ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring Visit 14 (24th April 2013)

Screening Values - Drinking Water Standards

Aquifer type: Locally important aquifer
Typical productivity: Moderately Productive (40-100 m3/d)

Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

				Borehole	A1	A11	A3	A4	A9	C11	C2	C7	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
				Depth (mbgl)																						
Determinand	Units	Screening Value	Source of screening value	Limit of detection																						
Inorganics																										
Arsenic (dissolved)	µg/l	10	SI 278/2007	<0.12	13.2	0.928	23.5	2.59	1.02	5.32	1.45	12.4	17.1	2.27	165	8.73	31.9	1.91	2.09	1.81	3.7	2.33	1.06	6.88	19.7	2.43
Cadmium (dissolved)	µg/l	5	SI 278/2007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.343	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.103	<0.1
Chromium (dissolved)	µg/l	50	SI 278/2007	<0.22	<0.22	<0.22	4.56	3.27	4.73	<0.22	3.31	4.14	<0.22	0.502	2.3	0.483	7.06	2.52	1.88	<0.22	3.24	<0.22	3.61	2.9	4.39	1.35
Copper (dissolved)	µg/l	2000	SI 278/2007	<0.85	1.12	1.8	1.16	2.14	<0.85	<0.85	3.71	<0.85	<0.85	<0.85	3.76	<0.85	2.27	3.77	<0.85	4.21	<0.85	<0.85	4.81	2.21	<0.85	2.17
Lead (dissolved)	µg/l	25	SI 278/2007	<0.02	0.032	0.402	<0.02	<0.02	<0.02	0.217	<0.02	<0.02	<0.02	0.897	<0.02	0.07	<0.02	<0.02	<0.02	0.105	<0.02	0.072	<0.02	<0.02	<0.02	<0.02
Nickel (dissolved)	µg/l	20	SI 278/2007	<0.15	1.96	2.46	6.03	4.73	1.15	1.65	4.55	1.45	1.51	2.12	42.4	2.12	8.34	8.28	4.64	8.39	4.15	1.38	5.01	8.48	6.43	4.91
Selenium (dissolved)	µg/l	10	SI 278/2007	<0.39	1.26	0.639	1.2	1.59	1.14	0.584	3.24	19.5	1.35	1.11	20.2	1.29	13.1	2.82	2.51	4.29	1.4	0.52	1.27	1.32	8.63	0.757
Zinc (dissolved)	µg/l	5000	WHO Drinking water Quality Guideline Value	<0.41	0.957	3.6	4.17	5.57	0.486	<0.41	5.54	<0.41	<0.41	3.07	41.4	<0.41	1.39	7.72	1.38	2.12	<0.41	<0.41	0.902	1.37	29.6	0.971
Mercury (dissolved)	µg/l	1	SI 278/2007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0138	<0.01	0.0544	<0.01	<0.01	0.0222	<0.01	0.0149	0.0109	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0255	<0.01
Ammonium	mg/l	0.3	SI 278/2007	<0.3	12.9	0.865	9.99	0.975	<0.3	3.81	0.647	41.8	13.9	4.65	59.1	42.2	72.3	8.37	3.46	3.52	2.66	18	<0.3	2.96	16.2	0.96
Sulphate (soluble)	mg/l	250	SI 278/2007	<2	458	50.4	383	247	122	99.5	104	18.7	441	7.7	461	21.3	588	602	325	702	64	136	70	640	156	545
Phenols	mg/l	500	SI 81/1988	<0.025	0.97	0.07	<0.025	<0.025	<0.025	0.11	<0.025	77.3	0.46	0.46	172	10.2	45.7	<0.025	3.55	<0.025	0.29	<0.025	<0.025	<0.025	0.04	355	<0.025
Total Cyanide	mg/l	0.05	SI 278/2007	<0.05	0.882	<0.05	0.286	0.226	<0.05	0.055	0.123	0.247	1.13	<0.05	6.93	<0.05	0.991	0.646	0.074	2.19	0.119	<0.05	<0.05	0.443	0.24	0.812
pH Value		<6.5	SI 278/2007	<1	7.93	7.81	8.4	8.25	8.14	7.68	7.97	8.31	7.81	7.01	8.96	8.04	7.92	7.98	7.44	7.53	7.49	7.9	7.99	7.42	7.47	7.68
pH Value		>9.5	SI 278/2007	<1	7.93	7.81	8.4	8.25	8.14	7.68	7.97	8.31	7.81	7.01	8.96	8.04	7.92	7.98	7.44	7.53	7.49	7.9	7.99	7.42	7.47	7.68
BTEX																										
Benzene	µg/l	1	SI 278/2007	<7	505	<7	<7	<7	<7	19	<7	11300	632	54	6070	775	4000	<7	761	<7	<7	<7	<7	<7	10100	<7
Toluene	µg/l	700	WHO Drinking Water Quality Guideline Value	<4	41	<4	<4	<4	<4	13	<4	6080	154	88	1700	402	2400	<4	1090	<4	<4	<4	<4	<4	4230	<4
Ethyl benzene	µg/l	300	WHO Drinking Water Quality Guideline Value	<5	126	<5	22	<5	<5	47	<5	291	218	5	74	72	311	<5	53	<5	<5	<5	<5	<5	207	<5
Xylene	µg/l	500	WHO Drinking Water Quality Guideline Value	<11	164	15	19	<11	<11	125	<11	3140	789	16	850	357	1770	<11	1310	<11	<11	<11	<11	<11	1920	<11
Petroleum Hydrocarbons																										
GRO (C4-C12)	µg/l	10	SI 81/1988	<50	2810	65	1070	<50	<50	2180	63	40300	8240	251	16300	3980	14700	<50	7570	<50	<50	<50	<50	<50	34200	<50
MTBE	µg/l			<3	<3	<3	<3	<3	<3	<3	<3	<15	<3	<3	<6	<3	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3
Aliphatics C5-C6	µg/l			<10	15	<10	14	<10	<10	<10	<10	106	24	<10	67	13	38	<10	22	<10	<10	<10	<10	<10	129	<10
Aliphatics C6-C8	µg/l			<10	78	<10	64	<10	<10	19	<10	547	187	<10	498	41	233	<10	116	<10	<10	<10	<10	<10	923	<10
Aliphatics C8-C10	µg/l			<10	218	<10	112	<10	<10	225	<10	2440	814	13	900	244	1010	<10	715	<10	<10	<10	<10	<10	2100	<10
Aliphatics C10-C12	µg/l			<10	912	16	458	<10	<10	948	23	8870	2930	35	3350	1150	2540	<10	1810	<10	<10	<10	<10	<10	7930	<10
Aliphatics C12-C16	µg/l			<10	<10	<10	<10	<10	<10	<10	78	186	151	<10	<10	<10	<10	<10	53	<10	<10	<10	<10	<10	255	<10
Aliphatics C16-C21	µg/l			<10	<10	<10	<10	<10	<10	<10	39	176	234	18	<10	<10	<10	<10	66	<10	<10	<10	<10	<10	200	<10
Aliphatics C21-C35	µg/l			<10	<10	<10	<10	<10	<10	<10	<10	129	124	42	<10	<10	<10	<10	95	<10	<10	<10	<10	<10	337	<10
Aromatics C6-C7	µg/l			<10	505	<10	<10	<10	<10	19	<10	11300	632	54	6070	775	4000	<10	761	<10	<10	<10	<10	<10	10100	<10
Aromatics C7-C8	µg/l			<10	41	<10	<10	<10	<10	13	<10	6080	154	88	1700	402	2400	<10	1090	<10	<10	<10	<10	<10	4230	<10
Aromatics C8-C10	µg/l			<10	435	23	117	<10	<10	321	<10	5050	1550	29	1520	592	2750	<10	1840	<10	<10	<10	<10	<10	3530	<10
Aromatics C10-C12	µg/l			<10	608	11	305	<10	<10	632	15	5920	1950	23	2240	766	1700	<10	1210	<10	<10	<10	<10	<10	5290	<10
Aromatics C12-C16	µg/l			<10	446	<10	199	<10	<10	126	37	11200	1670	23	5600	466	5020	<10	718	<10	<10	<10	<10	<10	15100	<10
Aromatics C16-C21	µg/l			<10	150	<10	91	<10	<10	45	148	2980	1400	39	407	48	301	<10	959	<10	11	<10	<10	<10	3160	<10
Aromatics C21-C35	µg/l			<10	60	<10	13	<10	<10	<10	412	2300	962	157	120	<10	30	<10	2250	<10	42	<10	<10	21	2490	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	SI 81/1988	<10	3470	65	1370	<10	<10	2360	776	57200	12800	530	22500	4500	20000	<10	11700	16	54	34	<10	21	55800	<10
PAHs																										
Acenaphthene	µg/l			<0.015	2.65	1.21	<0.075	<0.015	<0.015	0.0311	0.496	199	43.6	<0.075	15.5	0.0228	29.1	<0.015	5.35	0.0183	0.0719	0.0214	<0.015	0.0372	93.2	<0.015
Acenaphthylene	µg/l			<0.011	1.18	7.03	0.0934	0.0791	0.0568	0.233	0.445	1150	48.8	<0.055	114	0.103	28.7	0.0543	1.36	0.382	0.767	0.061	0.156	0.0922	534	0.0196
Anthracene	µg/l			<0.015	0.323	3.3	<0.075	0.0358	0.0242	0.0372	3.98	615	47.9	<0.075	10.1	0.0283	0.788	0.0375	<0.15	0.0584	0.656	0.0479	0.0367	0.145	174	<0.015
Benzo(a)anthracene	µg/l			<0.017	1.08	30.7	<0.085	0.0516	0.105	0.16	14.7	404	17.4	<0.085	2.05	0.06	<0.34	0.255	0.449	0.423	2.18	0.0697	0.155	0.91	74.9	0.0863
Benzo(a)pyrene	µg/l	0.01	SI 278/2007	<0.009	0.616	65.2	<0.045	0.112	0.174	0.318	18.4	352	12	<0.045	2.13	0.132	0.358	0.276	0.515	0.841	3.59	0.0877	0.541	1.47	56.5	0.115
Benzo(b)fluoranthene	µg/l			<0.023	0.523	54.1	<0.115	0.0798	0.113	0.28	15.1	260	14.3	<0.115	1.61	0.122	<0.46	0.174	0.548	0.557	2.51	0.0683	0.413	1.42	43.5	0.108
Benzo(ghi)perylene	µg/l			<0.016	0.258	46.4	<0.08	0.0535	0.133	0.289	11.4	192	6.07	<0.08	1.22	0.118	<0.32	0.257	0.183	0.509	1.96	0.041	0.481	1.37	30.4	0.105
Benzo(k)fluoranthene	µg/l			<0.027	0.614	56.5	<0.135	0.116	0.183	0.23	15.4	316	8.25	<0.135	1.8	0.107	<0.54	0.31	0.601	0.644	3.11	0.097	0.424	1.45	50.7	0.105
Chrysene	µg/l			<0.013	0.898	37.4	<0.065	0.111	0.151	0.175	15.5	362	13.9	<0.065	1.94	0.0655	0.323	0.323	0.736	0.501	1.87	0.105	0.17	0.957	69.5	0.114
Dibenzo(ah)anthracene	µg/l			<0.016	0.0618	10.4	<0.08	0.0219	0.0191	0.0711	3.78	50.2	1.77	<0.08	0.424	0.0381	<0.32	0.033	<0.16	0.0835	0.52	<0.016	0.0716	0.249	7.83	<0.016
Fluoranthene	µg/l	4	WHO Drinking Water Quality Guideline Value	<0.017	4.73	43	<0.085	0.376	0.181	0.255	26.7	1210	105	<0.085	9.3	0.0747	1.72	0.353	10.2	0.469	3.48	1.14	0.186	1.32	288	0.223
Fluorene	µg/l			<0.014	0.284	2.02	<0.07	0.0491	<0.014	0.0226	0.468	790	38.8	<0.07	37.9	0.0228	6.15	0.0148	1.27	0.0447	0.362	0.388	0.0246	0.0644	250	0.0161
Indeno(123cd)pyrene	µg/l			<0.014	0.24	37.5	<0.07	0.041	0.0868	0.258	10.3	183	5.76	<0.07	1.03	0.105	<0.28	0.165	0.161	0.406	1.85	0.0399	0.395	1.16	28.6	0.0678
Naphthalene	µg/l			<0.1	0.145	3.52	<0.5	<0.1	<0.1	<0.1	0.416	14300	19.8	<0.5	2540	0.12	522	<0.1	<1	<0.1	0.596	0.125	<0.1	0.147	5230	0.105
Phenanthrene	µg/l			<0.022	0.351	11	<0.11	0.0539	0.0828	0.0779	9.58	1940	67.5	<0.11	37.7	0.0497	13.8	0.106	<0.22	0.0922	2.07	0.0804	0.0549	0.401	497	0.0465
Pyrene	µg/l			<0.015	4.18	41.5	0.151	0.346	0.186	0.245	22.8	837	63.4	<0.075	5.91	0.0629	0.948	0.325	6.38	0.306	2.49	0.593	0.163	1.29	196	0.113
Total PAH # (Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene & Indeno(123cd)pyrene)	µg/l	0.1	SI 278/2007		1.635	194.5	<0.4	0.2903	0.5158	1.057	52.2	951	34.38	<0.4	5.66	0.452	1.6	0.906	1.493	2.116	9.43	0.2462	1.713	5.4	153.2	0.3858
Volatile Organic Compounds																										
1.1.1.2-Tetrachloroethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	2000	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	5.85	<1
1,1,2,2-Tetrachloroethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	5	US EPA - National Primary Drinking Water Regulations, Maximum Contaminant Level	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l	-	-	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l	140	**Informal** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trichlorobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			<1	34.1	1.24	3.48	<1	-	-	-	366	267	-	-	-	275	-	221	<1	-	-	-	-	177	<1
1.2-Dibromo-3-chloropropane (DBCP)	µg/l	1	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dibromoethane	µg/l	0.4	**Provisional** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloroethane	µg/l	3	SI 278/2007	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloropropane	µg/l	40	**Provisional** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			<1	5.87	1.22	1.21	<1	-	-	-	155	67.8	-	-	-	65.5	-	93	<1	-	-	-	-	67.3	<1
1,3-Dichlorobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3-Dichloropropane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	7.08	-	-	-	5.52	-	2.73	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			<1	1.47	<1	<1	<1	-	-	-	<1	2.31	-	-	-	4.98	-	<1	<1	-	-	-	-	1.4	<1
Carbontetrachloride	µg/l	4	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	100	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.41	<1
Chloromethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	WHO Drinking Water Quality Guideline Value	<3	<3	<3	<3	<3	-	-	-	<3	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			<1	10.1	<1	<1	<1	-	-	-	15.6	20.5	-	-	-	21	-	<1	<1	-	-	-	-	9.41	<1
n-Butylbenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	8.76	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			<1	13.2	<1	<1	<1	-	-	-	26.2	30.7	-	-	-	23.9	-	<1	<1	-	-	-	-	14	<1
sec-Butylbenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	2.99	-	-	-	1.54	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	492	<1	-	-	-	<1	-	<1	<1	-	-	-	-	387	<1
tert-Amyl methyl ether (TAME)	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 278/2007	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.38	<1
trans-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 278/2007	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	7.88	<1
Trichlorofluoromethane	µg/l			<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.84	<1
Vinyl Chloride	µg/l	0.5	SI 278/2007	<1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring visit 14 (24th April 2013)

Screening Values - Environmental Quality Standards

Receptor water type: Freshwater suitable for coarse fish
Relevant EQS Hardness Band: >100-150 mg/l

