.48			1380	1580	Sept. 5	
46		6071	4286	10	309.60			600	1520	Sept. 8	
46		2402	4286	11	309.86			1340	1530	Sept. 8	
46		6071	4286	11	309.88			560	1430	Sept. 12	
46		2402	4286	10	309.74			1310	1410	Sept. 12	
46		6071	4286	11	309.74			540	1370	Sept. 13	
46		7358	4286	10	309.75			1760	1370	Sept. 13	
46		6071	4286	11	309.55			510	1330	Sept. 14	
46		2402	4286	10	309.61			1310	1320	Sept. 14	
46		6071	4286	11	309.73			480	1310	Sept. 21	
46		2402	4286	11	309.74			1270	1300	Sept. 21	
46		6071	4286	11	309.76			450	1250	Oct. 7	
46		7358	4286	10	309.85			700	1250	Oct. 7	
46		6071	4286	10	309.60			430	1200	Oct. 10	
46		6071	4286	10	309.69			420	1190	Oct. 10	
46		2402	4286	10	309.64			1240	1180	Oct. 10	
46		6071	4286	11	309.56			340	1170	Oct. 16	
46		2402	4286	11	309.57			1220	1160	Oct. 16	
46		6071	4286	11	309.58			300	1110	Oct. 18	
46		7358	4286	10	309.59	473	309.66	4286*	1680	1100	Oct. 18

*Weighted average index value used in Report IV but not final value.

Table 5. Index Values of Standards and Substandards

Col:	1	2	3	4	5	6	7	8	9	10	11
	Analysers	(Sub) Standard Tank No.	Compared Tank No.	Single No. of Compari- sons	Set Index	Wt'd.Av. No. of Compari- sons	Index	Compared No.	Tank Pressure (P.S.I.)	Date of Analysis	Dates of Use
										<u>1960</u>	
	46	3759	2406	10	313.31			1030	2150	Aug. 25*	
	46	3759	2406	10	313.32			1020	2130	Sept. 1*	
										<u>1961</u>	
	46	2423	2406	6	313.24			990	2160	Mar. 8*	
	46	6071	2406	10	313.21			1820	2160	Apr. 14	
	46	2423	2406	10	313.17			600	2100	June 9	
	46	6071	2406	10	313.14			1130	2080	June 9	
	46	6071	2406	10	313.22			990	2100	June 15	
	46	2423	2406	10	313.22			570	2100	June 15	
	46	6071	2406	11	312.96			990	2070	June 22	
	46	2423	2406	10	313.13			550	2040	June 22	
	46	6071	2406	11	313.33			950	2070	June 26	
	46	2423	2406	10	313.35			510	2060	June 26	
	46	2423	2406	10	313.31			500	2050	June 27	
	46	6071	2406	11	313.38			930	2050	June 27	
	46	6071	2406	11	313.04			990	2010	Aug. 2	
	46	2423	2406	11	313.25			480	2000	Aug. 2	
	46	6071	2406	11	313.28			830	2020	Aug. 3	
	46	2423	2406	12	313.30			400	2010	Aug. 3	
	46	6071	2406	10	313.29			810	2010	Aug. 10	
	46	2423	2406	10	313.18			360	1990	Aug. 10	
	46	2423	2406	11	313.18			350	1950	Aug. 15	
	46	6071	2406	11	313.23			800	1940	Aug. 15	
	46	6071	2406	10	313.17			790	1970	Aug. 16	
	46	2423	2406	10	313.22			310	1940	Aug. 16	
	46	2423	2406	10	313.19			270	1930	Aug. 22	
	46	6071	2406	11	313.26			740	1920	Aug. 22	

