



EPL No:	12555
Entity Name:	Cleanaway Refiners Pty Ltd
Site:	41 Kyle Street, Rutherford NSW 2320
Monitoring Frequency:	Annually
Link to NSW EPA Register:	Click Here

Published Date	Report Date	Sample Date	Parameter	Unit of Measure	Discharge Point										
					Assessment Criteria	DP2 - 3MW Boiler	DP3 - 0.2MW Boiler	Assessment Criteria	DP 5 - Light end Scrubber	Assessment Criteria	DP 19 - Fired Heater	Parameter	Unit of Measure	Assessment Criteria	DP 20 - Reformer
17-Jan-22	15-Dec-21	1-4 November 2021	Temperature	Degrees Celsius		190	255		23.7		121	Temperature	Degrees Celsius		773
			Oxygen	%		5.18	8.22		20.8		5.32	Oxygen	%		5.62
			Carbon dioxide	%		8.39	6.87		0.0547		8.24	Carbon dioxide	%		11.7
			Moisture	%		9.04	8.45		1.66		14.8	Moisture	%		14.5
			Dry gas density	kg/m3		1.31	1.31		1.29		1.32	Dry gas density	kg/m3		1.34
			Molecular weight of dry stack gases	g/g-mol		29.3	29.4		28.8		29.6	Molecular weight of dry stack gases	g/g-mol		30
			Velocity	m/s		4.14	6.61		2.22		2.75	Velocity	m/s		10
			Volumetric flowrate	m3/s		0.73	0.0985		0.063		0.473	Volumetric flowrate	m3/s		0.225
			VOC as propane	mg/m3		<2.91	<2.55	20	<2.75		<2.77	VOC as propane	mg/m3		<2.03
			VOC as propane (@ 8% O2)	mg/m3	10	<2.57	<2.57		-	10	<2.58	VOC as propane (@ 4% O2)	mg/m3	10	<2.25
			Hydrogen sulfide	mg/m3		0.3138	0.211		0.383		1.57	Hydrogen sulfide	mg/m3		<0.619
			Hydrogen sulfide (@ 8% O2)	mg/m3		0.262	0.215		-	5	1.35	Hydrogen sulfide (@ 4% O2)	mg/m3		<0.685
			Nitrogen Oxides	mg/m3		96.3	92.8		-		143	Nitrogen Oxides	mg/m3		104
			Nitrogen Oxides (@ 8% O2)	mg/m3	350	85.2	102		-	350	129	Nitrogen Oxides (@ 4% O2)	mg/m3	350	94.8
			Solid Particles	mg/m3		<2.12	3.05		<3.4		11.4	Solid Particles	mg/m3		<1.77
			Solid Particles (@ 8% O2)	mg/m3	10	<3.02	5.35		-	50	16.6	Solid Particles (@ 4% O2)	mg/m3	10	<1.81
			Formaldehyde	mg/m3		10.6	4.17		<1.84		<0.176	Formaldehyde	mg/m3		-
			Formaldehyde (@ 8% O2)	mg/m3		8.71	4.23		-		<0.149	Formaldehyde (@ 4% O2)	mg/m3		-
			Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		3.99	1.07		<1.19		12.8	Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		17.5
			Sulfuric acid mist and sulfur trioxide (as SO3) (@ 8% O2)	mg/m3		3.27	1.08		-	100	11.1	Sulfuric acid mist and sulfur trioxide (as SO3) (@ 4% O2)	mg/m3		19.4
			Sulphur dioxide	mg/m3		<1.08	1.07		<1.19		<0.717	Sulphur dioxide	mg/m3		<0.671
			Sulphur dioxide (@ 8% O2)	mg/m3		0.881	1.08		-	1360	<0.625	Sulphur dioxide (@ 4% O2)	mg/m3		<0.742
			Fine Particles (PM10)	mg/m3		2.12	<3/05		<3.40		<11.4	Fine Particles (PM10)	mg/m3		<1.77
			Fine Particles (PM10) (@ 8% O2)	mg/m3		<3.02	<5.35		-		<16.6	Fine Particles (PM10) (@ 4% O2)	mg/m3		<1.81
			Benzene	mg/m3		<0.116	<0.102		<0.11		<0.111	Benzene	mg/m3		<0.0811
			Benzene (@ 8% O2)	mg/m3		<0.103	<0.103		-		<0.103	Benzene (@ 4% O2)	mg/m3		<0.0899