Hardness related Freshwater EQS - based on cyprinid/coarse fish
* Asterix indicates freshwater EQS in the absence of a coastal/Estuary/Marine
Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

Determinand	Units	Coastal/ Estuary /Marine Screening Value	Source of screening value	Limit of Detection	Ground type																				
					Borehole	A1	A11	A3	A4	A9	C11	C2	C7	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
					Depth (mbgl)																						
Inorganics																											
Arsenic (dissolved)	µg/l	20	SI 272/2009 Annual Ave	<0.12	13.2	0.928	23.5	2.59	1.02	5.32	1.45	12.4	17.1	2.27	165	8.73	31.9	1.91	2.09	1.81	3.7	2.33	1.06	6.88	19.7	2.43
Cadmium (dissolved)	µg/l	1.5	SI272/2009 MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.343	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.103	<0.1
Chromium (dissolved)	µg/l	32	SI272/2009 MAC	<0.22	<0.22	<0.22	4.56	3.27	4.73	<0.22	3.31	4.14	<0.22	0.502	2.3	0.483	7.06	2.52	1.88	<0.22	3.24	<0.22	3.61	2.9	4.39	1.35
Copper (dissolved)	µg/l	30	SI 272/2009 Annual Ave*	<0.85	1.12	1.8	1.16	2.14	<0.85	<0.85	3.71	<0.85	<0.85	<0.85	3.76	<0.85	2.27	3.77	<0.85	4.21	<0.85	<0.85	4.81	2.21	<0.85	2.17
Lead (dissolved)	µg/l	7.2	SI 272/2009 Annual Ave	<0.02	0.032	0.402	<0.02	<0.02	<0.02	0.217	<0.02	<0.02	<0.02	0.897	<0.02	0.07	<0.02	<0.02	<0.02	0.105	<0.02	0.072	<0.02	<0.02	<0.02	<0.02
Nickel (dissolved)	µg/l	20	SI 272/2009 Annual Ave	<0.15	1.96	2.46	6.03	4.73	1.15	1.65	4.55	1.45	1.51	2.12	42.4	2.12	8.34	8.28	4.64	8.39	4.15	1.38	5.01	8.48	6.43	4.91
Selenium (dissolved)	µg/l	1	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.39	1.26	0.639	1.2	1.59	1.14	0.584	3.24	19.5	1.35	1.11	20.2	1.29	13.1	2.82	2.51	4.29	1.4	0.52	1.27	1.32	8.63	0.757
Zinc (dissolved)	µg/l	40	SI 272/2009 Annual Ave	<0.41	0.957	3.6	4.17	5.57	0.486	<0.41	5.54	<0.41	<0.41	3.07	41.4	<0.41	1.39	7.72	1.38	2.12	<0.41	<0.41	0.902	1.37	29.6	0.971
Mercury (dissolved)	µg/l	0.07	SI272/2009 MAC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0138	<0.01	0.0544	<0.01	<0.01	0.0222	<0.01	0.0149	0.0109	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0255	<0.01
Ammoniacal Nitrogen	mg/l	1	Freshwater Fish Directive*	<0.3	12.9	0.865	9.99	0.975	<0.3	3.81	0.647	41.8	13.9	4.65	59.1	42.2	72.3	8.37	3.46	3.52	2.66	18	<0.3	2.96	16.2	0.96
Sulphate (soluble)	mg/l	200	EQS & IGV*	<2	458	50.4	383	247	122	99.5	104	18.7	441	7.7	461	21.3	588	602	325	702	64	136	70	640	156	545
Phenols	mg/l	0.046	SI272/2009 MAC	<0.025	0.97	0.07	<0.025	<0.025	<0.025	0.11	<0.025	77.3	0.46	0.46	172	10.2	45.7	<0.025	3.55	<0.025	0.29	<0.025	<0.025	0.04	355	<0.025
Free Cyanide - (total CN in lab results)	mg/l	0.01	SI 272/2009 Annual Ave	<0.05	0.882	<0.05	0.286	0.226	<0.05	0.055	0.123	0.247	1.13	<0.05	6.93	<0.05	0.991	0.646	0.074	2.19	0.119	<0.05	<0.05	0.443	0.24	0.812
pH Value		<6.5	Interim Guideline Values	<1	7.93	7.81	8.4	8.25	8.14	7.68	7.97	8.31	7.81	7.01	8.96	8.04	7.92	7.98	7.44	7.53	7.49	7.9	7.99	7.42	7.47	7.68
pH Value		>9.5	Interim Guideline Values	<1	7.93	7.81	8.4	8.25	8.14	7.68	7.97	8.31	7.81	7.01	8.96	8.04	7.92	7.98	7.44	7.53	7.49	7.9	7.99	7.42	7.47	7.68
BTEX																											
Benzene	µg/l	50	SI272/2009 MAC	<7	505	<7	<7	<7	<7	19	<7	11300	632	54	6070	775	4000	<7	761	<7	<7	<7	<7	<7	10100	<7
Toluene	µg/l	10	SI 272/2009 Annual Ave	<4	41	<4	<4	<4	<4	13	<4	6080	154	88	1700	402	2400	<4	1090	<4	<4	<4	<4	<4	4230	<4
Ethyl benzene	µg/l	10	EQS & IGV	<5	126	<5	22	<5	<5	47	<5	291	218	5	74	72	311	<5	53	<5	<5	<5	<5	<5	207	<5
Xylene (sum of detected Xylenes)	µg/l	10	SI 272/2009 Annual Ave	<11	164	15	19	<11	<11	125	<11	3140	789	16	850	357	1770	<11	1310	<11	<11	<11	<11	<11	1920	<11
Petroleum Hydrocarbons																											
GRO (C5-C12)	µg/l			<50	2810	65	1070	<50	<50	2180	63	40300	8240	251	16300	3980	14700	<50	7570	<50	<50	<50	<50	<50	34200	<50
MTBE	µg/l	30	IGV	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3	<3	<6	<3	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3
Aliphatics C5-C6	µg/l			<10	15	<10	14	<10	<10	<10	<10	106	24	<10	67	13	38	<10	22	<10	<10	<10	<10	<10	129	<10
Aliphatics C6-C8	µg/l			<10	78	<10	64	<10	<10	19	<10	547	187	<10	498	41	233	<10	116	<10	<10	<10	<10	<10	923	<10
Aliphatics C8-C10	µg/l			<10	218	<10	112	<10	<10	225	<10	2440	814	13	900	244	1010	<10	715	<10	<10	<10	<10	<10	2100	<10
Aliphatics C10-C12	µg/l			<10	912	16	458	<10	<10	948	23	8870	2930	35	3350	1150	2540	<10	1810	<10	<10	<10	<10	<10	7930	<10
Aliphatics C12-C16	µg/l			<10	<10	<10	<10	<10	<10	<10	78	186	151	<10	<10	<10	<10	<10	53	<10	<10	<10	<10	<10	255	<10
Aliphatics C16-C21	µg/l			<10	<10	<10	<10	<10	<10	<10	39	176	234	18	<10	<10	<10	<10	66	<10	<10	<10	<10	<10	200	<10
Aliphatics C21-C35	µg/l			<10	<10	<10	<10	<10	<10	<10	<10	129	124	42	<10	<10	<10	<10	95	<10	<10	<10	<10	<10	337	<10
Aromatics C5-C7	µg/l			<10	505	<10	<10	<10	<10	19	<10	11300	632	54	6070	775	4000	<10	761	<10	<10	<10	<10	<10	10100	<10
Aromatics C7-C8	µg/l			<10	41	<10	<10	<10	<10	13	<10	6080	154	88	1700	402	2400	<10	1090	<10	<10	<10	<10	<10	4230	<10
Aromatics C8-C10	µg/l			<10	435	23	117	<10	<10	321	<10	5050	1550	29	1520	592	2750	<10	1840	<10	<10	<10	<10	<10	3530	<10
Aromatics C10-C12	µg/l			<10	608	11	305	<10	<10	632	15	5920	1950	23	2240	766	1700	<10	1210	<10	<10	<10	<10	<10	5290	<10
Aromatics C12-C16	µg/l			<10	446	<10	199	<10	<10	126	37	11200	1670	23	5600	466	5020	<10	718	<10	<10	<10	<10	<10	15100	<10
Aromatics C16-C21	µg/l			<10	150	<10	91	<10	<10	45	148	2980	1400	39	407	48	301	<10	959	<10	11	<10	<10	<10	3160	<10
Aromatics C21-C35	µg/l			<10	60	<10	13	<10	<10	<10	412	2300	962	157	120	<10	30	<10	2250	<10	42	<10	<10	21	2490	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	EQS & IGV	<10	3470	65	1370	<10	<10	2360	776	57200	12800	530	22500	4500	20000	<10	11700	16	54	34	<10	21	55800	<10
PAHs																											
Acenaphthene	µg/l	5.8	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.015	2.65	1.21	<0.075	<0.015	<0.015	0.0311	0.496	199	43.6	<0.075	15.5	0.0228	29.1	<0.015	5.35	0.0183	0.0719	0.0214	<0.015	0.0372	93.2	<0.015
Acenaphthylene	µg/l			<0.011	1.18	7.03	0.0934	0.0791	0.0568	0.233	0.445	1150	48.8	<0.055	114	0.103	28.7	0.0543	1.36	0.382	0.767	0.061	0.156	0.0922	534	0.0196
Anthracene	µg/l	0.4	SI272/2009 MAC	<0.015	0.323	3.3	<0.075	0.0358	0.0242	0.0372	3.98	615	47.9	<0.075	10.1	0.0283	0.788	0.0375	<0.15	0.0584	0.656	0.0479	0.0367	0.145	174	<0.015
Benzo(a)anthracene	µg/l	0.018	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.017	1.08	30.7	<0.085	0.0516	0.105	0.16	14.7	404	17.4	<0.085	2.05	0.06	<0.34	0.255	0.449	0.423	2.18	0.0697	0.155	0.91	74.9	0.0863
Benzo(a)pyrene	µg/l	0.1	SI272/2009 MAC	<0.009	0.616	65.2	<0.045	0.112	0.174	0.318	18.4	352	12	<0.045	2.13	0.132	0.358	0.276	0.515	0.841	3.59	0.0877	0.541	1.47	56.5	0.115
Benzo(b)fluoranthene	µg/l	0.5	Interim Guideline Value*	<0.023	0.523	54.1	<0.115	0.0798	0.113	0.28	15.1	260	14.3	<0.115	1.61	0.122	<0.46	0.174	0.548	0.557	2.51	0.0683	0.413	1.42	43.5	0.108
Benzo(ghi)perylene	µg/l	0.05	Interim Guideline Value*	<0.016	0.258	46.4	<0.08	0.0535	0.133	0.289	11.4	192	6.07	<0.08	1.22	0.118	<0.32	0.257	0.183	0.509	1.96	0.041	0.481	1.37	30.4	0.105
Benzo(k)fluoranthene	µg/l	0.05	Interim Guideline Value*	<0.027	0.614	56.5	<0.135	0.116	0.183	0.23	15.4	316	8.25	<0.135	1.8	0.107	<0.54	0.31	0.601	0.644	3.11	0.097	0.424	1.45	50.7	0.105
Chrysene	µg/l			<0.013	0.898	37.4	<0.065	0.111	0.151	0.175	15.5	362	13.9	<0.065	1.94	0.0655	0.323	0.323	0.736	0.501	1.87	0.105	0.17	0.957	69.5	0.114
Dibenzo(ah)anthracene	µg/l			<0.016	0.0618	10.4	<0.08	0.0219	0.0191	0.0711	3.78	50.2	1.77	<0.08	0.424	0.0381	<0.32	0.033	<0.16	0.0835	0.52	<0.016	0.0716	0.249	7.83	<0.016
Fluoranthene	µg/l	1	SI272/2009 MAC	<0.017	4.73	43	<0.085	0.376	0.181	0.255	26.7	1210	105	<0.085	9.3	0.0747	1.72	0.353	10.2	0.469	3.48	1.14	0.186	1.32	288	0.223
Fluorene	µg/l	3	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.014	0.284	2.02	<0.07	0.0491	<0.07	0.226	0.468	790	38.8	<0.07	37.9	0.0228	6.15	0.0148	1.27	0.0447	0.362	0.388	0.0246	0.0644	250	0.0161
Indeno(123cd)pyrene	µg/l	0.05	Interim Guideline Value*	<0.014	0.24	37.5	<0.07	0.041	0.0868	0.258	10.3	183	5.76	<0.07	1.03	0.105	<0.28	0.165	0.161	0.406	1.85	0.0399	0.395	1.16	28.6	0.0678
Naphthalene	µg/l	1.2	SI 272/2009 Annual Ave	<0.1	0.145	3.52	<0.5	<0.1	<0.1	<0.1	0.416	14300	19.8	<0.5	2540	0.12	522	<0.1	<1	<0.1	0.596	0.125	<0.1	0.147	5230	0.105
Phenanthrene	µg/l	0.4	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.022	0.351	11	<0.11	0.0539	0.0828	0.0779	9.58	1940	67.5	<0.11	37.7	0.0497	13.8	0.106	<0.22	0.0922	2.07	0.0804	0.0549	0.401	497	0.0465
Pyrene	µg/l	0.025	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.015	4.18	41.5	0.151	0.346	0.186	0.245	22.8	837	63.4	<0.075	5.91	0.0629	0.948	0.325	6.38	0.306	2.49	0.593	0.163	1.29	196	0.113
Sum benzo(ghi)perylene and indeno(123-cd)pyrene	µg/l	0.002	SI 272/2009 Annual Ave	<0.03	0.498	83.9	<0.15	0.0945	0.2198	0.547	21.7	375	11.83	<0.15	2.25	0.223	<0.60	0.422	0.344	0.915	3.81	0.0809	0.876	2.53	59	0.1728
Sum benzo (b + K) fluoranthene	µg/l	0.03	SI 272/2009 Annual Ave	<0.05	1.137	110.6	<0.25	0.1958	0.296	0.51	30.5	576	22.55	<0.25	3.41	0.229	<1.0	0.484	1.149	1.201	5.62	0.1653	0.837	2.87	94.2	0.213
Volatile Organic Compounds																											
1.1.1.2-Tetrachloroethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	100	EQS 76/464/EEC	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	5.85	<1
1,1,2,2-Tetrachloroethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	300	EQS 76/464/EEC	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l	0.4	SI 272/2009 Annual Ave	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2,4-Trichlorobenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			1	34.1	1.24	3.48	<1	-	-	-	366	267	-	-	-	275	-	221	<1	-	-	-	-	177	<1
1,2-Dibromo-3-chloropropane (DBCP)	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dibromoethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichloroethane	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichloropropane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			1	5.87	1.22	1.21	<1	-	-	-	155	67.8	-	-	-	65.5	-	93	<1	-	-	-	-	67.3	<1
1,3-Dichlorobenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3-Dichloropropane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	7.08	-	-	-	5.52	-	2.73	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			1	1.47	<1	<1	<1	-	-	-	<1	2.31	-	-	-	4.98	-	<1	<1	-	-	-	-	1.4	<1
Carbon tetrachloride	µg/l	12	SI 272/2009 Annual Ave	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	1	EQS for the Aquatic Environment - EPA, quoted in IGV	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	12	EQS 76/464/EEC	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.41	<1
Chloromethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	SI 272/2009 Annual Ave	3	<3	<3	<3	<3	-	-	-	<3	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			1	10.1	<1	<1	<1	-	-	-	15.6	20.5	-	-	-	21	-	<1	<1	-	-	-	-	9.41	<1
n-Butylbenzene	µg/l			1	<1	<1	<1	<1	-	-	-	8.76	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			1	13.2	<1	<1	<1	-	-	-	26.2	30.7	-	-	-	23.9	-	<1	<1	-	-	-	-	14	<1
sec-Butylbenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	2.99	-	-	-	1.54	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	72*	Canadian Water Quality Guidelines for Aquatic Life (2007)	1	<1	<1	<1	<1	-	-	-	492	<1	-	-	-	<1	-	<1	<1	-	-	-	-	387	<1
tert-Amyl methyl ether (TAME)	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.38	<1
trans-1-2-Dichloroethene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	7.88	<1
Trichlorofluoromethane	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.84	<1
Vinyl Chloride	µg/l			1	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring Visit 15 (23rd & 24th July 2013)