*Data in Report III, Table 12B

Table 5. Index Values of Standards and Substandards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared Tank			
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No.	Pressure (P.S.I.)	Date of Analysis	Dates of Use
										<u>1961</u>	
	46	6071	2406	10	313.14			630	1910	Sept. 6	
	46	6071	2406	10	313.09			520	1910	Sept. 14	
	46	6071	2406	10	313.17			400	1900	Oct. 14	
	46	6071	2406	10	313.19			320	1890	Oct. 17	
	46	4286	2406	12	313.14			1080	1870	Oct. 18	
	46	2407	2406	10	312.98			2020	1850	Oct. 20	
	46	6071	2406	10	313.10	339	313.20	2406	250	1850	Oct. 20

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
	Analysers	(Sub) Standard Tank No.	Compared Tank No.	Single No. of Compari- sons	Set Index	Wt'd.Av. No. of Compari- Index sons		Compared Tank No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
A.	Monsoon	Post-cruise								1961	
	46	6071	2400	10	310.87				1370	Apr. 27	
	46	4286	2400	11	310.74				1280	Sep. 4	
	46	6071	2400	11	311.01				1280	Sep. 4	
	46	4286	2400	10	310.77				1280	Sep. 6	
	46	4286	2400	10	310.79				1270	Sep. 25	
	46	6071	2400	10	310.86	62	310.84	2400*	1270	Oct. 17	
	46	3759	193	10	312.06				2050	Apr. 28	
	46	2423	193	10	311.93				2010	Apr. 28	
	46	6071	193	11	311.92				1990	Apr. 28	
	46	2423	193	11	311.91				1980	May 1	
	46	6071	193	10	311.84				1940	May 1	
	46	3759	193	10	311.94	62	311.93	193**	1920	May 1	
	46	6071	4291	10	335.38				1500	Apr. 27	
	46	2425	4291	12	335.00				1420	Jun. 9	
	46	2425	4291	10	335.14				1450	Jun. 22	
	46	2425	4291	10	335.05				1450	Jun. 26	
	46	2425	4291	10	335.04				1460	Aug. 2	
	46	2425	4291	11	335.06				1450	Aug. 10	
	46	2425	4291	10	334.98	73	335.09	4291***	1410	Aug. 16	
	46	2425	2402	10	337.83				1440	Jun. 9	
	46	2425	2402	10	337.86				1460	Jun. 26	
	46	2425	2402	11	337.87				1460	Aug. 2	
	46	2425	2402	10	337.79				1440	Aug. 10	
	46	2425	2402	10	337.76	51	337.82	2402****	1430	Aug. 16	

* Reused as Point Barrow Primary.

** Reused as Mauna Loa Secondary.

*** Reused as Point Barrow High Span.

**** Reused as Scripps High Span (See Table 5)

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared	Tank		
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons		No.	Pressure (P.S.I.)	Date of Analysis	Dates of Use
A.	Monsoon	Post-cruise		(Cont)						1961	
	46	6071	7358	10	279.84				1930	Apr. 27	
	46	164	7358	10	278.77				1920	Apr. 28	
	46	164	7358	10	279.33				1860	Jun. 15	
	46	164	7358	10	279.38				--	Jun. 27	
	46	164	7358	12	279.49				1900	Aug. 3	
	46	164	7358	10	279.33				1870	Aug. 15	
	46	164	7358	10	279.22	72	279.34	7358*	1850	Aug. 22	
	46	164	7351	10	272.95				2220	Apr. 28	
	46	2423	7351	10	273.52				2140	Jun. 15	
	46	164	7351	10	273.57				2200	Jun. 27	
	46	164	7351	11	273.53				2200	Aug. 3	
	46	164	7351	10	273.62				2160	Aug. 15	
	46	164	7351	10	273.38	61	273.43	7351**	2160	Aug. 22	
	46	6071	4286	10	319.64				580	Apr. 27	
	46	6071	4286	10	319.60				520	Apr. 28	
	46	2423	4286	10	319.86	30	319.70	4286	520	May 1	
	46	6071	7364	10	319.21				590	Apr. 27	
	46	6071	7364	10	319.30				570	May 1	
	46	2423	7364	10	319.46	30	319.32	7364	550	May 1	
	46	6071	2407	10	318.70				540	Apr. 27	
	46	6071	2407	10	318.66				500	Apr. 28	
	46	2423	2407	10	319.03	30	318.80	2407	460	May 1	
	46	4286	4270			10	318.21	4270	430	Jun. 9	
	46	6071	2427			10	315.79	2427***2230		Apr. 27	

* Reused as Scripps Low Span (See Table 5).

