4 February 2016

Cleanaway Refiners
ABN: 78 114 388 742

41 Kyle St,
Rutherford
NSW 2320

EPL 12555:

http://www.environment.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=31074&SYSUID=1&LICID=12555

Data for Emission testing 12 May and 3rd to 6th November 2015.

Date results received 22 January 2016

DP 2, 3MW Boiler

Discharge Point 2; 3MW Boiler

Pollutant	Unit of measure	Mean of sample	Limit Conditions
Temperature	oC	176	na
Nitrogen oxides at 8%O2	mg/m3	92.7	350
Volatile organic compounds (n-propane) at 8%O_2	mg/m3	< 3.02	10
Oxygen	%	9.52	na
Velocity	m/s	3.48	na
Dry gas density	kg/m3	1.33	na
Molecular weight of stack gases	g/g-mol	29.7	na
Volumetric flowrate	m3/s	0.636	na
Moisture	%	9.50	na
Solid particles	mg/m3	0.535	10
Nitrogen oxides	mg/m3	81.8	LBL
Nitrogen oxides at 8%O2	mg/m3	92.7	LBL
Volatile organic compounds (n-propane)	mg/m3	< 2.66	LBL
Volatile organic compounds (n-propane) at 8%O_2	mg/m3	< 3.02	LBL
Fine particles (PM10)	mg/m3	< 0.47	LBL
PM10 at 8%O2	mg/m3	< 0.53	LBL
Hydrogen sulfide	mg/m3	< 0.094	LBL
Hydrogen sulfide at 8%O2	mg/m3	< 0.107	LBL
Sulphur oxides	mg/m3	< 2.86	LBL

Sulphur oxides at 8%O2	mg/m3	< 3.24	LBL
Benzo(a)pyrene	mg/m3	DNT	LBL
Benzene (air)	mg/m3	< 0.136	LBL
Arsenic (air)	mg/m3	DNT	LBL
Lead(air)	mg/m3	DNT	LBL
Mercury(air)	mg/m3	DNT	LBL

Discharge Point 3; 0.2MW Boiler

Pollutant	**Unit of measure**	**Mean of sample**	**Limit Conditions**
Temperature	^{o}C	248	na
Nitrogen oxides at 8%O2	mg/m3	86.4	350
Volatile organic compounds (n-propane) at 8%O_2	mg/m3	< 2.88	10
Oxygen	%	8.51	na
Velocity	m/s	9.97	na
Dry gas density	kg/m3	1.33	na
Molecular weight of stack gases	g/g-mol	29.7	na
Volumetric flowrate	m3/s	0.301	na
Moisture	%	13.0	na
Solid particles	mg/m3	0.62	10
Nitrogen Oxides	mg/m3	83	LBL
Nitrogen Oxides at 8%O2	mg/m3	86.4	LBL
Volatile organic compounds (n-propane)	mg/m3	< 2.77	LBL
Volatile organic compounds (n-propane) at 8%O_2	mg/m3	< 2.88	LBL
Fine Particles (PM10)	mg/m3	0.60	LBL
PM10 at 8%O2	mg/m3	0.62	LBL
Hydrogen Sulfide	mg/m3	< 0.199	LBL
Hydrogen Sulfide at 8%O2	mg/m3	< 0.207	LBL
Sulphur oxides	mg/m3	< 2.86	LBL
Sulphur oxides at 8%O_2	mg/m3	< 2.98	LBL
Benzo(a)pyrene	mg/m3	DNT	LBL
Benzene (air)	mg/m3	< 0.142	LBL
Arsenic (air)	mg/m3	DNT	LBL
Lead(air)	mg/m3	DNT	LBL
Mercury(air)	mg/m3	DNT	LBL