Screening Values - Drinking Water Standards

Aquifer type: Locally important aquifer
Typical productivity: Moderately Productive (40-100 m3/d)

Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

			Borehole		A1	A3	A4	A9	C11	C2	C7	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
			Depth (mbgl)																						
Determinand	**Units**	**Screening Value**	**Source of screening value**	**Limit of detection**																					
Inorganics																									
Arsenic (dissolved)	µg/l	10	SI 278/2007	<0.12	17.4	38.7	11.7	1.3	7.41	6.09	25.2	20.8	4.41	85.6	19	31	3.53	11.4	6.1	25.1	13	2.06	2.24	33.6	2.56
Cadmium (dissolved)	µg/l	5	SI 278/2007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (dissolved)	µg/l	50	SI 278/2007	<0.22	5.17	5.09	3.89	3.75	1.76	4.11	4.09	5.16	2.29	2.55	5.53	8.56	4.03	3.53	6.12	2.79	4.84	2.37	2.85	2.9	1.58
Copper (dissolved)	µg/l	2000	SI 278/2007	<0.85	<0.85	<0.85	0.965	1.11	2.63	0.902	2.27	<0.85	2.28	<0.85	<0.85	<0.85	2.09	<0.85	2.16	<0.85	<0.85	<0.85	2.16	1.87	1.19
Lead (dissolved)	µg/l	25	SI 278/2007	<0.02	<0.02	<0.02	<0.02	<0.02	0.285	0.041	0.115	<0.02	4.12	0.146	0.074	<0.02	0.09	0.174	<0.02	0.022	<0.02	<0.02	0.364	0.47	<0.02
Nickel (dissolved)	µg/l	20	SI 278/2007	<0.15	3.68	2.9	3.99	1.34	4.39	4.18	6.89	2.57	2.9	30.2	3.33	4.58	7.2	2.46	6.39	7.21	1.59	8.56	6.98	7.81	2.54
Selenium (dissolved)	µg/l	10	SI 278/2007	<0.39	1.07	0.895	0.962	1.47	1.97	2.18	15.1	1.61	1.06	10.1	2.29	6.56	3.28	3.89	5.56	4.24	0.639	1.17	1.64	11.6	0.638
Zinc (dissolved)	µg/l	5000	WHO Drinking water Quality Guideline Value	<0.41	0.528	2.18	5.1	1.38	3.69	3.2	2.81	1.24	4.6	5.58	0.663	1.41	4.46	3.63	4.15	1.65	0.805	0.571	2.83	1.63	1.23
Mercury (dissolved)	µg/l	1	SI 278/2007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0389	<0.01	<0.01	<0.01	<0.01	0.0108	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0194	<0.01
Ammonium	mg/l	0.3	SI 278/2007	<0.3	13.8	12	3.47	<0.3	4.35	1.89	106	15	12	27.5	64.7	91.9	15.7	13	10.1	25.1	39	3.28	1.75	25.8	1.09
Sulphate (soluble)	mg/l	250	SI 278/2007	<2	402	375	301	178	261	121	40	377	13.2	160	<2	464	471	109	633	123	57.4	83.4	667	209	510
Phenols	mg/l	500	SI 81/1988	<0.025	0.94	0.21	<0.025	<0.025	0.19	1.65	174	3.76	1.89	93	16.1	31	<0.025	3.74	0.21	14.9	1.07	<0.025	<0.025	450	<0.025
Total Cyanide	mg/l	0.05	SI 278/2007	<0.05	1.03	0.354	0.264	0.189	<0.05	0.314	0.588	1.23	<0.05	1.07	0.066	0.835	0.497	0.114	0.597	1.43	<0.05	<0.05	0.527	0.487	0.957
pH Value		<6.5	SI 278/2007	<1	7.35	7.65	7.64	7.63	7.13	7.49	8.62	7.98	7.47	7.73	7.46	7.39	7.26	7.48	7.36	7.66	7.48	7.13	7.77	7.25	7.72
pH Value		>9.5	SI 278/2007	<1	7.35	7.65	7.64	7.63	7.13	7.49	8.62	7.98	7.47	7.73	7.46	7.39	7.26	7.48	7.36	7.66	7.48	7.13	7.77	7.25	7.72
BTEX																									
Benzene	µg/l	1	SI 278/2007	<7	495	<7	<7	<7	19	375	18400	1210	193	2270	1360	3640	<7	946	<7	578	33	<7	<7	15000	<7
Toluene	µg/l	700	WHO Drinking Water Quality Guideline Value	<4	53	<4	<4	<4	17	265	8430	1390	121	622	611	2050	<4	1050	<4	278	149	<4	<4	5670	<4
Ethyl benzene	µg/l	300	WHO Drinking Water Quality Guideline Value	<5	119	<5	<5	<5	15	22	311	348	20	29	67	203	<5	75	<5	21	<5	<5	<5	262	<5
Xylene	µg/l	500	WHO Drinking Water Quality Guideline Value	<11	139	<16	<11	<11	62	172	3032	1917	102	290	342	1129	<11	1117	30	190	<11	<11	<11	2080	<11
Petroleum Hydrocarbons																									
GRO (C4-C12)	µg/l	10	SI 81/1988	<50	2420	760	<50	<50	869	1540	51700	16000	965	6000	4470	11100	<50	6290	364	2970	290	<50	<50	44900	<50
MTBE	µg/l			<3	<3	<3	<3	<3	<3	<3	<15	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3
Aliphatics C5-C6	µg/l			<10	10	<10	<10	<10	<10	<10	132	28	<10	39	11	21	<10	12	<10	<10	12	<10	<10	172	<10
Aliphatics C6-C8	µg/l			<10	80	56	<10	<10	14	21	1040	284	24	178	66	158	<10	77	20	54	15	<10	<10	1410	<10
Aliphatics C8-C10	µg/l			<10	184	92	<10	<10	81	84	2550	1220	70	334	244	567	<10	488	49	182	17	<10	<10	2590	<10
Aliphatics C10-C12	µg/l			<10	729	315	<10	<10	362	325	9710	5290	229	1210	964	1760	<10	1320	137	920	29	<10	<10	9650	<10
Aliphatics C12-C16	µg/l			<10	<10	<10	56	<10	79	19	189	230	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	440	<10
Aliphatics C16-C21	µg/l			<10	<10	<10	108	<10	33	<10	152	352	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	338	<10
Aliphatics C21-C35	µg/l			<10	<10	<10	83	<10	11	<10	209	233	34	<10	<10	<10	27	<10	<10	<10	<10	<10	<10	442	<10
Aromatics C6-C7	µg/l			<10	495	<10	<10	<10	19	375	18400	1210	193	2270	1360	3640	<10	946	<10	578	33	<10	<10	15000	<10
Aromatics C7-C8	µg/l			<10	53	<10	<10	<10	17	265	8430	1390	121	622	611	2050	<10	1050	<10	278	149	<10	<10	5670	<10
Aromatics C8-C10	µg/l			<10	381	76	<10	<10	131	250	5040	3080	170	541	572	1710	<10	1520	63	333	16	<10	<10	4070	<10
Aromatics C10-C12	µg/l			<10	486	210	<10	<10	241	217	6470	3530	153	806	643	1180	<10	882	91	614	20	<10	<10	6430	<10
Aromatics C12-C16	µg/l			<10	170	57	22	<10	81	13	14200	2570	<10	1360	1240	2250	<10	340	52	590	<10	<10	<10	19000	<10
Aromatics C16-C21	µg/l			<10	158	48	55	<10	71	84	3250	2590	<10	161	77	191	20	156	29	277	<10	<10	<10	3740	<10
Aromatics C21-C35	µg/l			<10	142	<10	41	<10	56	259	2790	1220	104	56	<10	48	89	240	27	77	<10	<10	11	2910	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	SI 81/1988	<10	2890	865	367	<10	1200	1920	72500	23200	1100	7570	5790	13600	142	7020	472	3910	291	<10	12	71800	<10
PAHs																									
Acenaphthene	µg/l			<0.015	0.998	0.0823	0.0194	<0.015	0.177	0.812	67.5	242	0.0569	5.4	2.7	0.803	0.0605	<0.015	<0.015	4.69	<0.015	0.0556	0.0495	52.1	<0.015
Acenaphthylene	µg/l			<0.011	4.04	0.153	0.213	0.0345	0.9	0.416	509	510	1.15	20.7	0.133	0.816	0.359	4	0.348	8.64	<0.011	0.0828	0.126	406	0.031
Anthracene	µg/l			<0.015	10.1	0.101	0.0868	0.0243	0.238	2.61	167	711	0.324	2.46	0.129	0.0355	0.293	3.32	0.0775	3.83	<0.015	0.0257	0.187	69.3	0.0237
Benzo(a)anthracene	µg/l			<0.017	4.41	<0.017	0.151	<0.017	1.01	17.8	73	157	1.98	<0.034	<0.034	<0.017	2.74	11.4	0.452	0.384	<0.017	<0.017	0.878	15.8	<0.017
Benzo(a)pyrene	µg/l	0.01	SI 278/2007	<0.009	5.38	0.165	0.582	0.0324	2.14	26.2	56.6	74.2	2.99	0.146	<0.018	<0.009	4.4	15.7	0.975	0.228	0.0138	0.0922	1.55	19.8	0.0429
Benzo(b)fluoranthene	µg/l			<0.023	4.96	0.0795	0.574	0.0405	1.88	23.3	54.7	87.3	3.19	0.129	<0.046	<0.023	4.76	14.4	0.996	0.198	<0.023	0.11	1.82	20.7	0.0427
Benzo(ghi)perylene	µg/l			<0.016	3.07	0.0688	0.384	0.0329	1.64	15.2	31.6	34.5	2.28	0.0597	<0.032	<0.016	3.5	8.63	0.622	0.0599	0.019	0.0445	1.51	13.8	0.0633
Benzo(k)fluoranthene	µg/l			<0.027	4.5	0.0971	0.492	0.034	1.69	22.7	63.1	86.7	2.88	0.117	<0.054	<0.027	4.41	13.4	0.927	0.242	<0.027	0.0449	1.43	24.2	0.0419
Chrysene	µg/l			<0.013	3.85	0.0838	0.352	0.0333	1.27	19.2	80.2	154	2.61	0.157	<0.026	<0.013	3.33	11.6	0.66	0.44	0.0236	0.0324	1.06	35.7	0.0383
Dibenzo(ah)anthracene	µg/l			<0.016	0.754	<0.016	0.0806	<0.016	0.406	4.47	7.38	6.17	0.621	<0.032	<0.032	<0.016	0.794	2.12	0.126	<0.032	<0.016	<0.016	0.277	5.62	<0.016
Fluoranthene	µg/l	4	WHO Drinking Water Quality Guideline Value	<0.017	52.6	0.12	0.476	0.0743	2.24	33.2	286	1060	4.21	1.62	0.153	0.0549	3.73	51.4	0.839	3.4	0.05	0.0623	1.4	102	0.0622
Fluorene	µg/l			<0.014	3.45	0.0734	0.0658	<0.014	0.15	0.583	292	806	0.192	10.6	0.812	0.343	0.106	0.864	0.0897	17.3	<0.014	0.0272	0.076	162	0.0193
Indeno(123cd)pyrene	µg/l			<0.014	2.88	0.0576	0.351	0.0242	1.52	12.9	26.4	26	2.11	0.0584	<0.028	<0.014	2.93	7.62	0.501	0.0596	<0.014	0.0373	1.17	10.7	0.0403
Naphthalene	µg/l			<0.1	12	<0.1	0.151	<0.1	0.262	1.02	7890	896	0.747	9.07	0.24	2.13	0.214	0.643	0.227	0.834	<0.1	<0.1	0.167	5490	<0.1
Phenanthrene	µg/l			<0.022	15.6	0.14	0.163	0.0434	0.582	12.2	554	1280	1.07	5.27	0.164	0.361	0.967	1.45	0.14	11.6	<0.022	0.0257	0.455	291	0.0637
Pyrene	µg/l			<0.015	42.6	0.22	0.474	0.0632	2.31	28.8	203	675	3.55	0.958	0.0805	0.0315	3.42	39.5	0.533	2.19	0.0826	0.0241	1.39	68.6	0.046
Total PAH # (Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene & Indeno(123cd)pyrene)	µg/l	0.1	SI 278/2007	<0.08	15.41	0.303	1.801	0.1316	6.73	74.1	175.8	234.5	10.46	0.3641	<0.16	<0.16	15.6	44.05	3.046	0.5595	<0.083	0.2367	5.93	69.4	0.1882
Volatile Organic Compounds																									
1.1.1.2-Tetrachloroethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	2000	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	5.25	<1
1,1,2,2-Tetrachloroethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	5	US EPA - National Primary Drinking Water Regulations, Maximum Contaminant Level	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l	-	-	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l	140	**Informal** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			<1	18.6	4.08	<1	-	-	-	187	415	-	-	-	149	-	142	8.12	-	-	-	-	122	<1
1.2-Dibromo-3-chloropropane (DBCP)	µg/l	1	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dibromoethane	µg/l	0.4	**Provisional** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloroethane	µg/l	3	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloropropane	µg/l	40	**Provisional** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			<1	3.38	1.42	<1	-	-	-	76.1	124	-	-	-	34.3	-	62	<1	-	-	-	-	45.7	<1
1,3-Dichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3-Dichloropropane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			<1	<1	<1	<1	-	-	-	1.74	7.03	-	-	-	7.62	-	<1	<1	-	-	-	-	1.09	<1
Carbontetrachloride	µg/l	4	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	100	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	WHO Drinking Water Quality Guideline Value	<3	<3	<3	<3	-	-	-	<3	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			<1	7.49	<1	<1	-	-	-	7.4	24.8	-	-	-	12.1	-	<1	<1	-	-	-	-	5.82	<1
n-Butylbenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			<1	8.8	<1	<1	-	-	-	12.3	34.9	-	-	-	10.7	-	<1	<1	-	-	-	-	9.24	<1
sec-Butylbenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	313	<1	-	-	-	<1	-	<1	<1	-	-	-	-	318	<1
tert-Amyl methyl ether (TAME)	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.07	<1
trans-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 278/2007	<1	2.71	<1	<1	-	-	-	8.43	<1	-	-	-	<1	-	<1	<1	-	-	-	-	10.1	2
Trichlorofluoromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Vinyl Chloride	µg/l	0.5	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring visit 15 (23rd & 24th July 2013)

Screening Values - Environmental Quality Standards

Receptor water type: Freshwater suitable for coarse fish
Relevant EQS Hardness Band: >100-150 mg/l

Hardness related Freshwater EQS - based on cyprinid/coarse fish
* Asterix indicates freshwater EQS in the absence of a coastal/Estuary/Marine
Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