** Reused as Point Barrows Low Span.

*** Reused as Mauna Loa Working Tank.

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared Tank			
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons		No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
A.	<u>Monsoon</u>	<u>Post-cruise</u>		<u>(Cont)</u>						<u>1961</u>	
	46	6071	7355	11	318.20				780	May 1	
	46	2423	7355	11	318.31	22	318.26	7355	730°	May 1	
	46	6071	7350	10	314.08				1600	Oct. 14	
	46	4286	7350	10	314.08	20	314.08	7350	1540	Oct. 18	
B.	<u>Scripps</u>	<u>Laboratory</u>								<u>1959</u>	
	46	3760	4292	10	343.32				2180	Aug. 25*	
	46	3760	4292	11	343.30				2200	Sep. 16*	
	46	1004	4292	9	343.32				1970	Nov. 11*	
	46	2425	4292	9	343.37				2060	Jan. 26*	
	46	7344	4292	10	343.23				1860	Mar. 18*	
	46	3759	4292	10	343.49				1800	Jun. 2*	
	46	3759	4292	10	343.54				1760	Jul. 28*	
	46	2423	4292	10	343.40				1730	Aug. 9*	
	46	2423	4292	10	343.50				1710	Aug. 15*	
	46	2423	4292	10	343.30				1630	Oct. 3*	
	46	2425	4292	10	343.32				1550	<u>1961</u> Mar. 2*	
	46	2425	4292	10	343.06				1550	Apr. 18	
	46	4286	4292	10	343.35				1190	Sep. 14	
	46	2402	4292	10	343.20				1200	Oct. 14	
	46	2402	4292	10	343.07	149	343.32 ✓	4292	1150	Oct. 16	

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* Data in Report III, Table 12B.

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared	Tank		
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons		No.	Pressure (P.S.I.)	Date of Analysis	Dates of Use
B.	Scripps Laboratory	(Cont)								1961	
	46	6071	10074	10	312.91				2190	Apr. 13	
	46	3759	10074	11	312.93				2180	Apr. 17	
	46	2425	10074	10	312.84				2170	Apr. 17	
	46	2423	10074	8	313.03				2130	Apr. 17	
	46	6071	10074	10	312.89				2130	Apr. 17	
	46	4286	10074	11	312.71				1720	Jun. 15	
	46	4286	10074	10	312.68				1360	Sep. 12	
	46	2402	10074	11	312.97				1050	Oct. 14	
	46	6071	10074	11	312.88				1050	Oct. 14	
	46	6071	10074	11	312.84				1050	Oct. 14	
	46	2402	10074	10	312.86				1050	Oct. 14	
	46	6071	10074	10	312.80	123	312.86	10074	1050	Oct. 17	
	46	Various	2406*	--	---	---	---	2406*	---	---	
	46	6071	6067	12	311.94				530	Apr. 17	
	46	4286	6067	11	312.19	---	---	6067**	310	Sep. 8	
	46	2402	2399	10	334.76				1540	Oct. 16	
	46	6071	2399	9	334.89	Incomplete			1530	Oct. 16	
C.	Antarctic 2nd Year Returns									1960	
	46	Various	4269	113	321.63			4269***		Apr. 51 Nov. '60	
	46	2423	4269	11	322.08				1170	1961 Mar. 16B	
	46	2425	4269	10	322.04				1160	Mar. 16B	
	46	2423	4269	13	322.17	147	321.74	4269	1160	Mar. 17	
	46	Various	4293	135	297.77			4293***		Apr. 1959 to Mar. 1961	
	46	6071	4293	10	297.63	145	297.76	4293	1570	1961 Apr. 13	