			Benzo(a)pyrene (Equivalent - total)	mg/m3		-	-		0		0	Benzo(a)pyrene (Equivalent - total)	mg/m3		0
			Benzo(a)pyrene (Equivalent - total) @8% O2	mg/m3		-	-		-		0	Benzo(a)pyrene (Equivalent - total) @4% O2	mg/m3		0
			Odour	OU		-	-		1144		2621	Odour	OU		2427
			Total PAHs - Lower	mg/m3		-	-		0.0018		0.00191	Total PAHs - Lower	mg/m3		0.00313
			Total PAHs - Lower (@ 8% O2)	mg/m3		-	-		-		0.00164	Total PAHs - Lower (@ 4% O2)	mg/m3		0.00346
			Arsenic	mg/m3		-	-		-		<0.00465	Arsenic	mg/m3		<0.00464
			Arsenic (@ 8% O2)	mg/m3		-	-		-		<0.00342	Arsenic (@ 4% O2)	mg/m3		<0.00393
			Lead	mg/m3		-	-		-		0.00987	Lead	mg/m3		0.0238
			Lead (@ 8% O2)	mg/m3		-	-		-		0.00726	Lead (@ 4% O2)	mg/m3		0.0264
			Mercury	mg/m3		-	-		-		0.00042	Mercury	mg/m3		0.0000738
			Mercury (@ 8% O2)	mg/m3		-	-		-		0.000309	Mercury (@ 4% O2)	mg/m3		0.0000818

					Discharge Point										
Published Date	Report Date	Sample Date	Parameter	Unit of Measure	Assessment Criteria	DP2 - 3MW Boiler	DP3 - 0.2MW Boiler	Assessment Criteria	DP 5 - Light end Scrubber	Assessment Criteria	DP 19 - Fired Heater	Parameter	Unit of Measure	Assessment Criteria	DP 20 - Reformer
25-Jun-21	22-Jun-21	May-21	Temperature	Degrees Celsius		-	-		-		-	Temperature	Degrees Celsius		774
			Oxygen	%		-	-		-		-	Oxygen	%		7
			Carbon dioxide	%		-	-		-		-	Carbon dioxide	%		11.32
			Moisture	%		-	-		-		-	Moisture	%		16.55
			Dry gas density	kg/m3		-	-		-		-	Dry gas density	kg/m3		1.34
			Molecular weight of dry stack gases	g/g-mol		-		-		-	Molecular weight of dry stack gases	g/g-mol		30.09	
			Velocity	m/s		-	-		-		-	Velocity	m/s		13.7
			Volumetric flowrate	m3/s		-	-		-		-	Volumetric flowrate	m3/s		0.521
			VOC as propane	mg/m3		-	-	20	-		-	VOC as propane	mg/m3		<1.81
			VOC as propane (@ 8% O2)	mg/m3	10	-	-		-	10	-	VOC as propane (@ 4% O2)	mg/m3	10	<2.21
			Hydrogen sulfide	mg/m3		-	-		-		-	Hydrogen sulfide	mg/m3		<3.21
			Hydrogen sulfide (@ 8% O2)	mg/m3		-	-		-	5	-	Hydrogen sulfide (@ 4% O2)	mg/m3		<3.91
			Nitrogen Oxides	mg/m3		-	-		-		-	Nitrogen Oxides	mg/m3		158
			Nitrogen Oxides (@ 8% O2)	mg/m3	350	-	-		-	350	-	Nitrogen Oxides (@ 4% O2)	mg/m3	350	192
			Solid Particles	mg/m3		-	-		-		-	Solid Particles	mg/m3		5.69
			Solid Particles (@ 8% O2)	mg/m3	10	-	-		-	50	-	Solid Particles (@ 4% O2)	mg/m3	10	6.96
			Formaldehyde	mg/m3		-	-		-		-	Formaldehyde	mg/m3		-
			Formaldehyde (@ 8% O2)	mg/m3		-	-		-		-	Formaldehyde (@ 4% O2)	mg/m3		-
			Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		-	-		-		-	Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		15.07
			Sulfuric acid mist and sulfur trioxide (as SO3) (@ 8% O2)	mg/m3		-	-		-	100	-	Sulfuric acid mist and sulfur trioxide (as SO3) (@ 4% O2)	mg/m3		18.16
			Sulphur dioxide	mg/m3		-	-		-		-	Sulphur dioxide	mg/m3		5.02
			Sulphur dioxide (@ 8% O2)	mg/m3		-	-		-	1360	-	Sulphur dioxide (@ 4% O2)	mg/m3		6.04