Determinand	Units	Coastal/ Estuary /Marine Screening Value	Source of screening value	Limit of Detection	Ground type																			
					Borehole	A1	A3	A4	A9	C11	C2	C7	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
					Depth (mbgl)																				
Inorganics																									
Arsenic (dissolved)	µg/l	20	SI 272/2009 Annual Ave	<0.12	17.4	38.7	11.7	1.3	7.41	6.09	25.2	20.8	4.41	85.6	19	31	3.53	11.4	6.1	25.1	13	2.06	2.24	33.6	2.56
Cadmium (dissolved)	µg/l	1.5	SI272/2009 MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (dissolved)	µg/l	32	SI272/2009 MAC	<0.22	5.17	5.09	3.89	3.75	1.76	4.11	4.09	5.16	2.29	2.55	5.53	8.56	4.03	3.53	6.12	2.79	4.84	2.37	2.85	2.9	1.58
Copper (dissolved)	µg/l	30	SI 272/2009 Annual Ave*	<0.85	<0.85	<0.85	0.965	1.11	2.63	0.902	2.27	<0.85	2.28	<0.85	<0.85	<0.85	2.09	<0.85	2.16	<0.85	<0.85	<0.85	2.16	1.87	1.19
Lead (dissolved)	µg/l	7.2	SI 272/2009 Annual Ave	<0.02	<0.02	<0.02	<0.02	<0.02	0.285	0.041	0.115	<0.02	4.12	0.146	0.074	<0.02	0.09	0.174	<0.02	0.022	<0.02	<0.02	<0.02	0.364	0.47	<0.02
Nickel (dissolved)	µg/l	20	SI 272/2009 Annual Ave	<0.15	3.68	2.9	3.99	1.34	4.39	4.18	6.89	2.57	2.9	30.2	3.33	4.58	7.2	2.46	6.39	7.21	1.59	8.56	6.98	7.81	2.54
Selenium (dissolved)	µg/l	1	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.39	1.07	0.895	0.962	1.47	1.97	2.18	15.1	1.61	1.06	10.1	2.29	6.56	3.28	3.89	5.56	4.24	0.639	1.17	1.64	11.6	0.638
Zinc (dissolved)	µg/l	40	SI 272/2009 Annual Ave	<0.41	0.528	2.18	5.1	1.38	3.69	3.2	2.81	1.24	4.6	5.58	0.663	1.41	4.46	3.63	4.15	1.65	0.805	0.571	2.83	1.63	1.23
Mercury (dissolved)	µg/l	0.07	SI272/2009 MAC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0389	<0.01	<0.01	<0.01	<0.01	0.0108	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0194	<0.01
Ammoniacal Nitrogen	mg/l	1	Freshwater Fish Directive*	<0.3	13.8	12	3.47	<0.3	4.35	1.89	106	15	12	27.5	64.7	91.9	15.7	13	10.1	25.1	39	3.28	1.75	25.8	1.09
Sulphate (soluble)	mg/l	200	EQS & IGV*	<2	402	375	301	178	261	121	40	377	13.2	160	<2	464	471	109	633	123	57.4	83.4	667	209	510
Phenols	mg/l	0.046	SI272/2009 MAC	<0.025	0.94	0.21	<0.025	<0.025	0.19	1.65	174	3.76	1.89	93	16.1	31	<0.025	3.74	0.21	14.9	1.07	<0.025	<0.025	450	<0.025
Free Cyanide - (total CN in lab results)	mg/l	0.01	SI 272/2009 Annual Ave	<0.05	1.03	0.354	0.264	0.189	<0.05	0.314	0.588	1.23	<0.05	1.07	0.066	0.835	0.497	0.114	0.597	1.43	<0.05	<0.05	0.527	0.487	0.957
pH Value		<6.5	Interim Guideline Values	<1	7.35	7.65	7.64	7.63	7.13	7.49	8.62	7.98	7.47	7.73	7.46	7.39	7.26	7.48	7.36	7.66	7.48	7.13	7.77	7.25	7.72
pH Value		>9.5	Interim Guideline Values	<1	7.35	7.65	7.64	7.63	7.13	7.49	8.62	7.98	7.47	7.73	7.46	7.39	7.26	7.48	7.36	7.66	7.48	7.13	7.77	7.25	7.72
BTEX																									
Benzene	µg/l	50	SI272/2009 MAC	<7	495	<7	<7	<7	19	375	18400	1210	193	2270	1360	3640	<7	946	<7	578	33	<7	<7	15000	<7
Toluene	µg/l	10	SI 272/2009 Annual Ave	<4	53	<4	<4	<4	17	265	8430	1390	121	622	611	2050	<4	1050	<4	278	149	<4	<4	5670	<4
Ethyl benzene	µg/l	10	EQS & IGV	<5	119	<5	<5	<5	15	22	311	348	20	29	67	203	<5	75	<5	21	<5	<5	<5	262	<5
Xylene (sum of detected Xylenes)	µg/l	10	SI 272/2009 Annual Ave	<11	139	13	<11	<11	62	172	3030	1920	102	290	342	1130	<11	1120	30	190	<11	<11	<11	2080	<11
Petroleum Hydrocarbons																									
GRO (C5-C12)	µg/l			<50	2420	760	<50	<50	869	1540	51700	16000	965	6000	4470	11100	<50	6290	364	2970	290	<50	<50	44900	<50
MTBE	µg/l	30	IGV	<3	<3	<3	<3	<3	<3	<3	<15	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3
Aliphatics C5-C6	µg/l			<10	10	<10	<10	<10	<10	<10	132	28	<10	39	11	21	<10	12	<10	<10	12	<10	<10	172	<10
Aliphatics C6-C8	µg/l			<10	80	56	<10	<10	14	21	1040	284	24	178	66	158	<10	77	20	54	15	<10	<10	1410	<10
Aliphatics C8-C10	µg/l			<10	184	92	<10	<10	81	84	2550	1220	70	334	244	567	<10	488	49	182	17	<10	<10	2590	<10
Aliphatics C10-C12	µg/l			<10	729	315	<10	<10	362	325	9710	5290	229	1210	964	1760	<10	1320	137	920	29	<10	<10	9650	<10
Aliphatics C12-C16	µg/l			<10	<10	<10	56	<10	79	19	189	230	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	440	<10
Aliphatics C16-C21	µg/l			<10	<10	<10	108	<10	33	<10	152	352	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	338	<10
Aliphatics C21-C35	µg/l			<10	<10	<10	83	<10	11	<10	209	233	34	<10	<10	<10	27	<10	<10	<10	<10	<10	<10	442	<10
Aromatics C5-C7	µg/l			<10	495	<10	<10	<10	19	375	18400	1210	193	2270	1360	3640	<10	946	<10	578	33	<10	<10	15000	<10
Aromatics C7-C8	µg/l			<10	53	<10	<10	<10	17	265	8430	1390	121	622	611	2050	<10	1050	<10	278	149	<10	<10	5670	<10
Aromatics C8-C10	µg/l			<10	381	76	<10	<10	131	250	5040	3080	170	541	572	1710	<10	1520	63	333	16	<10	<10	4070	<10
Aromatics C10-C12	µg/l			<10	486	210	<10	<10	241	217	6470	3530	153	806	643	1180	<10	882	91	614	20	<10	<10	6430	<10
Aromatics C12-C16	µg/l			<10	170	57	22	<10	81	13	14200	2570	<10	1360	1240	2250	<10	340	52	590	<10	<10	<10	19000	<10
Aromatics C16-C21	µg/l			<10	158	48	55	<10	71	84	3250	2590	<10	161	77	191	20	156	29	277	<10	<10	<10	3740	<10
Aromatics C21-C35	µg/l			<10	142	<10	41	<10	56	259	2790	1220	104	56	<10	48	89	240	27	77	<10	<10	11	2910	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	EQS & IGV	<10	2890	865	367	<10	1200	1920	72500	23200	1100	7570	5790	13600	142	7020	472	3910	291	<10	12	71800	<10
PAHs																									
Acenaphthene	µg/l	5.8	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.015	0.998	0.0823	0.0194	<0.015	0.177	0.812	67.5	242	0.0569	5.4	2.7	0.803	0.0605	<0.015	<0.015	4.69	<0.015	0.0556	0.0495	52.1	<0.015
Acenaphthylene	µg/l			<0.011	4.04	0.153	0.213	0.0345	0.9	0.416	509	510	1.15	20.7	0.133	0.816	0.359	4	0.348	8.64	<0.011	0.0828	0.126	406	0.031
Anthracene	µg/l	0.4	SI272/2009 MAC	<0.015	10.1	0.101	0.0868	0.0243	0.238	2.61	167	711	0.324	2.46	0.129	0.0355	0.293	3.32	0.0775	3.83	<0.015	0.0257	0.187	69.3	0.0237
Benzo(a)anthracene	µg/l	0.018	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.017	4.41	<0.017	0.151	<0.017	1.01	17.8	73	157	1.98	<0.034	<0.034	<0.017	2.74	11.4	0.452	0.384	<0.017	<0.017	0.878	15.8	<0.017
Benzo(a)pyrene	µg/l	0.1	SI272/2009 MAC	<0.009	5.38	0.165	0.582	0.0324	2.14	26.2	56.6	74.2	2.99	0.146	<0.018	<0.009	4.4	15.7	0.975	0.228	0.0138	0.0922	1.55	19.8	0.0429
Benzo(b)fluoranthene	µg/l	0.5	Interim Guideline Value*	<0.023	4.96	0.0795	0.574	0.0405	1.88	23.3	54.7	37.3	3.19	0.129	<0.046	<0.023	4.76	14.4	0.996	0.198	<0.023	0.11	1.82	20.7	0.0427
Benzo(ghi)perylene	µg/l	0.05	Interim Guideline Value*	<0.016	3.07	0.0688	0.384	0.0329	1.64	15.2	31.6	34.5	2.28	0.0597	<0.032	<0.016	3.5	8.63	0.622	0.0599	0.019	0.0445	1.51	13.8	0.0633
Benzo(k)fluoranthene	µg/l	0.05	Interim Guideline Value*	<0.027	4.5	0.0971	0.492	0.034	1.69	22.7	63.1	86.7	2.88	0.117	<0.054	<0.027	4.41	13.4	0.927	0.242	<0.027	0.0449	1.43	24.2	0.0419
Chrysene	µg/l			<0.013	3.85	0.0838	0.352	0.0333	1.27	19.3	80.2	154	2.61	0.157	<0.026	<0.013	3.33	11.6	0.66	0.44	0.0236	0.0324	1.06	35.7	0.0383
Dibenzo(ah)anthracene	µg/l			<0.016	0.754	<0.016	0.0806	<0.016	0.406	4.47	17.38	6.17	0.621	<0.032	<0.032	<0.016	0.794	2.12	0.126	<0.032	<0.016	<0.016	0.277	5.62	<0.016
Fluoranthene	µg/l	1	SI272/2009 MAC	<0.017	52.6	0.12	0.476	0.0743	2.24	33.2	286	1060	4.21	1.62	0.153	0.0549	3.73	51.4	0.839	3.4	0.05	0.0623	1.4	102	0.0622
Fluorene	µg/l	3	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.014	3.45	0.0734	0.0658	<0.014	0.583	12.3	292	806	0.192	10.6	0.812	0.343	0.106	0.864	0.0897	17.3	<0.014	0.0272	0.076	162	0.0193
Indeno(123cd)pyrene	µg/l	0.05	Interim Guideline Value*	<0.014	2.88	0.0576	0.351	0.0242	1.52	12.9	26.4	26	2.11	0.0584	<0.028	<0.014	2.93	7.62	0.501	0.0596	<0.014	0.0373	1.17	10.7	0.0403
Naphthalene	µg/l	1.2	SI 272/2009 Annual Ave	<0.1	12	<0.1	0.151	<0.1	0.269	1.02	7890	896	0.747	9.07	0.24	2.13	0.214	0.643	0.227	0.834	<0.1	<0.1	0.167	5490	<0.1
Phenanthrene	µg/l	0.4	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.022	15.6	0.14	0.163	0.0334	0.582	12.2	554	1280	1.07	5.27	0.164	0.361	0.967	1.45	0.14	11.6	<0.022	0.0257	0.455	291	0.0637
Pyrene	µg/l	0.025	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.015	42.6	0.22	0.474	0.0632	2.31	28.8	203	675	3.55	0.958	0.0805	0.0315	3.42	39.5	0.533	2.19	0.0826	0.0241	1.39	68.6	0.046
Sum benzo(ghi)perylene and indeno(123-cd)pyrene	µg/l	0.002	SI 272/2009 Annual Ave	<0.03	5.95	0.1264	0.735	0.0571	3.16	28.1	58	60.5	4.39	0.1181	<0.05	<0.03	6.43	16.25	1.123	0.1195	<0.033	0.0818	2.68	24.5	0.1036
Sum benzo (b + K) fluoranthene	µg/l	0.03	SI 272/2009 Annual Ave	<0.05	9.46	0.1766	1.066	0.0745	3.57	46	117.8	174	6.07	0.246	<0.1	<0.05	9.17	27.8	1.923	0.44	<0.05	0.1549	3.25	44.9	0.0846
Volatile Organic Compounds																									
1.1.1.2-Tetrachloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	100	EQS 76/464/EEC	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	5.25	<1
1,1,2,2-Tetrachloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	300	EQS 76/464/EEC	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l	0.4	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2,4-Trichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			1	18.6	4.08	<1	-	-	-	187	415	-	-	-	149	-	142	8.12	-	-	-	-	122	<1
1.2-Dibromo-3-chloropropane (DBCP)	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dibromoethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloroethane	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			1	3.38	1.42	<1	-	-	-	76.1	124	-	-	-	34.3	-	62	<1	-	-	-	-	45.7	<1
1,3-Dichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3-Dichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			1	<1	<1	<1	-	-	-	1.74	7.03	-	-	-	7.62	-	<1	<1	-	-	-	-	1.09	<1
Carbon tetrachloride	µg/l	12	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	1	EQS for the Aquatic Environment - EPA, quoted in IGV	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	12	EQS 76/464/EEC	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	SI 272/2009 Annual Ave	3	<3	<3	<3	-	-	-	<3	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			1	7.49	<1	<1	-	-	-	7.4	24.8	-	-	-	12.1	-	<1	<1	-	-	-	-	5.82	<1
n-Butylbenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			1	8.8	<1	<1	-	-	-	12.3	34.9	-	-	-	10.7	-	<1	<1	-	-	-	-	9.24	<1
sec-Butylbenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	72*	Canadian Water Quality Guidelines for Aquatic Life (2007)	1	<1	<1	<1	-	-	-	313	<1	-	-	-	<1	-	<1	<1	-	-	-	-	318	<1
tert-Amyl methyl ether (TAME)	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.07	<1
trans-1-2-Dichloroethene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 272/2009 Annual Ave	1	2.71	<1	<1	-	-	-	8.43	<1	-	-	-	<1	-	<1	<1	-	-	-	-	10.1	2
Trichlorofluoromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Vinyl Chloride	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring Visit 13 (16th January 2013)

Screening Values - Drinking Water Standards

Aquifer type: Locally important aquifer
Typical productivity: Moderately Productive (40-100 m3/d)

Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

			Ground type	Natural	Natural	Natural	M.G.	Natural	M.G.	Natural	M.G.	Natural	M.G.	M.G.	Natural	Natural	M.G.	Natural	M.G.	Natural	Natural	Natural	M.G.	M.G.	Natural
			Borehole	A1	A3	A4	A9	A11	C2	C7	C11	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
			Depth (mbgl)	3.00-4.00	2.00-3.00	2.00-3.00	2.25-2.50	1.00-2.00	1.50-2.50	3.00-3.50	1.50-2.50	3.00-4.00	1.75-2.00	2.00-2.50	3.50-4.50	3.00-4.00	3.00-4.00	2.50-3.00	2.00-3.00	0.50-1.00	2.00-3.00	1.00-2.00	2.00-3.00	1.00-2.00	3.00-4.00
Determinand	**Units**	**Screening Value**	**Source of screening value**	**Limit of detection**																					
Inorganics																									
Arsenic (dissolved)	µg/l	10	SI 278/2007	0.12	10.6	28.9	2.64	1.18	0.908	1.08	24.5	6.16	6.76	1.21	57.9	8.11	9.66	2.37	2.72	1.81	8	3.35	1.14	1.54	29.6	2.9
Cadmium (dissolved)	µg/l	5	SI 278/2007	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (dissolved)	µg/l	50	SI 278/2007	0.22	3.52	3.19	2.16	3.46	1.11	3.36	2.73	1.95	4.49	0.807	1.65	3.12	12.4	2.32	1.39	4.25	2.11	1.78	2.04	1.64	3.73	1.05
Copper (dissolved)	µg/l	2000	SI 278/2007	0.85	1.29	1.11	1.95	1	3.77	5.6	<0.85	<0.85	1.53	2.09	<0.85	<0.85	<0.85	6.3	1.03	5.85	<0.85	<0.85	1.69	3.38	1.14	2.33
Lead (dissolved)	µg/l	25	SI 278/2007	0.02	0.033	0.032	0.042	<0.02	0.428	0.065	0.21	0.048	<0.02	0.515	<0.02	0.022	<0.02	0.116	1.28	0.15	<0.02	<0.02	0.035	0.245	0.284	<0.02
Nickel (dissolved)	µg/l	20	SI 278/2007	0.15	4.8	2.59	3.15	0.951	1.92	2.71	5.56	2.5	2.7	0.661	16	2.2	2.33	7.8	1.77	10.6	2.94	1.59	3.92	4.74	6.2	2.6
Selenium (dissolved)	µg/l	10	SI 278/2007	0.39	1.71	0.891	1.37	0.839	<0.39	2.33	23.8	0.613	1.28	0.695	12.6	1	6.91	2.74	0.964	12.9	1.04	0.48	1.02	1.87	9.69	0.871
Zinc (dissolved)	µg/l	5000	WHO Drinking water Quality Guideline Value	0.41	<0.41	2.28	1.86	<0.41	4.35	8.07	<0.41	<0.41	<0.41	0.655	2.55	2.58	<0.41	3.19	1.33	3.33	<0.41	1.94	<0.41	1.25	0.715	<0.41
Mercury (dissolved)	µg/l	1	SI 278/2007	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0331	<0.01	<0.01	<0.01	0.0104	<0.01	<0.01	0.0106	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0212	<0.01
Ammonium	mg/l	0.3	SI 278/2007	0.3	12.8	10.5	0.635	<0.3	2.01	0.467	90.1	2.82	15.7	6.35	19.4	38.7	185	4.33	2.31	1.23	11.1	19	<0.3	0.786	14.7	0.855
Sulphate (soluble)	mg/l	250	SI 278/2007	2	450	401	260	84.5	12.3	55.8	<10	127	376	<2	126	35.5	126	889	31.1	780	53.2	146	18.2	534	87.7	509
Phenols	mg/l	500	SI 81/1988	0.025	0.44	0.15	<0.025	<0.025	0.14	<0.025	154	0.12	2.9	0.56	50	6.94	3.66	0.08	0.27	<0.025	5.67	<0.025	<0.025	<0.025	240	<0.025
Total Cyanide	mg/l	0.05	SI 278/2007	0.05	0.625	0.285	0.26	<0.05	<0.05	0.096	0.443	0.118	1.22	<0.05	1.61	<0.05	0.164	4.04	<0.05	2.71	0.217	<0.05	<0.05	0.88	0.472	1.13
pH Value		<6.5	SI 278/2007	1	7.33	7.97	7.75	7.94	7.75	7.76	8.67	7.4	7.89	7.75	8.29	7.65	7.23	7.13	7.41	7.22	7.72	7.53	7.6	7.65	7.36	7.76
pH Value		>9.5	SI 278/2007	1	7.33	7.97	7.75	7.94	7.75	7.76	8.67	7.4	7.89	7.75	8.29	7.65	7.23	7.13	7.41	7.22	7.72	7.53	7.6	7.65	7.36	7.76
BTEX																										
Benzene	µg/l	1	SI 278/2007	7	432	<7	<7	<7	<7	<7	22200	<7	672	286	1730	680	480	<7	47	<7	320	<7	<7	<7	10800	<7
Toluene	µg/l	700	WHO Drinking Water Quality Guideline Value	4	17	<4	<4	<4	<4	<4	10500	6	423	49	516	299	246	<4	129	<4	374	<4	<4	<4	4600	<4
Ethyl benzene	µg/l	300	WHO Drinking Water Quality Guideline Value	5	100	<5	<5	<5	<5	<5	436	17	250	18	26	61	43	<5	<5	<5	50	<5	<5	<5	225	<5
Xylene	µg/l	500	WHO Drinking Water Quality Guideline Value	11	88	32	<11	<11	<11	<11	4520	140	1030	78	258	281	229	<11	445	<11	469	<11	<11	<11	2030	<11
Petroleum Hydrocarbons																										
GRO (C4-C12)	µg/l	10	SI 81/1988	50	1870	989	<50	<50	<50	<50	61900	1620	9860	713	4430	2970	2000	<50	2720	<50	3520	<50	<50	<50	31300	<50
MTBE	µg/l			3	<3	<3	<3	<3	<3	<3	<15	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3
Aliphatics C5-C6	µg/l			10	<10	<10	<10	<10	<10	<10	175	<10	18	<10	21	<10	<10	<10	<10	<10	<10	<10	<10	<10	108	<10
Aliphatics C6-C8	µg/l			10	63	57	<10	<10	<10	<10	926	19	169	11	99	61	38	<10	69	<10	52	<10	<10	<10	601	<10
Aliphatics C8-C10	µg/l			10	118	110	<10	<10	<10	<10	3100	189	793	38	250	184	130	<10	612	<10	316	<10	<10	<10	1690	<10
Aliphatics C10-C12	µg/l			10	580	425	<10	<10	<10	<10	10700	667	3590	122	819	767	444	<10	601	<10	1030	<10	<10	<10	6100	<10
Aliphatics C12-C16	µg/l			10	22	<10	24	<10	42	83	172	129	403	<20	<10	<10	<10	<10	211	36	<10	<10	<10	<10	47	<10
Aliphatics C16-C21	µg/l			10	18	<10	43	<10	207	50	135	76	659	72	<10	<10	<10	<10	197	45	<10	<10	<10	<10	38	<10
Aliphatics C21-C35	µg/l			10	20	<10	10	<10	1550	52	154	47	416	392	<10	<10	<10	<10	261	64	<10	<10	<10	<10	65	<10
Aromatics C6-C7	µg/l			10	432	<10	<10	<10	<10	<10	22200	<10	672	286	1730	680	480	<10	47	<10	320	<10	<10	<10	10800	<10
Aromatics C7-C8	µg/l			10	17	<10	<10	<10	<10	<10	10500	<10	423	49	516	299	246	<10	129	<10	374	<10	<10	<10	4600	<10
Aromatics C8-C10	µg/l			10	267	105	<10	<10	<10	<10	7020	283	1810	121	449	465	359	<10	855	<10	730	<10	<10	<10	3380	<10
Aromatics C10-C12	µg/l			10	387	284	<10	<10	<10	<10	7160	445	2390	81	546	511	296	<10	401	<10	688	<10	<10	<10	4070	<10
Aromatics C12-C16	µg/l			10	392	122	20	<10	37	22	15200	71	2060	65	1670	343	198	<10	327	31	752	<10	<10	<10	17800	<10
Aromatics C16-C21	µg/l			10	217	68	25	<10	237	143	2440	119	2540	270	164	43	27	29	1200	182	241	<10	<10	<10	1750	<10
Aromatics C21-C35	µg/l			10	200	17	20	<10	1490	418	1940	163	2090	1450	59	<10	<10	179	3590	1060	34	<10	10	65	746	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	SI 81/1988	10	2740	1200	145	<10	3570	769	81900	2220	18000	2980	6320	3360	2230	212	8520	1420	4550	<10	12	67	51800	<10
PAHs																										
Acenaphthene	µg/l			0.015	12.2	0.229	0.0385	<0.015	0.642	0.525	67.6	0.379	48	1.18	6.92	4.5	6.92	0.222	4.35	0.141	12.5	0.051	<0.015	0.057	1.44	<0.015
Acenaphthylene	µg/l			0.011	8.77	0.32	0.243	0.0557	4.88	0.372	483	1.54	108	23.4	29.6	0.704	6.03	0.86	25.4	9.02	30.7	0.405	0.232	0.167	12	0.0516
Anthracene	µg/l			0.015	2.27	0.138	0.115	0.0243	2.38	2.15	138	0.337	9.56	6	3.47	0.147	0.59	0.89	14	0.777	6.41	0.104	0.0459	0.294	1.71	0.0216
Benzo(a)anthracene	µg/l			0.017	5.12	0.304	0.274	0.125	25.6	17.5	114	1.67	1.9	41.9	0.377	<0.085	0.288	5.41	91	16.2	0.315	0.367	0.393	3.1	0.687	0.0415
Benzo(a)pyrene	µg/l	0.01	SI 278/2007	0.009	4.59	0.611	0.655	0.261	40.9	21.7	99.5	3.9	0.763	57.3	0.609	0.343	0.338	7.7	101	31.3	0.216	1.31	0.907	6.58	0.536	0.175
Benzo(b)fluoranthene	µg/l			0.023	4.19	0.305	0.545	0.199	34.6	17.5	83	3.65	0.943	42.9	0.425	0.342	0.311	7.13	95	22.2	0.148	1.33	0.638	6.29	0.53	0.185
Benzo(ghi)perylene	µg/l			0.016	2.45	0.271	0.388	0.182	25.1	12.3	44.1	2.79	0.282	42	0.338	0.278	0.2	5.54	62.6	18.8	0.108	0.702	0.55	5.42	0.244	0.142
Benzo(k)fluoranthene	µg/l			0.027	3.93	0.353	0.487	0.215	33.3	19	94.1	2.86	0.508	51	0.501	0.343	0.298	6.94	85.6	24.5	0.202	1.11	0.664	6.14	0.567	0.145
Chrysene	µg/l			0.013	4.94	0.311	0.333	0.157	27.2	17.2	98.9	1.84	1.44	50.2	0.501	0.248	0.284	5.88	86.5	16.9	0.276	0.525	0.353	3.22	0.696	0.113
Dibenzo(ah)anthracene	µg/l			0.016	0.792	0.056	0.101	0.0413	8.85	4.22	13.2	0.707	<0.08	14.1	0.12	<0.08	0.0646	1.56	19.7	6.46	0.0315	0.209	0.176	1.18	<0.08	0.0336
Fluoranthene	µg/l	4	WHO Drinking Water Quality Guideline Value	0.017	19.9	0.374	0.508	0.226	29	28.3	319	2.77	23	81.1	3.5	0.726	1.29	7.05	233	20.3	3.6	2.85	0.296	3.48	2.79	0.185
Fluorene	µg/l			0.014	5.99	0.144	0.0706	<0.014	0.83	0.378	248	0.293	75.2	3.8	15.1	0.735	3.81	0.233	5.74	<0.014	35.9	0.137	0.03	0.139	4.22	0.0154
Indeno(123cd)pyrene	µg/l			0.014	2.41	0.232	0.36	0.16	25.2	11.9	43.1	2.64	0.268	39.9	0.335	0.211	0.186	4.79	53.4	18.5	0.098	0.605	0.481	4.7	0.233	0.11
Naphthalene	µg/l			0.1	0.573	<0.1	0.109	<0.1	0.362	0.322	10100	0.448	13	4.92	19.3	0.926	1.86	0.188	1.12	0.155	14.5	0.17	<0.1	0.214	204	<0.1
Phenanthrene	µg/l			0.022	2.34	0.227	0.151	0.0698	7.6	8.98	466	0.826	76.7	17.9	14.4	0.202	2.96	1.97	12.2	1.07	15.4	0.196	0.0741	1.04	5.68	0.0535
Pyrene	µg/l			0.015	14.6	0.459	0.481	0.227	27.7	23.8	219	2.68	12.5	67.1	2.08	0.475	0.787	6.46	169	14.1	1.98	1.22	0.241	3.3	1.83	0.179
Total PAH # (Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene & Indeno(123cd)pyrene)	µg/l	0.1	SI 278/2007	0.08	12.98	1.161	1.78	0.756	118.2	60.7	264.3	11.94	1001	175.8	1.599	1.174	0.995	24.4	296.6	84	0.556	3.747	2.333	22.55	1.574	0.582
Volatile Organic Compounds																										
1.1.1.2-Tetrachloroethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	2000	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	5.29	<1
1,1,2,2-Tetrachloroethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	5	US EPA - National Primary Drinking Water Regulations, Maximum Contaminant Level	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l	-	-	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l	140	**Informal** WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trichlorobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			1	10.5	8.07	<1	-	<1	-	374	-	330	-	-	-	45.8	-	166	<1	-	-	-	-	185	<1
1,2-Dibromo-3-chloropropane (DBCP)	µg/l	1	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dibromoethane	µg/l	0.4	**Provisional** WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichloroethane	µg/l	3	SI 278/2007	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichloropropane	µg/l	40	**Provisional** WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			1	1.75	2.3	<1	-	<1	-	155	-	91.9	-	-	-	6.41	-	78.8	<1	-	-	-	-	67.3	<1
1,3-Dichlorobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3-Dichloropropane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2,2-Dichloropropane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	8.76	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			1	<1	<1	<1	-	<1	-	1.95	-	2.45	-	-	-	<1	-	<1	<1	-	-	-	-	1.31	<1
Carbontetrachloride	µg/l	4	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	100	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.07	<1
Chloromethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	WHO Drinking Water Quality Guideline Value	3	<3	<3	<3	-	<3	-	<3	-	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			1	9.38	<1	<1	-	<1	-	15.4	-	22.5	-	-	-	2.66	-	<1	<1	-	-	-	-	8.05	<1
n-Butylbenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			1	8.18	<1	<1	-	<1	-	26.5	-	32.7	-	-	-	3.04	-	<1	<1	-	-	-	-	12.9	<1
sec-Butylbenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	20	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	617	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	363	<1
tert-Amyl methyl ether (TAME)	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 278/2007	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.74	<1
trans-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 278/2007	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	8.35	<1
Trichlorofluoromethane	µg/l			1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.69	<1
Vinyl Chloride	µg/l	0.5	SI 278/2007	1	<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring visit 13 (16th January 2013)

Screening Values - Environmental Quality Standards

Receptor water type: Freshwater suitable for coarse fish
Relevant EQS Hardness Band: >100-150 mg/l

Hardness related Freshwater EQS - based on cyprinid/coarse fish
* Asterix indicates freshwater EQS in the absence of a coastal/Estuary/Marine
Concentration exceeds screening value
Concentraion exceeds screening value becaue limit of detection is greater than screening value