* Used as Scripps Super-Primary (See Table 5)

** Retired Flask Tank. Index Value not used

*** See Report III, Table 12C

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared	Tank		
	Analysers	Standard	Compared	No. of	Index	No. of	Index	No.	Pressure	Date of	Dates of Use
		Tank No.	Tank No.	Compari- sons		Compari- sons			(P.S.I.)	Analysis	
C.	Antarctic	Fourth	Year	Returns	-	3rd Year	Tanks			1961	
	46	4286	A-8	(136)		10	323.25	A-8	2160	Aug. 2	
	46	4286	A-9	(1008)		10	303.36	A-9	2070	Jul. 19	
	46	4286	3752			11	320.51	3752	2160	Aug. 2	
	46	4286	3755			10	303.11	3755	2240	Jun. 14	
	46	4286	3756			4	299.70	3756	2180	Jul. 25	
	46	4286	3757			10	311.70	3757	340	Sep. 6	
C.	Antarctic	Fourth	Year	Returns	-	4th Year	Tanks				
	46	4286	2401	10	295.37				2080	Jun. 14	
	46	4286	2401	10	295.48	20	295.42	2401	2090	Jul. 19	
	46	4286	3751			10	323.19	3751	620	Aug. 2	
	46	4286	3754	10	298.01				660	Jun. 14	
	46	4286	3754	10	297.79	20	297.90	3754	660	Jul. 19	
	46	4286	4271			10	318.41	4271	620	Jul. 25	
C.	Antarctic	6th	Year	-	New	Fillings				1961	
	46	4286	2401	11	309.29				2220	Aug. 22	
	46	6071	2401	10	309.27				2180	Aug. 28	
	46	4286	2401	10	309.29				2180	Sep. 1	
	46	4286	2401	10	309.16				2160	Sep. 4	
	46	4286	2401	10	309.36	51	309.27	2401	2200	Sep. 5	
	46	4286	11085	11	313.53				2130	Sep. 1	
	46	6071	11085	11	313.97				2130	Sep. 1	
	46	4286	11085	10	313.66				2120	Sep. 4	
	46	4286	11085	10	313.55				2140	Sep. 5	
	46	6071	11085	10	313.64	52	313.67	11085*	2100	Sep. 6	

* Tanks not to be used because of contaminated filling.

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared Tank			
	Analyser	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No.	Pressure (P.S.I.)	Date of Analysis	Dates of Use
C.	Antarctic	6th Year - New	Fillings	(Cont)						1961	
	46	4286	11092	11	292.63				2130	Sep. 4	
	46	7358	11092	10	293.11				2130	Sep. 4	
	46	4286	11092	10	293.45				2200	Sep. 5	
	46	6071	11092	11	293.35				2120	Sep. 6	
	46	7358	11092	10	293.36	52	293.17	11092*	2110	Sep. 6	
	46	4286	1008	10	352.13				2240	Aug. 16	
	46	2402	1008	11	352.29				2200	Aug. 21	
	46	4286	1008	11	352.27				2190	Aug. 21	
	46	4286	1008	10	352.34				2170	Sep. 1	
	46	4286	1008	10	352.67	52	352.34	1008	2180	Sep. 5	
	46	4286	3754			10	319.56	3754	2280	Aug. 21	
	46	4286	3758			10	319.21	3758	2290	Aug. 21	
	46	4286	3759			10	317.81	3759	2240	Sep. 1	
	46	4286	4271			14	317.18	4271	2130	Aug. 21	
	46	4286	4297			10	307.68	4297	2270	Jul. 19	
	46	4286	6060			10	318.79	6060	2030	Aug. 21	
	46	4286	10066			13	308.19	10066	2250	Jul. 19	
	46	4286	10075			10	321.33	10075	2270	Aug. 21	
	46	4286	11076			11	302.23	11076*	2110	Aug. 28	
	46	4286	11082	10	306.15				2110	Aug. 28	
	46	4286	11082	10	305.56	20	305.86	11082*	2120	Sep. 1	
	46	4286	11094			10	307.92	11094*	2130	Sep. 5	
D.	Mauna Loa - New	Fillings								1961	
	46	2423	6081			10	309.81	6081	2150	Mar. 16B	
	46	6071	10067			10	319.37	10067	2180	Apr. 17	
	46	6071	10068			10	303.68	10068	2200	Apr. 17	

* Tank not to be used because of contaminated filling.