			Fine Particles (PM10)	mg/m3		-	-		-		-	Fine Particles (PM10)	mg/m3		<5.69
			Fine Particles (PM10) (@ 8% O2)	mg/m3		-	-		-		-	Fine Particles (PM10) (@ 4% O2)	mg/m3		<6.96
			Benzene	mg/m3		-	-		-		-	Benzene	mg/m3		<0.073
			Benzene (@ 8% O2)	mg/m3		-	-		-		-	Benzene (@ 4% O2)	mg/m3		<0.088
			Benzo(a)pyrene (Equivalent - total)	mg/m3		-	-		-		-	Benzo(a)pyrene (Equivalent - total)	mg/m3		0.0000733
			Benzo(a)pyrene (Equivalent - total) @8% O2	mg/m3		-	-		-		-	Benzo(a)pyrene (Equivalent - total) @4% O2	mg/m3		0.0000891
			Odour	OU		-	-		-		-	Odour	OU		815

			Total PAHs - Lower	mg/m3		-	-		-		Total PAHs - Lower	mg/m3		0.00408
			Total PAHs - Lower (@ 8% O2)	mg/m3		-	-		-		Total PAHs - Lower (@ 4% O2)	mg/m3		0.00496
			Arsenic	mg/m3		-	-		-		Arsenic	mg/m3		<0.0115
			Arsenic (@ 8% O2)	mg/m3		-	-		-		Arsenic (@ 4% O2)	mg/m3		<0.0107
			Lead	mg/m3		-	-		-		Lead	mg/m3		0.0549
			Lead (@ 8% O2)	mg/m3		-	-		-		Lead (@ 4% O2)	mg/m3		0.0666
			Mercury	mg/m3		-	-		-		Mercury	mg/m3		0.000651
			Mercury (@ 8% O2)	mg/m3		-	-		-		Mercury (@ 4% O2)	mg/m3		0.00079

Published Date	Report Date	Sample Date	Parameter	Unit of Measure	Discharge Point								Assessment Criteria	DP 20 - Reformer
					Assessment Criteria	DP2 - 3MW Boiler	DP3 - 0.2MW Boiler	Assessment Criteria	DP 5 - Light end Scrubber	Assessment Criteria	DP 19 - Fired Heater	Assessment Criteria		
16-Jan-21	14-Jan-21	Dec-20	Temperature	Degrees Celsius		186	256		29.1		98			Monitoring at DP20 to be completed in May 2021. Unable to complete monitoring in Dec 2020 due sample point access issues / unable to open testing portal.
			Oxygen	%		4.97	9.09		20.7		6.16			
			Carbon dioxide	%		9.17	7.6		0.0651		8.77			
			Moisture	%		6.58	6.8		1.77		14.6			
			Dry gas density	kg/m3		1.32	1.32		1.29		1.32			
			Molecular weight of dry stack gases	g/g-mol		29.7	29.5		28.8		29.6			
			Velocity	m/s		3.21	10.4		2.71		3.08			
			Volumetric flowrate	m3/s		0.594	0.157		0.085		0.548			
			VOC as propane	mg/m3		<1.72	<1.91	20	<1.88		<1.83			
			VOC as propane (@ 8% O2)	mg/m3	10	<1.38	<1.92		-	10	<1.57		10	
			Hydrogen sulfide	mg/m3		5.39	1.88		3.71		<1.81			
			Hydrogen sulfide (@ 8% O2)	mg/m3		4.33	1.89		-	5	<1.61			
			Nitrogen Oxides	mg/m3		110	100		-		168			
			Nitrogen Oxides (@ 8% O2)	mg/m3	350	89.7	101		-	350	146		350	
			Solid Particles	mg/m3		7.19	<3.54		5.22		53.1			
			Solid Particles (@ 8% O2)	mg/m3	10	6.34	<3.77		-	50	48.1		10	
			Formaldehyde	mg/m3		<1.86	4.74		<0.186		0.36			
			Formaldehyde (@ 8% O2)	mg/m3		<1.5	4.79		-		0.32			
			Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		0.442	0.567		0.595		7.56			
			Sulfuric acid mist and sulfur trioxide (as SO3) (@ 8% O2)	mg/m3		0.361	0.572		-	100	6.58			
			Sulphur dioxide	mg/m3		2.76	4.45		5.27		12.1			
			Sulphur dioxide (@ 8% O2)	mg/m3		2.226	4.49		-	1360	10.6			