Determinand	Units	Coastal/ Estuary /Marine Screening Value	Source of screening value	Limit of Detection	Ground type	Natural	Natural	Natural	M.G.	Natural	M.G.	Natural	M.G.	Natural	M.G.	M.G.	Natural	Natural	M.G.	Natural	M.G.	Natural	Natural	Natural	M.G.	M.G.	Natural
					Borehole	A1	A3	A4	A9	A11	C2	C7	C11	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
					Depth (mbgl)	3.00-4.00	2.00-3.00	2.00-3.00	2.25-2.50	1.00-2.00	1.50-2.50	3.00-3.50	1.50-2.50	3.00-4.00	1.75-2.00	2.00-2.50	3.50-4.50	3.00-4.00	3.00-4.00	2.50-3.00	2.00-3.00	0.50-1.00	2.00-3.00	1.00-2.00	2.00-3.00	1.00-2.00	3.00-4.00
Inorganics																											
Arsenic (dissolved)	µg/l	20	SI 272/2009 Annual Ave	0.12		10.6	28.9	2.64	1.18	0.908	1.08	24.5	6.16	6.76	1.21	57.9	8.11	9.66	2.37	2.72	1.81	8	3.35	1.14	1.54	29.6	2.9
Cadmium (dissolved)	µg/l	1.5	SI272/2009 MAC	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (dissolved)	µg/l	32	SI272/2009 MAC	0.22		3.52	3.19	2.16	3.46	1.11	3.36	2.73	1.95	4.49	0.807	1.65	3.12	12.4	2.32	1.39	4.25	2.11	1.78	2.04	1.64	3.73	1.05
Copper (dissolved)	µg/l	30	SI 272/2009 Annual Ave*	0.85		1.29	1.11	1.95	1	3.77	5.6	<0.85	<0.85	1.53	2.09	<0.85	<0.85	<0.85	6.3	1.03	5.85	<0.85	<0.85	1.69	3.38	1.14	2.33
Lead (dissolved)	µg/l	7.2	SI 272/2009 Annual Ave	0.02		0.033	0.032	0.042	<0.02	0.428	0.065	0.21	0.048	<0.02	0.515	<0.02	0.022	<0.02	0.116	1.28	0.15	<0.02	<0.02	0.035	0.245	0.284	<0.02
Nickel (dissolved)	µg/l	20	SI 272/2009 Annual Ave	0.15		4.8	2.59	3.15	0.951	1.92	2.71	5.56	2.5	2.7	0.661	16	2.2	2.33	7.8	1.77	10.6	2.94	1.59	3.92	4.74	6.2	2.6
Selenium (dissolved)	µg/l	1	Canadian Water Quality Guidelines for Aquatic Life (2007)*	0.39		1.71	0.891	1.37	0.839	<0.39	2.33	23.8	0.613	1.28	0.695	12.6	1	6.91	2.74	0.964	12.9	1.04	0.48	1.02	1.87	9.69	0.871
Zinc (dissolved)	µg/l	40	SI 272/2009 Annual Ave	0.41		<0.41	2.28	1.86	<0.41	4.35	8.07	<0.41	<0.41	<0.41	0.655	2.55	2.58	<0.41	3.19	1.33	3.33	<0.41	1.94	<0.41	1.25	0.715	<0.41
Mercury (dissolved)	µg/l	0.07	SI272/2009 MAC	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0331	<0.01	<0.01	<0.01	0.0104	<0.01	<0.01	0.0106	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0212	<0.01
Ammoniacal Nitrogen	mg/l	1	Freshwater Fish Directive*	0.3		12.8	10.5	0.635	<0.3	2.01	0.467	90.1	2.82	15.7	6.35	19.4	38.7	185	4.33	2.31	1.23	11.1	19	<0.3	0.786	14.7	0.855
Sulphate (soluble)	mg/l	200	EQS & IGV*	2		450	401	260	84.5	12.3	55.8	<10	127	376	<2	126	35.5	126	889	31.1	780	53.2	146	18.2	534	87.7	509
Phenols	mg/l	0.046	SI272/2009 MAC	0.025		0.44	0.15	<0.025	<0.025	0.14	<0.025	154	0.12	2.9	0.56	50	6.94	3.66	0.08	0.27	<0.025	5.67	<0.025	<0.025	<0.025	240	<0.025
Free Cyanide - (total CN in lab results)	mg/l	0.01	SI 272/2009 Annual Ave	0.05		0.625	0.285	0.26	<0.05	<0.05	0.096	0.443	0.118	1.22	<0.05	1.61	<0.05	0.164	4.04	<0.05	2.71	0.217	<0.05	<0.05	0.88	0.472	1.13
pH Value		<6.5	Interim Guideline Values	1		7.33	7.97	7.75	7.94	7.75	7.76	8.67	7.4	7.89	7.75	8.29	7.65	7.23	7.13	7.41	7.22	7.72	7.53	7.6	7.65	7.36	7.76
pH Value		>9.5	Interim Guideline Values	1		7.33	7.97	7.75	7.94	7.75	7.76	8.67	7.4	7.89	7.75	8.29	7.65	7.23	7.13	7.41	7.22	7.72	7.53	7.6	7.65	7.36	7.76
BTEX																											
Benzene	µg/l	50	SI272/2009 MAC	7		432	<7	<7	<7	<7	<7	22200	<7	672	286	1730	680	480	<7	47	<7	320	<7	<7	<7	10800	<7
Toluene	µg/l	10	SI 272/2009 Annual Ave	4		17	<4	<4	<4	<4	<4	10500	6	423	49	516	299	246	<4	129	<4	374	<4	<4	<4	4600	<4
Ethyl benzene	µg/l	10	EQS & IGV	5		100	<5	<5	<5	<5	<5	436	17	250	18	26	61	43	<5	<5	<5	50	<5	<5	<5	225	<5
Xylene (sum of detected Xylenes)	µg/l	10	SI 272/2009 Annual Ave	11		88	32	<11	<11	<11	<11	4520	140	1030	78	258	281	229	<11	445	<11	469	<11	<11	<11	2030	<11
Petroleum Hydrocarbons																											
GRO (C5-C12)	µg/l			50		1870	989	<50	<50	<50	<50	61900	1620	9860	713	4430	2970	2000	<50	2720	<50	3520	<50	<50	<50	31300	<50
MTBE	µg/l	30	IGV	3		<3	<3	<3	<3	<3	<3	<15	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<15	<3
Aliphatics C5-C6	µg/l			10		<10	<10	<10	<10	<10	<10	175	<10	18	<10	21	<10	<10	<10	<10	<10	<10	<10	<10	<10	108	<10
Aliphatics C6-C8	µg/l			10		63	57	<10	<10	<10	<10	926	19	169	11	99	61	38	<10	69	<10	52	<10	<10	<10	601	<10
Aliphatics C8-C10	µg/l			10		118	110	<10	<10	<10	<10	3100	189	793	38	250	184	130	<10	612	<10	316	<10	<10	<10	1690	<10
Aliphatics C10-C12	µg/l			10		580	425	<10	<10	<10	<10	10700	667	3590	122	819	767	444	<10	601	<10	1030	<10	<10	<10	6100	<10
Aliphatics C12-C16	µg/l			10		22	<10	24	<10	42	83	172	129	403	<20	<10	<10	<10	<10	211	36	<10	<10	<10	<10	47	<10
Aliphatics C16-C21	µg/l			10		18	<10	43	<10	207	50	135	76	659	72	<10	<10	<10	<10	197	45	<10	<10	<10	<10	38	<10
Aliphatics C21-C35	µg/l			10		20	<10	10	<10	1550	52	154	47	416	392	<10	<10	<10	<10	261	64	<10	<10	<10	<10	65	<10
Aromatics C5-C7	µg/l			10		432	<10	<10	<10	<10	<10	22200	<10	672	286	1730	680	480	<10	47	<10	320	<10	<10	<10	10800	<10
Aromatics C7-C8	µg/l			10		17	<10	<10	<10	<10	<10	10500	<10	423	49	516	299	246	<10	129	<10	374	<10	<10	<10	4600	<10
Aromatics C8-C10	µg/l			10		267	105	<10	<10	<10	<10	7020	283	1810	121	449	465	359	<10	855	<10	730	<10	<10	<10	3380	<10
Aromatics C10-C12	µg/l			10		387	284	<10	<10	<10	<10	7160	445	2390	81	546	511	296	<10	401	<10	688	<10	<10	<10	4070	<10
Aromatics C12-C16	µg/l			10		392	122	20	<10	37	22	15200	71	2060	65	1670	343	198	<10	327	31	752	<10	<10	<10	17800	<10
Aromatics C16-C21	µg/l			10		217	68	25	<10	237	143	2440	119	2540	270	164	43	27	29	1200	182	241	<10	<10	<10	1750	<10
Aromatics C21-C35	µg/l			10		200	17	20	<10	1490	418	1940	163	2090	1450	59	<10	<10	179	3590	1060	34	<10	10	65	746	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	EQS & IGV	10		2740	1200	145	<10	3570	769	81900	2220	18000	2980	6320	3360	2230	212	8520	1420	4550	<10	12	67	51800	<10
PAHs																											
Acenaphthene	µg/l	5.8	Canadian Water Quality Guidelines for Aquatic Life (2007)*	0.015		12.2	0.229	0.0385	<0.015	0.642	0.525	67.6	0.379	48	1.18	6.92	4.5	6.92	0.222	4.35	0.141	12.5	0.051	<0.015	0.057	1.44	<0.015
Acenaphthylene	µg/l			0.011		8.77	0.32	0.243	0.0557	4.88	0.372	483	1.54	108	23.4	29.6	0.704	6.03	0.86	25.4	9.02	30.7	0.405	0.232	0.167	12	0.0516
Anthracene	µg/l	0.4	SI272/2009 MAC	0.015		2.27	0.138	0.115	0.0243	2.38	2.15	138	0.337	9.56	6	3.47	0.147	0.59	0.89	14	0.777	6.41	0.104	0.0459	0.294	1.71	0.0216
Benzo(a)anthracene	µg/l	0.018	Canadian Water Quality Guidelines for Aquatic Life (2007)*	0.017		5.12	0.304	0.274	0.125	25.6	17.5	114	1.67	1.9	41.9	0.377	<0.085	0.288	5.41	91	16.2	0.315	0.367	0.393	3.1	0.687	0.0415
Benzo(a)pyrene	µg/l	0.1	SI272/2009 MAC	0.009		4.59	0.611	0.655	0.261	40.9	21.7	99.5	3.9	0.763	57.3	0.609	0.343	0.338	7.7	101	31.3	0.216	1.31	0.907	6.58	0.536	0.175
Benzo(b)fluoranthene	µg/l	0.5	Interim Guideline Value*	0.023		4.19	0.305	0.545	0.199	34.6	17.5	83	3.65	0.943	42.9	0.425	0.342	0.311	7.13	95	22.2	0.148	1.33	0.638	6.29	0.53	0.185
Benzo(ghi)perylene	µg/l	0.05	Interim Guideline Value*	0.016		2.45	0.271	0.388	0.182	25.1	12.3	44.1	2.79	0.282	42	0.338	0.278	0.2	5.54	62.6	18.8	0.108	0.702	0.55	5.42	0.244	0.142
Benzo(k)fluoranthene	µg/l	0.05	Interim Guideline Value*	0.027		3.93	0.353	0.487	0.215	33.3	19	94.1	2.86	0.508	51	0.501	0.343	0.298	6.94	85.6	24.5	0.202	1.11	0.664	6.14	0.567	0.145
Chrysene	µg/l			0.013		4.94	0.311	0.333	0.157	27.2	17.2	98.3	1.84	1.44	50.2	0.501	0.248	0.284	5.88	86.5	16.9	0.276	0.525	0.353	3.22	0.696	0.113
Dibenzo(ah)anthracene	µg/l			0.016		0.792	0.056	0.101	0.0413	8.85	4.22	13.2	0.707	<0.08	14.1	0.12	<0.08	0.0646	1.56	19.7	6.46	0.0315	0.209	0.176	1.18	<0.08	0.0336
Fluoranthene	µg/l	1	SI272/2009 MAC	0.017		19.9	0.374	0.508	0.226	29	28.3	319	2.77	23	81.1	3.5	0.726	1.29	7.05	233	20.3	3.6	2.85	0.296	3.48	2.79	0.185
Fluorene	µg/l	3	Canadian Water Quality Guidelines for Aquatic Life (2007)*	0.014		5.99	0.144	0.0706	<0.014	0.83	0.378	248	0.293	75.2	3.8	15.1	0.735	3.81	0.233	5.74	<0.014	35.9	0.137	0.03	0.139	4.22	0.0154
Indeno(123cd)pyrene	µg/l	0.05	Interim Guideline Value*	0.014		2.41	0.232	0.36	0.16	25.2	11.9	43.1	2.64	0.268	39.9	0.335	0.211	0.186	4.79	53.4	18.5	0.098	0.605	0.481	4.7	0.233	0.11
Naphthalene	µg/l	1.2	SI 272/2009 Annual Ave	0.1		0.573	<0.1	0.109	<0.1	0.562	0.322	10100	0.448	13	4.92	19.3	0.926	1.86	0.188	1.12	0.155	14.5	0.17	<0.1	0.214	204	<0.1
Phenanthrene	µg/l	0.4	Canadian Water Quality Guidelines for Aquatic Life (2007)*	0.022		2.34	0.227	0.151	0.0698	7.6	8.98	466	0.826	76.7	17.9	14.4	0.202	2.96	1.97	12.2	1.07	15.4	0.196	0.0741	1.04	5.68	0.0535
Pyrene	µg/l	0.025	Canadian Water Quality Guidelines for Aquatic Life (2007)*	0.015		14.6	0.459	0.481	0.227	27.7	23.8	219	2.68	12.5	67.1	2.08	0.475	0.787	6.46	169	14.1	1.98	1.22	0.241	3.3	1.83	0.179
Sum benzo(ghi)perylene and indeno(123-cd)pyrene	µg/l	0.002	SI 272/2009 Annual Ave	0.03		4.86	0.503	0.748	0.342	50.3	24.2	87.2	5.43	0.55	81.9	0.673	0.489	0.386	10.33	116	37.3	0.206	1.307	1.031	10.12	0.477	0.252
Sum benzo (b + K) fluoranthene	µg/l	0.03	SI 272/2009 Annual Ave	0.05		8.12	0.658	1.032	0.414	67.9	36.5	177.1	6.51	1.451	93.9	0.926	0.685	0.609	14.07	180.6	46.7	0.35	2.44	1.302	12.43	1.097	0.33
Volatile Organic Compounds																											
1.1.1.2-Tetrachloroethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	100	EQS 76/464/EEC	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	5.29	<1
1,1,2,2-Tetrachloroethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	300	EQS 76/464/EEC	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l	0.4	SI 272/2009 Annual Ave	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2,4-Trichlorobenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			1		10.5	8.07	<1	-	<1	-	374	-	330	-	-	-	45.8	-	166	<1	-	-	-	-	185	<1
1.2-Dibromo-3-chloropropane (DBCP)	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dibromoethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloroethane	µg/l	10	SI 272/2009 Annual Ave	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloropropane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			1		1.75	2.3	<1	-	<1	-	155	-	91.9	-	-	-	6.41	-	78.8	<1	-	-	-	-	67.3	<1
1,3-Dichlorobenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3-Dichloropropane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	8.76	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			1		<1	<1	<1	-	<1	-	1.95	-	2.45	-	-	-	<1	-	<1	<1	-	-	-	-	1.31	<1
Carbon tetrachloride	µg/l	12	SI 272/2009 Annual Ave	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	1	EQS for the Aquatic Environment - EPA, quoted in IGV	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	12	EQS 76/464/EEC	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.07	<1
Chloromethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	SI 272/2009 Annual Ave	3		<3	<3	<3	-	<3	-	<3	-	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			1		9.38	<1	<1	-	<1	-	15.4	-	22.5	-	-	-	2.66	-	<1	<1	-	-	-	-	8.05	<1
n-Butylbenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			1		8.18	<1	<1	-	<1	-	26.5	-	32.7	-	-	-	3.04	-	<1	<1	-	-	-	-	12.9	<1
sec-Butylbenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	72*	Canadian Water Quality Guidelines for Aquatic Life (2007)	1		<1	<1	<1	-	<1	-	617	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	363	<1
tert-Amyl methyl ether (TAME)	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 272/2009 Annual Ave	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.74	<1
trans-1-2-Dichloroethene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 272/2009 Annual Ave	1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	8.35	<1
Trichlorofluoromethane	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.69	<1
Vinyl Chloride	µg/l			1		<1	<1	<1	-	<1	-	<1	-	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring Visit 16 (16th October 2013)