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
	Analysers	(Sub) Standard Tank No.	Compared Tank No.	Single No. of Compara- sons	Set Index	Wt'd.Av. No. of Compara- sons		Compared No. Pressure (P.S.I.)	Tank	Date of Analysis	Dates of Use
D.	<u>Mauna Loa - New Fillings</u>				(Cont)						
	46	Various	2427	41	315.86			--		1960 Oct - Nov. *	
	46	6071	2427	10	315.79	51	315.84	2427	2230	1961 Apr. 27**	
	46	Various	193	53	311.81			--		1960 Feb. - Jul. *	
	46	Various	193	62	311.93	115	311.87	193	--	1961 Apr. - May**	
	46	4286	4272			9	307.94	4272	2190	Jun. 9	
	46	4286	4275			10	304.77	4275	2230	Jun. 14	
	46	4286	7355			10	307.56	7355	2200	Jun. 14	
	46	4286	7364			10	302.20	7364	2230	Jun. 14	
	46	4286	136	10	321.73				2150	Aug. 21	
	46	4286	136	10	321.80	20	321.76	136	2140	Sep. 8	
	46	4286	3751			10	326.75	3751	2090	Sep. 8	
	46	4286	3752			10	320.87	3752	2100	Sep. 8	
D.	<u>Mauna Loa - Returns</u>										
	46	1004	4287	12	293.62				1660	1959 Nov. 10***	
	46	2423	4287	10	293.99				1600	1960 Nov. 10***	
	46	164	4287	11	294.14				1640	1961 Mar. 9***	
	46	164	4287	10	293.94				1630	Apr. 13	
	46	6071	4287	11	293.90				1595	Oct. 17	
	46	7358	4287	10	293.99				1570	Oct. 17	
	46	7358	4287	11	293.82				1570	Oct. 18	
	46	6071	4287	10	293.82	Incomplete			1550	Oct. 18	

* See Monsoon-Precruise, Report III, Table 12A

** See Monsoon-Postcruise, Report IV, Table 12A

*** Data In Report III, Table 12D

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared Tank			
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari-Index sons		No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
D.	Mauna	Loa	- Returns	(Cont)							
	46	3759	6051	10	310.21				890	1960 May 11*	
	46	3759	6051	12	310.17				890	Jun. 23*	
	46	3759	6051	10	310.09				870	Jul. 1*	
	46	2423	6051	9	310.05				870	Nov. 11*	
	46	2423	6051	11	310.07				900	1961 Mar. 9*	
	46	6071	6051	10	310.08				880	Apr. 14	
	46	6071	6051	10	310.03				850	Oct. 17	
	46	4286	6051	10	309.98				850	Oct. 18	
	46	6071	6051	10	309.90	Incomplete			830	Oct. 18	
	46	2423	3758	12	310.61				410	Mar. 8**	
	46	4286	3758	12	310.66	24	310.64	3758	425	Jul. 19	
	46	6071	4272			10	314.10	4272	400	Apr. 19	
	46	6071	4275			10	314.18	4275	400	Apr. 19	
	46	4286	10075			12	298.38	10075	440	Jul. 19	
	46	4286	6081			11	309.93	6081	375	Aug. 10	
	46	4286	7344	10	314.38				375	1961 Aug. 10	
	46	4286	7344	10	314.31				390	Aug. 16	
	46	4286	7344	8	314.40				375	Sep. 5	
	46	4286	7344	10	314.53				350	Sep. 12	
	46	4286	7344	10	314.46				340	Sep. 21	
	46	4286	7344	10	314.61	58	314.45	7344	350	Sep. 25	
	46	4286	2427			9	315.81	2427	310	Sep. 12	
	46	4286	10067			10	319.14	10067	375	Sep. 12	
	46	4286	10068			10	303.68	10068	385	Sep. 12	

* Data In Report III, Table 12D

** Data In Report III, Table 12 D. Index value for this data is taken as final value in Mauna Loa Report of March 15, 1961.