Discharge Point 5; Light End Scrubber

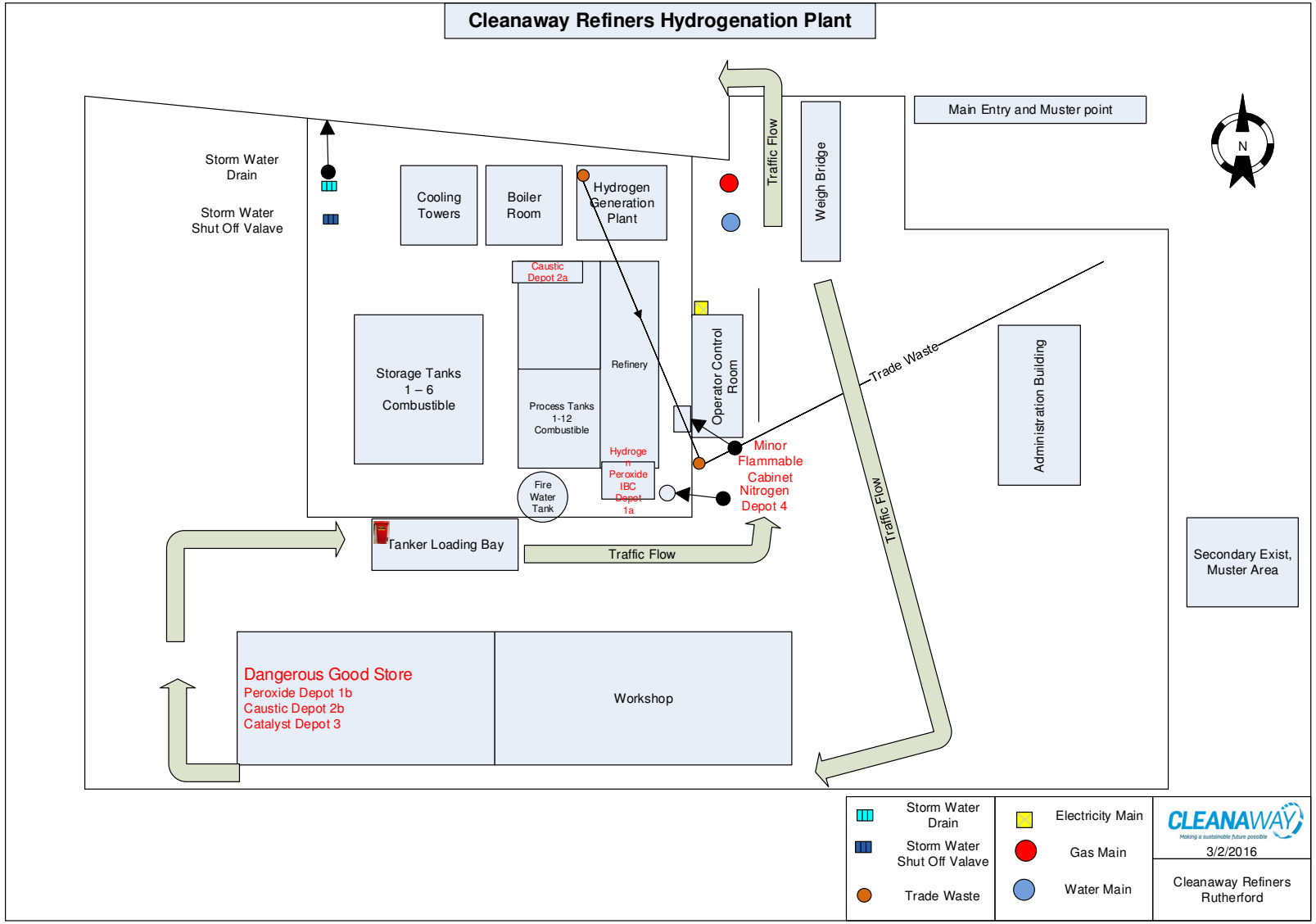
Pollutant	Unit of measure	Mean of sample	Limit Conditions
Temperature	oC	29.6	na
Volatile organic compounds	mg/m3	< 2.50	20
PAHs	mg/m3	0.0000180	na
Velocity	m/s	4.57	na
Dry gas density	kg/m3	1.29	na
Molecular weight of stack gases	g/g-mol	28.8	na
Volumetric flowrate	m3/s	0.125	na
Moisture	%	3.00	na
Odour	OU	288	na
Solid particles	mg/m3	0.930	na
Nitrogen Oxides	mg/m3	< 2.05	LBL
Volatile organic compounds (n-propane)	mg/m3	< 2.50	LBL
Fine Particles (PM10)	mg/m3	< 0.93	LBL
Hydrogen Sulfide	mg/m3	< 0.56	LBL
Sulphur oxides	mg/m3	< 2.86	LBL
Benzo(a)Pyrene	mg/m3	0.00000518	LBL
Benzene (air)	mg/m3	< 0.128	LBL
Arsenic (air)	mg/m3	DNT	LBL
Lead(air)	mg/m3	DNT	LBL
Mercury(air)	mg/m3	DNT	LBL