Screening Values - Drinking Water Standards

Aquifer type: Locally important aquifer
Typical productivity: Moderately Productive (40-100 m3/d)

Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

				Borehole	A1	A3	A4	A9	C11	C2	C7	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
				Depth (mbgl)																					
Determinand	**Units**	**Screening Value**	**Source of screening value**	**Limit of detection**																					
Inorganics																									
Arsenic (dissolved)	µg/l	10	SI 278/2007	<0.12	7.18	37.2	4.49	0.889	9.05	1.91	12	26.7	5.44	110	8.2	22.8	1.31	6.51	1.83	3.07	4.87	1.01	3.39	9.76	2.83
Cadmium (dissolved)	µg/l	5	SI 278/2007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.109	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.108	<0.1	<0.1	<0.1
Chromium (dissolved)	µg/l	50	SI 278/2007	<0.22	1.65	2.05	1.41	3.89	10.6	1.33	2.48	2.18	0.627	1.37	2.57	5.26	1.44	1.45	18.1	1.03	3.32	9.47	9.78	11.4	3.93
Copper (dissolved)	µg/l	2000	SI 278/2007	<0.85	1.25	1.16	1.8	2.22	1.15	6.53	2.33	1.27	1.16	1.59	<0.85	1.9	1.73	1.68	7.11	1.42	<0.85	7.88	2.39	8.03	2.36
Lead (dissolved)	µg/l	25	SI 278/2007	<0.02	0.055	0.022	0.028	<0.02	0.083	0.111	0.232	0.071	0.813	0.057	0.048	<0.02	0.179	0.946	0.391	0.107	<0.02	0.162	0.129	0.442	0.071
Nickel (dissolved)	µg/l	20	SI 278/2007	<0.15	4.45	3.16	3.07	1.65	1.53	2.83	2.06	2.82	0.884	23.8	3.24	3.27	3.56	3.88	7.14	5.37	1.84	3.35	4.18	4.54	1.64
Selenium (dissolved)	µg/l	10	SI 278/2007	<0.39	1.18	0.572	1.07	1.8	0.721	5.1	29.8	1.77	<0.39	10.9	<0.39	7.48	1.39	2.09	6.82	1.7	0.543	0.904	1.08	3.18	<0.39
Zinc (dissolved)	µg/l	5000	WHO Drinking water Quality Guideline Value	<0.41	0.892	2.02	3.7	0.825	0.878	7.56	3.36	0.563	1.67	20.6	0.494	1.93	3.05	5.64	4.66	0.89	1.3	3.08	0.968	4.1	2.94
Mercury (dissolved)	µg/l	1	SI 278/2007	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.084	<0.01	<0.01	0.0296	<0.01	0.037	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0349	<0.01
Ammonium	mg/l	0.3	SI 278/2007	<0.3	12.3	12.4	1.75	<0.3	9.67	0.383	42.3	13.1	0.428	43.6	27.6	77.7	4.11	3.25	4.14	7.02	23.4	<0.3	2.35	11.8	1.53
Sulphate (soluble)	mg/l	250	SI 278/2007	<2	334	312	218	499	145	43.9	16.5	359	2.1	289	104	494	224	159	820	209	130	146	562	161	491
Phenols	mg/l	500	SI 81/1988	<0.025	0.83	0.32	<0.025	<0.025	1.32	<0.025	135	1.66	0.03	104	1.79	33.8	0.05	0.21	0.06	2.52	<0.025	<0.025	0.1	163	0.03
Total Cyanide	mg/l	0.05	SI 278/2007	<0.05	0.795	0.308	0.235	<0.05	<0.05	0.138	0.181	1.17	<0.05	6.47	<0.05	0.761	1.1	0.207	1.26	0.256	<0.05	<0.05	1.1	0.62	0.787
pH Value		<6.5	SI 278/2007	<1	8.07	8.31	7.92	8.05	7.53	8.06	8.34	7.94	7.97	8.14	7.53	7.97	7.49	7.46	7.2	7.75	7.74	7.71	7.3	7.39	7.58
pH Value		>9.5	SI 278/2007	<1	8.07	8.31	7.92	8.05	7.53	8.06	8.34	7.94	7.97	8.14	7.53	7.97	7.49	7.46	7.2	7.75	7.74	7.71	7.3	7.39	7.58
BTEX																									
Benzene	µg/l	1	SI 278/2007	<7	438	<7	<7	<7	28	<7	11900	636	<7	3830	181	5010	<7	67	<7	39	16	<7	<7	8250	<7
Toluene	µg/l	700	WHO Drinking Water Quality Guideline Value	<4	48	<4	<4	<4	189	<4	6000	492	<4	1090	158	3420	<4	30	<4	27	<4	<4	<4	3490	<4
Ethyl benzene	µg/l	300	WHO Drinking Water Quality Guideline Value	<5	114	<5	<5	<5	34	<5	298	223	<5	50	21	412	<5	<5	<5	7	<5	<5	<5	175	<5
Xylene	µg/l	500	WHO Drinking Water Quality Guideline Value	<11	136	36	<11	<11	171	<11	3160	1130	<11	509	118	2420	<11	198	<11	73	<11	<11	<11	1620	<11
Petroleum Hydrocarbons																									
GRO (C4-C12)	µg/l	10	SI 81/1988	<50	2130	1130	<50	<50	2300	<50	48900	13900	<50	9410	805	19600	<50	776	107	304	127	<50	<50	24500	310
MTBE	µg/l			<3	<3	<3	<3	<3	<3	<3	<15	5	<3	<3	<3	<6	<3	<3	<3	<3	<3	<3	<3	<6	<3
Aliphatics C5-C6	µg/l			<10	<10	<10	<10	<10	<10	<10	67	17	<10	36	<10	39	<10	<10	<10	<10	<10	<10	<10	91	<10
Aliphatics C6-C8	µg/l			<10	51	57	<10	<10	22	<10	708	285	<10	239	14	283	<10	39	<10	13	10	<10	<10	567	14
Aliphatics C8-C10	µg/l			<10	154	109	<10	<10	205	<10	3020	1920	<10	457	48	1210	<10	100	16	37	<10	<10	<10	1370	23
Aliphatics C10-C12	µg/l			<10	643	507	18	<10	906	<10	13100	4750	<10	1740	137	3580	<10	162	38	48	47	<10	<10	4830	150
Aliphatics C12-C16	µg/l			<10	<10	<10	118	<10	56	<10	577	16	<10	<10	<10	<10	<10	46	12	<10	<10	<10	<10	42	<10
Aliphatics C16-C21	µg/l			<10	<10	<10	192	<10	34	<10	365	12	26	<10	<10	<10	<10	71	13	<10	<10	<10	<10	34	<10
Aliphatics C21-C35	µg/l			<10	<10	<10	98	<10	98	<10	592	<10	92	<10	49	<10	51	153	<10	<10	<10	<10	<10	54	<10
Aromatics C6-C7	µg/l			<10	438	<10	<10	<10	28	<10	11900	636	<10	3830	181	5010	<10	67	<10	39	16	<10	<10	8250	<10
Aromatics C7-C8	µg/l			<10	48	<10	<10	<10	189	<10	6000	492	<10	1090	158	3420	<10	30	<10	27	<10	<10	<10	3490	<10
Aromatics C8-C10	µg/l			<10	353	109	<10	<10	341	<10	5470	2630	<10	864	171	3650	<10	264	16	105	<10	<10	<10	2700	16
Aromatics C10-C12	µg/l			<10	429	338	12	<10	604	<10	8710	3160	<10	1160	91	2390	<10	108	26	32	31	<10	<10	3220	100
Aromatics C12-C16	µg/l			<10	391	207	58	<10	382	24	12600	1750	29	6060	218	5850	22	287	22	78	54	<10	<10	11200	<10
Aromatics C16-C21	µg/l			<10	166	126	120	<10	151	50	5060	777	81	497	32	458	52	721	74	58	42	<10	22	1090	<10
Aromatics C21-C35	µg/l			<10	52	31	109	<10	110	123	5060	244	323	185	78	95	286	3220	358	75	22	<10	74	476	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	SI 81/1988	<10	2730	1490	744	<10	3130	201	73100	16700	556	16200	1180	26000	412	5270	587	515	245	<10	96	37400	308
PAHs																									
Acenaphthene	µg/l			<0.015	21.6	0.444	<0.015	<0.015	8.98	0.206	724	442	<0.15	13.6	1.01	51.3	0.156	1.87	0.12	0.065	0.197	<0.015	0.0654	35.7	0.06
Acenaphthylene	µg/l			<0.011	18.9	0.316	0.178	0.056	1.69	0.114	3750	987	1.35	92.6	0.256	50.8	0.728	22	3.11	0.736	0.189	0.148	0.17	237	0.0485
Anthracene	µg/l			<0.015	1.05	0.107	0.0658	0.0353	0.936	0.574	2810	981	0.476	7.39	0.11	1.56	0.536	5.49	0.873	0.907	0.295	0.0382	0.276	19.4	0.032
Benzo(a)anthracene	µg/l			<0.017	1.57	0.261	0.324	0.147	0.824	4.15	2010	479	3.43	<0.85	0.255	<1.7	5.22	49.9	5.9	2.85	0.301	0.167	1.8	2.11	0.244
Benzo(a)pyrene	µg/l	0.01	SI 278/2007	<0.009	1.27	0.612	0.545	0.244	1.2	4.32	1550	377	4.54	0.663	0.483	<0.9	9.65	71.8	10.2	4	0.385	0.508	3.06	1.04	0.332
Benzo(b)fluoranthene	µg/l			<0.023	0.865	0.26	0.553	0.214	0.827	3.27	1380	324	4.13	<1.15	0.51	<2.3	7.56	69.7	8.35	3.46	0.363	0.371	2.33	0.63	0.342
Benzo(ghi)perylene	µg/l			<0.016	0.536	0.305	0.356	0.227	0.812	2.81	883	209	3.69	<0.8	0.441	<1.6	7.03	43.7	6.88	1.96	0.279	0.489	2.5	0.409	0.325
Benzo(k)fluoranthene	µg/l			<0.027	1.33	0.351	0.47	0.275	1.05	3.84	1320	292	4.34	<1.35	0.411	<2.7	10.7	63.4	8.09	3.57	0.266	0.375	3.26	1.18	0.263
Chrysene	µg/l			<0.013	1.47	0.275	0.373	0.242	0.887	4.51	1800	397	4.35	0.842	0.313	<1.3	7.14	52	6.22	2.46	0.32	0.213	2.06	2.86	0.27
Dibenzo(ah)anthracene	µg/l			<0.016	0.148	0.066	0.101	0.0442	0.166	0.931	245	67.1	0.914	<0.8	0.108	<1.6	1.1	13.8	1.97	0.782	0.0788	0.116	0.387	<0.32	0.0657
Fluoranthene	µg/l	4	WHO Drinking Water Quality Guideline Value	<0.017	8.41	0.809	0.927	0.296	4.44	8.19	6160	1800	6.84	5.54	0.572	2.74	7.36	96.7	9.22	4.18	2.75	0.205	2.64	17.7	1.41
Fluorene	µg/l			<0.014	6.91	0.208	0.0461	<0.014	4.65	0.141	3480	1250	0.319	32.5	0.389	16.1	0.167	3.77	0.436	0.534	1.62	0.0289	0.151	76.6	0.0394
Indeno(123cd)pyrene	µg/l			<0.014	0.495	0.238	0.331	0.187	0.658	2.55	807	199	3.28	<0.7	0.355	<1.4	5.94	39	6.5	2.03	0.246	0.415	2.08	0.421	0.26
Naphthalene	µg/l			<0.1	0.608	<0.1	<0.1	<0.1	1.75	0.176	27500	2450	<1	2040	0.519	2980	<0.2	2.32	<0.1	0.922	0.173	<0.1	0.192	3500	0.183
Phenanthrene	µg/l			<0.022	0.8	0.339	0.0823	0.115	2.76	2.83	9200	2530	1.94	30.5	0.177	26.8	1.67	9.4	1.5	2.16	0.231	0.0596	0.768	81.3	0.0949
Pyrene	µg/l			<0.015	5.42	0.801	0.928	0.289	2.85	8.19	6170	1790	6.85	3.33	0.574	2.76	6.95	96.6	6.8	4.16	2.74	0.203	2.52	10.9	1.42
Total PAH # (Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene & Indeno(123cd)pyrene)	µg/l	0.1	SI 278/2007	<0.08	3.226	1.154	1.71	0.903	3.347	12.47	4390	1024	15.44	<4.0	1.717	<8.0	31.23	215.8	29.82	11.02	1.154	1.65	10.17	2.64	1.19
Volatile Organic Compounds																									
1.1.1.2-Tetrachloroethane	µg/l			<1	<1	<1	<1	-	-	-	<1	-	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	2000	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	-	-	-	-	<1	-	<1	<1	-	-	-	-	2.96	<1
1,1,2,2-Tetrachloroethane	µg/l			<1	<1	<1	<1	-	-	-	<1	-	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	5	US EPA - National Primary Drinking Water Regulations, Maximum Contaminant Level	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l	-	-	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l	140	**Informal** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			<1	29	10	<1	-	-	-	602	449	-	-	-	379	-	2.39	1.59	-	-	-	-	115	<1
1.2-Dibromo-3-chloropropane (DBCP)	µg/l	1	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dibromoethane	µg/l	0.4	**Provisional** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloroethane	µg/l	3	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloropropane	µg/l	40	**Provisional** WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			<1	5.71	2.44	<1	-	-	-	325	151	-	-	-	94.3	-	36.2	<1	-	-	-	-	40.6	<1
1,3-Dichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3-Dichloropropane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l	100	UK DWS for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			<1	<1	<1	<1	-	-	-	<1	4.11	-	-	-	4.87	-	<1	<1	-	-	-	-	<1	<1
Carbontetrachloride	µg/l	4	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	100	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l	100	SI 278/2007 for total Trihalomethanes (chloroform, bromoform, dibromochloromethane and bromodichloromethane)	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	WHO Drinking Water Quality Guideline Value	<3	<3	<3	<3	-	-	-	<3	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			<1	11.2	<1	<1	-	-	-	29.2	28.1	-	-	-	25.6	-	<1	<1	-	-	-	-	5.18	<1
n-Butylbenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			<1	14	<1	<1	-	-	-	59.7	46.5	-	-	-	31.5	-	<1	<1	-	-	-	-	8.4	<1
sec-Butylbenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	10.5	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	449	<1	-	-	-	<1	-	<1	<1	-	-	-	-	177	<1
tert-Amyl methyl ether (TAME)	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.71	<1
trans-1-2-Dichloroethene	µg/l	50	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l	20	WHO Drinking Water Quality Guideline Value	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	4.45	<1
Trichlorofluoromethane	µg/l			<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Vinyl Chloride	µg/l	0.5	SI 278/2007	<1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1

ANALYSIS OF GROUNDWATER - Limerick Gasworks, Monitoring visit 16 (16th October 2013)