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared Tank			
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No.	Pressure (P.S.I.)	Date of Analysis	Dates of Use
E.	Point	Barrow	Returns							1961	
	46	4286	10065			10	297.06	10065	250	Sep. 13	
	--	--	10070			--	--	--	0	Sep. 13	
	46	4286	10064			10	298.53	10064	100	Sep. 13	
	46	4286	10072			10	299.30	10072	40	Sep. 13	
	46	4286	148			10	339.79	148	210	Sep. 14	
E.	Point	Barrow	New Fillings							1961	
	46	2423	148	3	339.26				2160	Mar. 2*	
	46	2425	148	10	339.37				2150	Mar. 2*	
	46	6071	148	11	339.47				2150	Apr. 18	
	46	2425	148	11	339.30				2110	Apr. 18	
	46	3759	148	11	339.64				2120	Apr. 19	
	46	2425	148	10	339.30	45	339.40	148	2100	Apr. 19	Back(?) in this report ↗
	46	6071	10063	10	310.40				2190	Apr. 13	
	46	6071	10063	10	310.51				2170	Apr. 17	
	46	6071	10063	10	310.56				2130	Apr. 18	
	46	2423	10063	10	310.58				2110	Apr. 18	
	46	6071	10063	10	310.46	50	310.57	10063	2120	Apr. 19	Back in Report VII
	46	6071	10069	10	312.21				2200	Apr. 18	
	46	2423	10069	11	312.25				2180	Apr. 18	
	46	6071	10069	11	312.19				2140	Apr. 18	
	46	6071	10069	10	312.16				2140	Apr. 19	
	46	2423	10069	10	312.26	52	312.27	10069	2100	Apr. 19	Back in Report IV
	46	3759	10077	11	279.51				2140	Apr. 19	
	46	164	10077	10	279.29				2170	Apr. 19	
	46	2423	10077	10	279.48				2170	Apr. 19	
	46	164	10077	10	279.26				2120	Apr. 19	
	46	164	10077	10	279.21	51	279.35	10077	2120	Apr. 28	Back in Report IV

* Data in Report III, Table 12 E

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set						
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No. Pressure (P.S.I.)	Compared Tank	Date of Analysis	Dates of Use
E.	Point Barrow - New Fillings (Cont)										
	46	various	2400	51	311.06					1960 Feb. - Jul. *	
	46	various	2400	62	310.84	113	310.94	2400	1270	1961 Apr. - Oct. **	Back in Reports VI and VII
	46	various	4291	60	335.32					1960 Feb. - Jul. *	
	46	various	4291	73	335.09	133	335.19	4291	1410	1961 Apr. - Aug. **	Back in Report V
	46	various	7351	63	273.27					1960 Jul. *	
	46	various	7351	61	273.43	124	273.35	7351	2160	1961 Apr. - Aug. **	Back in Report VII
	46	6071	11089	12	310.73				2100	Aug. 28	
	46	4286	11089	9	310.71				2130	Sep. 12	
	46	4286	11089	11	310.63				2100	Sep. 13	
	46	6071	11089	11	311.04				2080	Sep. 13	
	46	6071	11089	10	310.94				2050	Sep. 14	
	46	6071	11089	11	310.95				--	Sep. 14	
	46	2406	11089	11	310.85				2040	Sep. 21	
	46	4286	11089	11	310.92				2030	Sep. 21	
	46	6071	11089	8	310.77				2030	Sep. 25	
	46	7358	11089	11	310.93				2010	Sep. 25	
	46	4286	11089	3	311.10				2010	Oct. 10	
	46	4286	11089	10	311.21	118	310.89	11089***	2010	Oct. 10	