Discharge Point 19; Fired Heater

Table 18: Results for DP19; Fired Heater Pollutant	**Unit of measure**	**Mean of sample**	**Limit Conditions**
Temperature	^{o}C	96	na
Nitrogen Oxides at 8% O2	mg/m3	245	350
Volatile organic compounds as propane at 8% O2	mg/m3	< 2.53	10
Hydrogen sulphide at 8% O2	mg/m3	< 0.03	5
Oxygen	%	6.86	na
Velocity	m/s	2.71	na
Dry gas density	kg/m3	1.32	na
H2SO4 and SO3 (as SO3 equivalent) at 8% O2	mg/m3	15.0	100
Odour	OU	2658	na
Molecular weight of stack gases	g/g-mol	29.5	na
Volumetric flowrate	m3/s	0.437	na
Moisture	%	22.5	na
Carbon monoxide	mg/m3	11.90	na
Solid particles at 8%O2	mg/m3	7.6	50
Sulphur dioxide at 8%O2	mg/m3	< 1.72	1360
Formaldehyde at 8%O2	mg/m3	< 0.0396	na
Nitrogen Oxides	mg/m3	272	LBL
Nitrogen Oxides at 8% O2	mg/m3	245	LBL
Volatile organic compounds as propane	mg/m3	< 2.71	LBL
Volatile organic compounds as propane at 8% O2	mg/m3	< 2.53	LBL
Fine Particles (PM10)	mg/m3	< 8.53	LBL
Fine Particles (PM10) at 8% O2	mg/m3	< 7.6	LBL
Hydrogen Sulfide	mg/m3	< 0.03	LBL
Hydrogen Sulfide at 8% O2	mg/m3	< 0.03	LBL
Sulphur oxides	mg/m3	19.1	LBL
Sulphur oxides at 8% O2	mg/m3	0.354	LBL
benzo(a)pyrene	mg/m3	< 0.00000760	LBL
Benzene (air)	mg/m3	< 0.139	LBL
Arsenic (air)	mg/m3	< 0.00450	LBL
Lead(air)	mg/m3	0.07713	LBL
Mercury(air)	mg/m3	0.000461	LBL

Discharge Point 20; Reformer

Table 20: Results for DP20; Reformer Pollutant	**Unit of measure**	**Mean of sample**	**Limit Conditions**
Temperature	oC	800	na
Nitrogen Oxides at 4% O2	mg/m3	86	350
Volatile organic compounds as propane at 4% O2	mg/m3	< 2.64	10
Hydrogen sulphide at 4% O2	mg/m3	< 0.246	5
Oxygen	%	2.97	na
Velocity	m/s	11.0	na
Dry gas density	kg/m3	1.37	na
Odour	OU	1938	na
Molecular weight of stack gases	g/g-mol	30.7	na
Volumetric flowrate	m3/s	0.207	na
Moisture	%	18.0	na
Carbon monoxide	mg/m3	24.41	na
Solid particles at 4% O2	mg/m3	1.15	50
Nitrogen Oxides	mg/m3	89	LBL
Nitrogen Oxides at 4% O2	mg/m3	86	LBL
Volatile organic compounds as propane	mg/m3	< 2.57	LBL
Volatile organic compounds as propane at 4% O2	mg/m3	< 2.64	
Fine Particles (PM10)	mg/m3	< 1.27	LBL
Fine Particles (PM10) at 4% O2	mg/m3	< 1.15	LBL
Hydrogen Sulfide	mg/m3	< 0.271	LBL
Hydrogen Sulfide at 4% O2	mg/m3	< 0.256	LBL
Sulphur oxides as SO3	mg/m3	< 4.34	LBL
Sulphur oxides as SO3 at 4% O2	mg/m3	< 4.09	LBL
benzo(a)pyrene	mg/m3	< 0.00000534	LBL
Benzene (air)	mg/m3	< 0.132	LBL
Arsenic (air)	mg/m3	< 0.00799	LBL
Lead(air)	mg/m3	0.06494	LBL
Mercury(air)	mg/m3	< 0.001440	LBL


Cleanaway Refiners Hydrogenation Plant
Main Entry and Muster point
N
Storm Water Drain
Storm Water Shut Off Valave
Cooling Towers
Boiler Room
Hydrogen Generation Plant
Traffic Flow
Weigh Bridge
Caustic Depot 2a
Refinery
Storage Tanks 1 – 6 Combustible
Process Tanks 1-12 Combustible
Operator Control Room
Trade Waste
Administration Building
Hydroge n Peroxide IBC Depot 1a
Fire Water Tank
Minor Flammable Cabinet Nitrogen Depot 4
Tanker Loading Bay
Traffic Flow
Traffic Flow
Secondary Exist, Muster Area
Dangerous Good Store
Peroxide Depot 1b
Caustic Depot 2b
Catalyst Depot 3
Workshop
Storm Water Drain
Storm Water Shut Off Valave
Trade Waste
Electricity Main
Gas Main
Water Main
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