			Fine Particles (PM10)	mg/m3		<7.19	<3.54		<5.22		<53.1			
			Fine Particles (PM10) (@ 8% O2)	mg/m3		<6.34	<3.77		-		<48.7			
			Benzene	mg/m3		<0.0687	<0.0762		<0.0753		<0.073			
			Benzene (@ 8% O2)	mg/m3		<0.0553	<0.0768		-		<0.063			
			Benzo(a)pyrene (Equivalent - total)	mg/m3		-	-		<0.000013		<0.0000021			
			Benzo(a)pyrene (Equivalent - total) @8% O2	mg/m3		-	-		-		<0.0000018			
			Odour	OU		-	-		1896		2142			
			Total PAHs - Lower	mg/m3		-	-		0.0809		0.17237			
			Total PAHs - Lower (@ 8% O2)	mg/m3		-	-		-		0.14793			
			Arsenic	mg/m3		-	-		-		<0.00929			
			Arsenic (@ 8% O2)	mg/m3		-	-		-		<0.00824			
			Lead	mg/m3		-	-		-		0.0164			
			Lead (@ 8% O2)	mg/m3		-	-		-		0.0146			
			Mercury	mg/m3		-	-		-		0.00103			
			Mercury (@ 8% O2)	mg/m3		-	-		-		0.00092			

			Discharge Point								
Sample Date	Parameter	Unit of Measure	Assessment Criteria	DP2 - 3MW Boiler	DP3 - 0.2MW Boiler	Assessment Criteria	DP 5 - Light end Scrubber	Assessment Criteria	DP 19 - Fired Heater	Assessment Criteria	DP 20 - Reformer
Dec-19	Temperature	Degrees Celsius		193	257		23.1		109		815
	Oxygen	%		6.31	3.88		20.8		5.65		7.2
	Carbon dioxide	%		6.86	10.3		0.02		8.39		10.1
	Moisture	%		9.39	11.3		2.97		11.1		17
	Dry gas density	kg/m3		1.31	1.33		1.29		1.32		1.33
	Molecular weight of dry stack gases	g/g-mol		29.3	29.8		28.8		29.6		29.9
	Velocity	m/s		3.19	10.5		3.73		3.1		13.5
	Volumetric flowrate	m3/s		0.563	0.151		0.117		0.556		0.263
	VOC as propane	mg/m3		<1.84	<1.85	20	<1.84		<1.99		<1.81
	VOC as propane (@ 8% O2)	mg/m3	10	<1.63	<1.4		-	10	<1.68	10	<2.24
	Hydrogen sulfide	mg/m3		<1.84	<1.84		<1.82		<1.82		<1.82
	Hydrogen sulfide (@ 8% O2)	mg/m3		<1.63	<1.39		-	5	<1.51		<2.22
	Nitrogen Oxides	mg/m3		53.2	148		-		105		90
	Nitrogen Oxides (@ 8% O2)	mg/m3	350	47	112		-	350	89	350	112
	Solid Particles	mg/m3		2.77	3.39		2.87		23.1		3.52
	Solid Particles (@ 8% O2)	mg/m3	10	3.24	2.64		-	50	19.9	10	4.44
	Formaldehyde	mg/m3		<1.86	3.71		<1.84		5.44		-
	Formaldehyde (@ 8% O2)	mg/m3		<1.64	2.81		-		4.68		-
	Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		1.7	5.02		0.287		3.1		1.3
	Sulfuric acid mist and sulfur trioxide (as SO3) (@ 8% O2)	mg/m3		1.5	3.8		-	100	2.67		1.63
	Sulphur dioxide	mg/m3		13	15.1		3.14		36.5		11.4
	Sulphur dioxide (@ 8% O2)	mg/m3		11.5	11.5		-	1360	31.4		14.3
	Fine Particles (PM10)	mg/m3		<2.7	<3.39		<2.87		23.1		<3.52
	Fine Particles (PM10) (@ 8% O2)	mg/m3		<3.24	<2.64		-		19.9		<4.44
	Benzene	mg/m3		<0.0737	<0.0740		<0.0736		<0.724		<0.724
	Benzene (@ 8% O2)	mg/m3		<0.0652	<0.0561		-		<0.611		<0.896
	Benzo(a)pyrene (Equivalent - total)	mg/m3		-	-		0.000594		0.0000314		0.000514
	Benzo(a)pyrene (Equivalent - total) @8% O2	mg/m3		-	-		-		0.000027		0.00064
	Odour	OU		-	-		1266		2891		2311
	Total PAHs - Lower	mg/m3		-	-		0.0356		0.00136		0.00869
