

## Annual Ambient Monitoring Report Petrochemicals Industry Standard, 2022 Reporting Year

### DPCC Average 1,3 Butadiene Concentrations:

Monitor #	Location	2019	2020	2021	2022
1	E 0383543 N 4755905	1.13	0.60	0.47	1.12
2	E 0383543 N 4755905	2.37	2.19	0.97	1.00
3	E 0384093 N 4755833	1.37	1.07	0.60	1.24
4	E 0383953 N 4755328	0.81	0.63	0.37	1.19
5	E 0383589 N 4755252	1.02	0.94	0.35	0.40
6	E 0383213 N 4755589	0.43	0.20	0.17	0.22

### DPCC Monitor Location Map:





## 2022 Statistical Analysis Calculations

There is no statistically significant increase in the concentrations of 1,3 Butadiene for the 2022 reporting year. The test statistics calculated are below the Table 7-62 Column 2 values therefore no action is required as outlined S.63.

Section 62 - Statistical Analysis of Ambient Monitor 1,3-Butadiene Concentration Measurements												
2022 Reporting Year												
	Monitor Location #1		Monitor Location #2		Monitor Location #3		Monitor Location #4		Monitor Location #5		Monitor Location #6	
	ug/m <sup>3</sup>	log <sub>e</sub> (x)	ug/m <sup>3</sup>	log <sub>e</sub> (x)	ug/m <sup>3</sup>	log <sub>e</sub> (x)	ug/m <sup>3</sup>	log <sub>e</sub> (x)	ug/m <sup>3</sup>	log <sub>e</sub> (x)	ug/m <sup>3</sup>	log <sub>e</sub> (x)
January 5, 2022	0.2	-1.60943791	0.24	-1.42711636	0.19	-1.66073121	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
January 19, 2022	0.17	-1.77195684	0.51	-0.67334455	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
February 2, 2022	0.53	-0.63487827	0.68	-0.38566248	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
February 16, 2022	0.17	-1.77195684	0.86	-0.15082289	0.43	-0.84397007	0.63	-0.46203546	0.17	-1.77195684	0.17	-1.77195684
March 2, 2022	0.17	-1.77195684	0.39	-0.94160854	0.55	-0.597837	0.58	-0.54472718	0.35	-1.04982212	0.17	-1.77195684
March 16, 2022	1.44	0.364643114	1.74	0.553885113	0.64	-0.4462871	0.44	-0.82098055	0.17	-1.77195684	0.17	-1.77195684
March 30, 2022	0.68	-0.38566248	0.17	-1.77195684	0.56	-0.5798185	0.89	-0.11653382	0.17	-1.77195684	0.17	-1.77195684
April 13, 2022	2.39	0.871293366	0.72	-0.32850407	0.83	-0.18632958	0.67	-0.40047757	0.71	-0.34249031	0.17	-1.77195684
April 27, 2022	0.17	-1.77195684	0.17	-1.77195684	0.43	-0.84397007	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
May 11, 2022	1.22	0.198850859	0.54	-0.61618614	0.17	-1.77195684	0.63	-0.46203546	1.74	0.553885113	0.44	-0.82098055
May 25, 2022	0.71	-0.34249031	0.99	-0.01005034	1.36	0.3074847	0.48	-0.73396918	0.44	-0.82098055	0.17	-1.77195684
June 8, 2022	0.73	-0.31471074	0.69	-0.37106368	0.45	-0.7985077	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
June 22, 2022	1.91	0.647103242	4.16	1.425515074	2.55	0.936093359	0.66	-0.41551544	1.15	0.139761942	0.17	-1.77195684
July 6, 2022	0.17	-1.77195684	0.63	-0.46203546	0.45	-0.7985077	0.43	-0.84397007	0.17	-1.77195684	0.17	-1.77195684
July 20, 2022	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
August 3, 2022	0.42	-0.86750057	0.17	-1.77195684	0.17	-1.77195684	0.67	-0.40047757	0.17	-1.77195684	0.43	-0.84397007
August 17, 2022	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
August 31, 2022	0.96	-0.04082199	2.71	0.996948635	0.82	-0.19845094	1.36	0.3074847	0.74	-0.30110509	0.17	-1.77195684
September 14, 2022	0.41	-0.89159812	0.72	-0.32850407	0.93	-0.07257069	0.71	-0.34249031	0.17	-1.77195684	0.17	-1.77195684
September 28, 2022	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
October 12, 2022	4.57	1.519513205	2.75	1.011600912	18.20	2.901421594	18.6	2.923161581	1.93	0.657520003	0.66	-0.41551544
October 26, 2022	1.30	0.262364264	2.10	0.741937345	0.79	-0.23572233	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684
November 9, 2022	8.98	2.194999882	3.08	1.124929597	0.88	-0.12783337	0.96	-0.04082199	0.17	-1.77195684	0.37	-0.99425227
November 23 2022	0.56	-0.5798185	0.74	-0.30110509	0.51	-0.67334455	0.17	-1.77195684	0.17	-1.77195684	0.36	-1.02165125
December 7, 2022	0.54	-0.61618614	0.56	-0.5798185	0.40	-0.91629073	0.43	-0.84629836	0.17	-1.77195684	0.17	-1.77195684
December 21, 2022	0.17	-1.77195684	0.17	-1.77195684	0.17	-1.77195684	0.36	-1.02443289	0.17	-1.77195684	0.17	-1.02443289
Mean		-0.62199803		-0.50479628		-0.73118564		-0.843988		-1.33963119		-1.55999767
Standard Deviation Squared		1.294768988		1.057895085		1.136084991		1.062314226		0.62958556		0.166557182
Test Statistic		0.686692685		-3.08831831		-1.60840145		0.378396163		-2.01588764		0.624075639
Degrees of Freedom		38.1		39.6		38.1		38.2		53.8		55.1
Table 7-62		3.551		3.551		3.551		3.551		3.46		3.460
Number of Samples		26		26		26		26		26		26
Number of samples -1		25		25		25		25		25		25
<b>IF TABLE 7-62 VALUE IS &gt; Test Statistic there is no significant increase in concentration at that monitor</b>												
paragraph 2	logarithm of sample result											
paragraph 3	mean of sample result logarithms											
paragraph 4	square of standard deviation of sample result logarithms (S <sub>1</sub> <sup>2</sup> , 3YR or S <sub>2</sub> <sup>2</sup> , ThisYR)											
paragraph 5	test statistic (T), where T = (Y - X) / Sqrt (S <sub>1</sub> <sup>2</sup> /m + S <sub>2</sub> <sup>2</sup> /n) Y = Paragraph 3 (this worksheet) X = Paragraph 3 (3YR worksheet) S <sub>1</sub> = Paragraph 4 (3YR worksheet) S <sub>2</sub> = Paragraph 4 (this worksheet) m = number of samples (3YR worksheet) n = number of samples (this worksheet)											
Paragraph 6	Degrees of freedom (v), where v = [(S <sub>1</sub> <sup>2</sup> /m + S <sub>2</sub> <sup>2</sup> /n) / (S <sub>1</sub> <sup>2</sup> /m) / (m-1) + (S <sub>2</sub> <sup>2</sup> /n) / (n-1)]											
Paragraph 7	Table 7-62 Column 2											