* See Monsoon - Precruise - Report III Table 12A

** See Monsoon - Postcruise - Report IV, Table 12A

*** Tanks not used because of Contaminated filling

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set						
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Wt'd.Av. Index	Compared Tank No.	Pressure (P.S.I.)	Date of Analysis	Dates of Use
E.	Point Barrow	-	New Fillings	(Cont)						1961	
	46	4286	11078	10	287.97				2105	Sep. 6	
	46	4286	11078	10	287.40				2070	Sep. 13	
	46	4286	11078	10	288.06				--	Sep. 13	
	46	7358	11078	11	287.74				2020	Sep. 25	
	46	4286	11078	9	288.23	50	287.87	11078*	2010	Sep. 25	
	46	4286	11080	10	335.77				2140	Sep. 14	
	46	2402	11080	11	335.50				2120	Sep. 14	
	46	2402	11080	11	335.17				2100	Sep. 21	
	46	2402	11080	10	335.76				--	Sep. 21	
	46	4286	11080	10	335.83	52	335.60	11080*	2100	Oct. 10	
	46	2423	10072	10	299.33				2240	Nov. 19**	
	46	2423	10072	15	299.45				2250	Mar. 1**	
	46	2423	10072	10	299.07				2240	Mar. 8**	
	46	2423	10072	10	299.43				2240	Mar. 9**	
	46	6071	10072	10	299.31	55	299.35	10072	2240	Apr. 13	
	46	6071	6074			10	299.04	6074	2180	Apr. 13	
	46	4286	3755			12	304.38	3755	2120	Aug. 15	
	46	4286	3756			13	297.15	3756	2140	Aug. 15	
	46	4286	10071			10	319.12	10071	2270	Sep. 6	
	46	2423	10073	10	298.72				2240	Nov. 19**	
	46	2423	10073	10	298.76				2270	Mar. 1**	
	46	4286	10073	10	298.82	30	298.77	10073	2230	Oct. 16	
	46	4286	11081	6	302.76				2130	Oct. 16	
	46	4286	11081	10	303.80	16	303.41	11081	2130	Oct. 16	

* Tank not used because of contaminated filling

** Data in Report III, Table 12E

Back in this report ↗

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared	Tank		
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari- sons	Index	No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
F.	<u>Special Use - Contaminated Fillings</u>									<u>1961</u>	
	46	4286	11111			10	296.07	29607	2050	Oct. 7	
	46	4286	11589			5	303.48	11589	2090	Oct. 7	
	46	4286	11633			10	288.09	11633	2090	Oct. 7	
	46	4286	11669			10	299.51	11669	2090	Oct. 7	
	46	4286	11083			4	305.52	11083	2150	Oct. 16	
G.	<u>Retired Standards</u>									<u>1959</u>	
	46	3760	C-7 (221)	11	319.99				560	Apr. 17*	
	46 (164)	C-5	C-7	11	320.19				550	Apr. 17*	
	46	3760	C-7	10	320.07				550	Apr. 30*	
	46	4296	C-7	11	320.04				540	Jul. 6*	
	46	3760	C-7	11	320.16				530	Jul. 6*	
	46	4296	C-7	10	320.29				530	Jul. 6*	
	46	3760	C-7	11	320.08				500	Aug. 25*	
	46	4296	C-7	11	320.04				500	Aug. 25*	
	46	4296	C-7	10	320.11				500	Aug. 25*	
	46	3760	C-7	11	319.99				490	Aug. 28*	
	46	4296	C-7	10	320.03				490	Aug. 28*	
	46	1004	C-7	10	320.22				--	Nov. 13**	
										<u>1960</u>	
	46	2423	C-7	10	320.29				450	Aug. 15**	
	46	2423	C-7	10	320.18				440	Oct. 4**	
	46	2423	C-7	10	320.23				426	Oct. 10**	
										<u>1961</u>	
	46	2423	C-7	10	320.54				420	Mar. 3**	
	46	2423	C-7	11	320.54				420	Mar. 16B	
	46	2425	C-7	11	320.57				400	Mar. 16B	
	46	6071	C-7	10	320.34				420	Apr. 14	
	46	4286	C-7	10	320.15	209	320.20	C-7	400	Oct. 10	