	Total PAHs - Lower (@ 8% O2)	mg/m3		-	-		-		0.00117		0.0108
	Arsenic	mg/m3		-	-		-		<0.00942		<0.00971
	Arsenic (@ 8% O2)	mg/m3		-	-		-		<0.00788		<0.000901
	Lead	mg/m3		-	-		-		0.015		0.0292
	Lead (@ 8% O2)	mg/m3		-	-		-		0.0125		0.0355
	Mercury	mg/m3		-	-		-		0.00155		0.000927
	Mercury (@ 8% O2)	mg/m3		-	-		-		0.0013		0.00113

Discharge Point											
Sample Date	Parameter	Unit of Measure	Assessment Criteria	DP2 - 3MW Boiler	DP3 - 0.2MW Boiler	Assessment Criteria	DP 5 - Light end Scrubber	Assessment Criteria	DP 19 - Fired Heater	Assessment Criteria	DP 20 - Reformer
Nov-18	Temperature	Degrees Celsius		201	238		18.1		104		833
	Oxygen	%		10.5	11.5		20.8		12.1		9.23
	Carbon dioxide	%		5.62	4.85		0.06		5.07		9.63
	Moisture	%		7.32	9.79		4.22		19.6		15.9
	Dry gas density	kg/m3		1.31	1.31		1.29		1.31		1.34
	Molecular weight of dry stack gases	g/g- mol		29.3	29.2		29.8		29.3		29.9
	Velocity	m/s		3.38	10.1		2.15		2.03		12
	Volumetric flowrate	m3/s		0.6	0.154		0.0676		0.498		0.245
	VOC as propane	mg/m3		<1.34	<1.35	20	<1.31		<1.38		<1.38
	VOC as propane (@ 8% O2)	mg/m3	10	<1.66	<1.85		-	10	<2.02	10 at 4% O2	<1.99
	Hydrogen sulfide	mg/m3		<0.126	0.318		<0.168		<0.185		0.196
	Hydrogen sulfide (@ 8% O2)	mg/m3		<0.158	0.434		-	5	<0.447	At 4% O2	0.261
	Nitrogen Oxides	mg/m3		46.3	32.5		-		71.3		46.3
	Nitrogen Oxides (@ 8% O2)	mg/m3	350	57.4	44.5		-	350	107	350 at 4% O2	67.2
	Solid Particles	mg/m3		6	9.57		1.26		3.84		3.94
	Solid Particles (@ 8% O2)	mg/m3	10	7.33	13.1		-	50	10.5	10 at 4% O2	5.71
	Formaldehyde	mg/m3		17.3	2.4		0.504		0.834		-
	Formaldehyde (@ 8% O2)	mg/m3		21.4	3.28		-		1.22		-
	Sulfuric acid mist and sulfur trioxide (as SO3)	mg/m3		9.75	5.07		0.354		23		27.8
	Sulfuric acid mist and sulfur trioxide (as SO3) (@ 8% O2)	mg/m3		11.9	6.94		-	100	52.8	At 4% O2	40.2
	Sulphur dioxide	mg/m3		5.79	11.9		1.75		44.5		12.2
	Sulphur dioxide (@ 8% O2)	mg/m3		7.08	16.4		-	1360	102	At 4% O2	17.6
	Fine Particles (PM10)	mg/m3		<6.00	<9.57		<1.26		<3.84		<3.94
	Fine Particles (PM10) (@ 8% O2)	mg/m3		<7.33	<13.1		-		<10.5	At 4% O2	<5.71
	Benzene	mg/m3		<0.0537	<0.0542		<0.053		<0.055		<0.0550
	Benzene (@ 8% O2)	mg/m3		<0.0666	<0.0740		-		<0.0810	At 4% O2	<0.0797
	Benzo[a]pyrene (Equivalent - total)	mg/m3		-	-		0		<0.00000276		0.0000368
	Benzo[a]pyrene (Equivalent - total) @8% O2	mg/m3		-	-		-		<0.00000262	At 4% O2	0.0000533
	Odour	OU		-	-		3477		2783		3955
	Total PAHs - Lower	mg/m3		-	-		0.00365		<0.00987		<0.00941
	Total PAHs - Lower (@ 8% O2)	mg/m3		-	-		-		<0.0118	At 4% O2	<0.0114
	Arsenic	mg/m3		-	-		-		0.014		0.0466
	Arsenic (@ 8% O2)	mg/m3		-	-		-		0.0167	At 4% O2	0.0737
	Lead	mg/m3		-	-		-		0.000908		0.00101
	Lead (@ 8% O2)	mg/m3		-	-		-		0.00109	At 4% O2	0.00161
	Mercury	mg/m3		-	-		-		0.000441		0.00127
	Mercury (@ 8% O2)	mg/m3		-	-		-		0.00042	At 4% O2	0.00184