

Annual Groundwater Results

July 2019

City of Newcastle - Summerhill Waste Management Centre

141 Minmi Road, Wallsend, NSW

Environment Protection Licence 5897 - Condition M2 - Water Monitoring Grab Samples

Parameter	CN ID		GW33	GW34	GW35	GW42	GW46	GW48	GW49	GW51
	Units	LOR	33	34	35	42	46	48	49	51
Standing Water Level	mAHD	0.01	24.3	26.82	6.53	35.67	21.6	35.40	36.40	35.36
Electrical Conductivity	µS/cm	1	11000	9290	14200	3220	9110	1420	3220	1680
pH Value	pH Unit	0.01	5.64	6.51	6.92	6.45	6.49	6.61	5.95	6.25
Total Dissolved Solids	mg/L	10	8560	6070	7970	1910	6230	861	2320	1110
Total Organic Carbon	mg/L	1	5	5	3	10	6	6	9	6
Total Alkalinity (as CaCO ₃)	mg/L	1	142	482	577	467	356	422	180	269
Sulfate	mg/L	1	3870	317	356	677	545	127	613	325
Chloride	mg/L	1	1490	3060	4090	228	2990	153	634	227
Calcium	mg/L	1	368	118	241	70	58	43	10	9
Magnesium	mg/L	1	507	149	179	78	140	34	45	20
Sodium	mg/L	1	1250	1840	2170	525	1600	241	532	297
Potassium	mg/L	1	34	19	14	16	31	7	15	8
Fluoride	mg/L	0.1	0.2	0.6	0.2	0.7	0.2	0.8	0.6	0.8
Ammonia	mg/L	0.01	0.76	2.04	0.02	0.26	0.05	0.07	0.06	0.09
Nitrate	mg/L	0.01	0.03	<0.01	15.7	<0.01	0.65	0.03	0.03	0.11
Total Phenolics	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Annual Groundwater Results

July 2019

		NCC ID	GW33	GW34	GW35	GW42	GW46	GW48	GW49	GW51
		EPL ID	33	34	35	42	46	48	49	51
Metals										
Aluminium (dissolved)	mg/L	0.01	<0.01	0.01	<0.01	0.03	<0.01	<0.01	0.02	<0.01
Arsenic (dissolved)	mg/L	0.001	0.005	0.004	<0.001	0.012	<0.001	0.003	<0.001	0.006
Barium (dissolved)	mg/L	0.001	0.022	0.069	0.184	0.045	0.029	0.017	0.028	0.031
Cadmium (dissolved)	mg/L	0.0001	<0.0001	<0.0001	0.0002	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Chromium (total dissolved)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium (Hexavalent dissolved)	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (dissolved)	mg/L	0.001	0.081	<0.001	0.003	0.024	0.001	0.001	0.057	0.015
Copper (dissolved)	mg/L	0.001	0.01	<0.001	0.003	<0.001	0.006	<0.001	0.001	<0.001
Lead (dissolved)	mg/L	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese (dissolved)	mg/L	0.001	12.4	0.243	0.404	2.39	0.281	0.482	1.73	1.38
Zinc (dissolved)	mg/L	0.005	0.212	0.13	0.168	0.044	0.122	0.038	0.222	0.077
Iron (dissolved)	mg/L	0.05	66.8	3.72	<0.05	2.81	0.16	0.87	0.23	1.3
Mercury (dissolved)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Annual Groundwater Results

July 2019

	NCC ID	GW33	GW34	GW35	GW42	GW46	GW48	GW49	GW51	
	EPL ID	33	34	35	42	46	48	49	51	
Organochlorine Pesticides										
alpha-BHC	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Hexachlorobenzene (HCB)	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
beta-BHC	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
gamma-BHC	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
delta-BHC	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Heptachlor	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Aldrin	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Heptachlor epoxide	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
trans-Chlordane	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
alpha-Endosulfan	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
cis-Chlordane	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dieldrin	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4,4'-DDE	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Endrin	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
beta-Endosulfan	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4,4'-DDD	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Endrin aldehyde	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Endosulfan sulfate	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
4,4'-DDT	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Endrin ketone	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methoxychlor	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Annual Groundwater Results

July 2019

		NCC ID	GW33	GW34	GW35	GW42	GW46	GW48	GW49	GW51
		EPL ID	33	34	35	42	46	48	49	51
Organophosphorus Pesticides										
Dichlorvos	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Demeton-S-methyl	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Monocrotophos	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dimethoate	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Diazinon	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlorpyrifos-methyl	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Parathion-methyl	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Malathion	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fenthion	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlorpyrifos	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Parathion	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Pirimphos-ethyl	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlorfenvinphos	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Bromophos-ethyl	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Fenamiphos	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Prothiofos	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethion	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Carbophenothion	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Azinphos Methyl	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005

Annual Groundwater Results

July 2019

		NCC ID	GW33	GW34	GW35	GW42	GW46	GW48	GW49	GW51
		EPL ID	33	34	35	42	46	48	49	51
Polynuclear Aromatic Hydrocarbons										
Naphthalene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthylene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fluorene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anthracene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoranthene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benz(a)anthracene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chrysene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(b+j)fluoranthene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(k)fluoranthene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(a)pyrene	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Indeno(1.2.3.cd)pyrene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenz(a.h)anthracene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(g.h.i)perylene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C10 - C14 Fraction	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
C15 - C28 Fraction	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C29 - C36 Fraction	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sum C10 - C36 Fraction	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BTEX										
Benzene	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	mg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002

Annual Groundwater Results July 2019

Notes:

CN = City of Newcastle

EPL = Environment Protection Licence

LOR = limit of reporting

mAHD = metres above Australian Height Datum

Results preceded by < indicate that the results were below the limit of detection for that analysis

NR = no result (non-compliant sample, insufficient water to sample etc)

EPL Monitoring points 31 & 32 were not sampled for safety reasons

Date sampled: 23/07/2019 &
24/07/2019

Final data obtained: 9/8/2019

Date published: 12/8/2019

A copy of the Environmental Protection Licence can be viewed at: <http://app.epa.nsw.gov.au/prpoeoapp/>

A map showing the location of monitoring points can be viewed at: <http://www.newcastle.nsw.gov.au/Living/Waste-recycling/Summerhill-Waste-management-Centre/Environmental-Monitoring-Data>