* Data in Research Report II, Table 12G

** Data in Research Report III, Table 12G

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		Single	Set	Wt'd.Av.		Compared Tank			
	Analysers	Standard Tank No.	Compared Tank No.	No. of Compari- sons	Index	No. of Compari-Index sons		No. Pressure (P.S.I.)		Date of Analysis	Dates of Use
G.	Retired	Standards									
	46	1004	3760	11	314.67				500	1959 Dec. 22*	
	46	1004	3760	13	314.71				500	1960 Jan. 26*	
	46	2423	3760	11	314.64				500	Aug. 4*	
	46	2423	3760	12	314.67				490	Sep. 22*	
	46	2423	3760	12	314.56				480	Oct. 4*	
	46	2423	3760	10	314.65				480	Oct. 10*	
	46	2423	3760	9	314.87				460	1961 Mar. 3*	
	46	6071	3760	9	314.69				480	Apr. 14	
	46	6071	3760	10	314.54				460	Oct. 14	
	46	6071	3760	10	314.55				460	Oct. 17	
	46	4286	3760	10	314.64	117	314.66	3760	460	Oct. 18	
	46	2423	1004	9	311.14				710	1960 Oct. 4*	
	46	2423	1004	11	311.12				705	Oct. 10*	
	46	2423	1004	11	311.14				700	1961 Mar. 3*	
	46	6071	1004	10	311.38				720	Apr. 14	
	46	8286	1004	10	311.34				690	Oct. 10	
	46	6071	1004	10	311.47				700	Oct. 14	
	46	6071	1004	10	311.41	71	311.28	1004	700	Oct. 17	
	46	2423	4296	10	292.70				410	1960 Aug. 15*	
	46	2423	4296	12	292.91				410	Sep. 22*	
	46	2423	4296	10	292.98				400	Oct. 4*	
	46	2423	4296	10	292.90				480	Oct. 16*	
	46	164	4296	11	293.00				420	1961 Mar. 9*	
	46	2423	4296	11	292.95				410	Mar. 9*	

* Data in Report III, Table 12G

Table 12 Index Values of Working Reference Gases and Retired (Sub)standards

Col:	1	2	3	4	5	6	7	8	9	10	11
		(Sub)		<u>Single</u>	<u>Set</u>	<u>Wt'd Av.</u>		<u>Compared</u>	<u>Tank</u>		
	Analyser	Standard	Compared	No. of	Index	No. of	Index	No.	Pressure	Date of	Dates of use
		Tank No.	Tank No.	sons		sons			(P.S.I.)	Analysis	
G.	<u>Retired Standards</u>		<u>(Cont)</u>							<u>1961</u>	
	46	164	4296	10	293.00				400	Apr. 13	
	46	6071	4296	11	292.88				380	Oct. 17	
	46	7358	4296	10	292.96				370	Oct. 17	
	46	7358	4296	10	292.96	105	292.92	4296	360	Oct. 18	

Table 13. Index Values of Standards and Principle Substandards

Reference To:	No. of Comparisons	Index	Tank No.
Report III, Table 5	183	343.30	2425
Report III, Table 5	59	290.29	164
Report III, Table 5	499	314.27	3759
Report III, Table 5	595	312.68	2423
Report IV, Table 5	405	316.09	6071
Report IV, Table 5	102	337.94	2402
Report IV, Table 5	128	279.27	7358
Report IV, Table 5	430	309.66	4286