Screening Values - Environmental Quality Standards

Receptor water type: Freshwater suitable for coarse fish
Relevant EQS Hardness Band: >100-150 mg/l

Hardness related Freshwater EQS - based on cyprinid/coarse fish
* Asterix indicates freshwater EQS in the absence of a coastal/Estuary/Marine
Concentration exceeds screening value
Concentration exceeds screening value because limit of detection is greater than screening value

Determinand	Units	Coastal/ Estuary /Marine Screening Value	Source of screening value	Limit of Detection	Ground type																			
					Borehole	A1	A3	A4	A9	C11	C2	C7	D1	D5	E8	F11	G2	G3	G4	G5	G8	H12	J10	K1	K5	M3
					Depth (mbgl)																				
Inorganics																									
Arsenic (dissolved)	µg/l	20	SI 272/2009 Annual Ave	<0.12	7.18	37.2	4.49	0.889	9.05	1.91	12	26.7	5.44	110	8.2	22.8	1.31	6.51	1.83	3.07	4.87	1.01	3.39	9.76	2.83
Cadmium (dissolved)	µg/l	1.5	SI272/2009 MAC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.109	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.108	<0.1	<0.1	<0.1
Chromium (dissolved)	µg/l	32	SI272/2009 MAC	<0.22	1.65	2.05	1.41	3.89	10.6	1.33	2.48	2.18	0.627	1.37	2.57	5.26	1.44	1.45	18.1	1.03	3.32	9.47	9.78	11.4	3.93
Copper (dissolved)	µg/l	30	SI 272/2009 Annual Ave*	<0.85	1.25	1.16	1.8	2.22	1.15	6.53	2.33	1.27	1.16	1.59	<0.85	1.9	1.73	1.68	7.11	1.42	<0.85	7.88	2.39	8.03	2.36
Lead (dissolved)	µg/l	7.2	SI 272/2009 Annual Ave	<0.02	0.055	0.022	0.028	<0.02	0.083	0.111	0.232	0.071	0.813	0.057	0.048	<0.02	0.179	0.946	0.391	0.107	<0.02	0.162	0.129	0.442	0.071
Nickel (dissolved)	µg/l	20	SI 272/2009 Annual Ave	<0.15	4.45	3.16	3.07	1.65	1.53	2.83	2.06	2.82	0.884	23.8	3.24	3.27	3.56	3.88	7.14	5.37	1.84	3.35	4.18	4.54	1.64
Selenium (dissolved)	µg/l	1	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.39	1.18	0.572	1.07	1.8	0.721	5.1	29.8	1.77	<0.39	10.9	<0.39	7.48	1.39	2.09	6.82	1.7	0.543	0.904	1.08	3.18	<0.39
Zinc (dissolved)	µg/l	40	SI 272/2009 Annual Ave	<0.41	0.892	2.02	3.7	0.825	0.878	7.56	3.36	0.563	1.67	20.6	0.494	1.93	3.05	5.64	4.66	0.89	1.3	3.08	0.968	4.1	2.94
Mercury (dissolved)	µg/l	0.07	SI272/2009 MAC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.084	<0.01	<0.01	0.0296	<0.01	0.037	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0349	<0.01
Ammoniacal Nitrogen	mg/l	1	Freshwater Fish Directive*	<0.3	12.3	12.4	1.75	<0.3	9.67	0.383	42.3	13.1	0.428	43.6	27.6	77.7	4.11	3.25	4.14	7.02	23.4	<0.3	2.35	11.8	1.53
Sulphate (soluble)	mg/l	200	EQS & IGV*	<2	334	312	218	499	145	43.9	16.5	359	2.1	289	104	494	224	159	820	209	130	146	562	161	491
Phenols	mg/l	0.046	SI272/2009 MAC	<0.025	0.83	0.32	<0.025	<0.025	1.32	<0.025	135	1.66	0.03	104	1.79	33.8	0.05	0.21	0.06	2.52	<0.025	<0.025	0.1	163	0.03
Free Cyanide - (total CN in lab results)	mg/l	0.01	SI 272/2009 Annual Ave	<0.05	0.795	0.308	0.235	<0.05	<0.05	0.138	0.181	1.17	<0.05	6.47	<0.05	0.761	1.1	0.207	1.26	0.256	<0.05	<0.05	1.1	0.62	0.787
pH Value		<6.5	Interim Guideline Values	<1	8.07	8.31	7.92	8.05	7.53	8.06	8.34	7.94	7.97	8.14	7.53	7.97	7.49	7.46	7.2	7.75	7.74	7.71	7.3	7.39	7.58
pH Value		>9.5	Interim Guideline Values	<1	8.07	8.31	7.92	8.05	7.53	8.06	8.34	7.94	7.97	8.14	7.53	7.97	7.49	7.46	7.2	7.75	7.74	7.71	7.3	7.39	7.58
BTEX																									
Benzene	µg/l	50	SI272/2009 MAC	<7	438	<7	<7	<7	28	<7	11900	636	<7	3830	181	5010	<7	67	<7	39	16	<7	<7	8250	<7
Toluene	µg/l	10	SI 272/2009 Annual Ave	<4	48	<4	<4	<4	189	<4	6000	492	<4	1090	158	3420	<4	30	<4	27	<4	<4	<4	3490	<4
Ethyl benzene	µg/l	10	EQS & IGV	<5	114	<5	<5	<5	34	<5	298	223	<5	50	21	412	<5	<5	<5	7	<5	<5	<5	175	<5
Xylene (sum of detected Xylenes)	µg/l	10	SI 272/2009 Annual Ave	<11	136	36	<11	<11	171	<11	3160	1130	<11	509	118	2420	<11	198	<11	73	<11	<11	<11	1620	<11
Petroleum Hydrocarbons																									
GRO (C5-C12)	µg/l			<50	2130	1130	<50	<50	2300	<50	48900	13900	<50	9410	805	19600	<50	776	107	304	127	<50	<50	24500	310
MTBE	µg/l	30	IGV	<3	<3	<3	<3	<3	<3	<3	<15	5	<3	<3	<3	<6	<3	<3	<3	<3	<3	<3	<3	<6	<3
Aliphatics C5-C6	µg/l			<10	<10	<10	<10	<10	<10	<10	67	17	<10	36	<10	39	<10	<10	<10	<10	<10	<10	<10	91	<10
Aliphatics C6-C8	µg/l			<10	51	57	<10	<10	22	<10	708	285	<10	239	14	283	<10	39	<10	13	10	<10	<10	567	14
Aliphatics C8-C10	µg/l			<10	154	109	<10	<10	205	<10	3020	1920	<10	457	48	1210	<10	100	16	37	<10	<10	<10	1370	23
Aliphatics C10-C12	µg/l			<10	643	507	18	<10	906	<10	13100	4750	<10	1740	137	3580	<10	162	38	48	47	<10	<10	4830	150
Aliphatics C12-C16	µg/l			<10	<10	<10	118	<10	56	<10	577	16	<10	<10	<10	<10	<10	46	12	<10	<10	<10	<10	42	<10
Aliphatics C16-C21	µg/l			<10	<10	<10	192	<10	34	<10	365	12	26	<10	<10	<10	<10	71	13	<10	<10	<10	<10	34	<10
Aliphatics C21-C35	µg/l			<10	<10	<10	98	<10	98	<10	592	<10	92	<10	49	<10	51	153	<10	<10	<10	<10	<10	54	<10
Aromatics C5-C7	µg/l			<10	438	<10	<10	<10	28	<10	11900	636	<10	3830	181	5010	<10	67	<10	39	16	<10	<10	8250	<10
Aromatics C7-C8	µg/l			<10	48	<10	<10	<10	189	<10	6000	492	<10	1090	158	3420	<10	30	<10	27	<10	<10	<10	3490	<10
Aromatics C8-C10	µg/l			<10	353	109	<10	<10	341	<10	5470	2630	<10	864	171	3650	<10	264	16	105	<10	<10	<10	2700	16
Aromatics C10-C12	µg/l			<10	429	338	12	<10	604	<10	8710	3160	<10	1160	91	2390	<10	108	26	32	31	<10	<10	3220	100
Aromatics C12-C16	µg/l			<10	391	207	58	<10	382	24	12600	1750	29	6060	218	5850	22	287	22	78	54	<10	<10	11200	<10
Aromatics C16-C21	µg/l			<10	166	126	120	<10	151	50	5060	777	81	497	32	458	52	721	74	58	42	<10	22	1090	<10
Aromatics C21-C35	µg/l			<10	52	31	109	<10	110	123	5060	244	323	185	78	95	286	3220	358	75	22	<10	74	476	<10
TPH (Aliphatics and Aromatics C5-C35)	µg/l	10	EQS & IGV	<10	2730	1490	744	<10	3130	201	73100	16700	556	16200	1180	26000	412	5270	587	515	245	<10	96	37400	308
PAHs																									
Acenaphthene	µg/l	5.8	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.015	21.6	0.444	<0.015	<0.015	8.98	0.206	724	442	<0.15	13.6	1.01	51.3	0.156	1.87	0.12	0.065	0.197	<0.015	0.0654	35.7	0.06
Acenaphthylene	µg/l			<0.011	18.9	0.316	0.178	0.056	1.69	0.114	3750	987	1.35	92.6	0.256	50.8	0.728	22	3.11	0.736	0.189	0.148	0.17	237	0.0485
Anthracene	µg/l	0.4	SI272/2009 MAC	<0.015	1.05	0.107	0.0658	0.0353	0.936	0.574	2810	981	0.476	7.39	0.11	1.56	0.536	5.49	0.873	0.907	0.295	0.0382	0.276	19.4	0.032
Benzo(a)anthracene	µg/l	0.018	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.017	1.57	0.261	0.324	0.147	0.824	4.15	2010	479	3.43	<0.85	0.255	<1.7	5.22	49.9	5.9	2.85	0.301	0.167	1.8	2.11	0.244
Benzo(a)pyrene	µg/l	0.1	SI272/2009 MAC	<0.009	1.27	0.612	0.545	0.244	1.2	4.32	1550	377	4.54	0.663	0.483	<0.9	9.65	71.8	10.2	4	0.385	0.508	3.06	1.04	0.332
Benzo(b)fluoranthene	µg/l	0.5	Interim Guideline Value*	<0.023	0.865	0.26	0.553	0.214	0.827	3.27	1380	324	4.13	<1.15	0.51	<2.3	7.56	69.7	8.35	3.46	0.363	0.371	2.33	0.63	0.342
Benzo(ghi)perylene	µg/l	0.05	Interim Guideline Value*	<0.016	0.536	0.305	0.356	0.227	0.812	2.81	883	209	3.69	<0.8	0.441	<1.6	7.03	43.7	6.88	1.96	0.279	0.489	2.5	0.409	0.325
Benzo(k)fluoranthene	µg/l	0.05	Interim Guideline Value*	<0.027	1.33	0.351	0.47	0.275	1.05	3.84	1320	292	4.34	<1.35	0.411	<2.7	10.7	63.4	8.09	3.57	0.266	0.375	3.26	1.18	0.263
Chrysene	µg/l			<0.013	1.47	0.275	0.373	0.242	0.887	4.51	1800	397	4.35	0.842	0.313	<1.3	7.14	52	6.22	2.46	0.32	0.213	2.06	2.86	0.27
Dibenzo(ah)anthracene	µg/l			<0.016	0.148	0.066	0.101	0.0442	0.166	0.931	245	67.1	0.914	<0.8	0.108	<1.6	1.1	13.8	1.97	0.782	0.0788	0.116	0.387	<0.32	0.0657
Fluoranthene	µg/l	1	SI272/2009 MAC	<0.017	8.41	0.809	0.927	0.296	4.44	6.19	6160	1800	6.84	5.54	0.572	2.74	7.36	96.7	9.22	4.18	2.75	0.205	2.64	17.7	1.41
Fluorene	µg/l	3	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.014	6.91	0.208	0.0461	<0.014	4.65	1.41	3480	1250	0.319	32.5	0.389	16.1	0.167	3.77	0.436	0.534	1.62	0.0289	0.151	76.6	0.0394
Indeno(123cd)pyrene	µg/l	0.05	Interim Guideline Value*	<0.014	0.495	0.238	0.331	0.187	0.653	2.55	807	199	3.28	<0.7	0.355	<1.4	5.94	39	6.5	2.03	0.246	0.415	2.08	0.421	0.26
Naphthalene	µg/l	1.2	SI 272/2009 Annual Ave	<0.1	0.608	<0.1	<0.1	<0.1	1.75	0.176	27500	2450	<1	2040	0.519	2980	<0.2	2.32	<0.1	0.922	0.173	<0.1	0.192	3500	0.183
Phenanthrene	µg/l	0.4	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.022	0.8	0.339	0.0823	0.135	2.76	2.83	9200	2530	1.94	30.5	0.177	26.8	1.67	9.4	1.5	2.16	0.231	0.0596	0.768	81.3	0.0949
Pyrene	µg/l	0.025	Canadian Water Quality Guidelines for Aquatic Life (2007)*	<0.015	5.42	0.801	0.928	0.239	2.85	8.19	6170	1790	6.85	3.33	0.574	2.76	6.95	96.6	6.8	4.16	2.74	0.203	2.52	10.9	1.42
Sum benzo(ghi)perylene and indeno(123-cd)pyrene	µg/l	0.002	SI 272/2009 Annual Ave	<0.03	1.031	0.543	0.687	0.414	1.47	5.36	1690	408	6.97	<1.5	0.796	<3.0	12.97	82.7	13.38	3.99	0.525	0.904	4.58	0.83	0.585
Sum benzo (b + K) fluoranthene	µg/l	0.03	SI 272/2009 Annual Ave	<0.05	2.195	0.611	1.023	0.489	1.877	7.11	2700	616	8.47	<2.5	0.921	<5.0	18.26	133.1	16.44	7.03	0.629	0.746	5.59	1.81	0.605
Volatile Organic Compounds																									
1.1.1.2-Tetrachloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.1-Trichloroethane	µg/l	100	EQS 76/464/EEC	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	2.96	<1
1,1,2,2-Tetrachloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1.2-Trichloroethane	µg/l	300	EQS 76/464/EEC	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloroethene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.1-Dichloropropene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichlorobenzene	µg/l	0.4	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.3-Trichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2,4-Trichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2.4-Trimethylbenzene	µg/l			1	29	10	<1	-	-	-	602	449	-	-	-	379	-	2.39	1.59	-	-	-	-	115	<1
1.2-Dibromo-3-chloropropane (DBCP)	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dibromoethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,2-Dichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloroethane	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.2-Dichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,3,5-Trichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3.5-Trimethylbenzene	µg/l			1	5.71	2.44	<1	-	-	-	325	151	-	-	-	94.3	-	36.2	<1	-	-	-	-	40.6	<1
1,3-Dichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1.3-Dichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
1,4-Dichlorobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2.2-Dichloropropane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
2-Chlorotoluene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Chlorotoluene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
4-Isopropyltoluene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromobenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromochloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromodichloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromoform	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Bromomethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Carbon Disulphide	µg/l			1	<1	<1	<1	-	-	-	<1	4.11	-	-	-	4.87	-	<1	<1	-	-	-	-	<1	<1
Carbon tetrachloride	µg/l	12	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chlorobenzene	µg/l	1	EQS for the Aquatic Environment - EPA, quoted in IGV	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloroform	µg/l	12	EQS 76/464/EEC	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Chloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-2-Dichloroethene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
cis-1-3-Dichloropropene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromochloromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dibromomethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichlorodifluoromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Dichloromethane	µg/l	20	SI 272/2009 Annual Ave	3	<3	<3	<3	-	-	-	<3	<3	-	-	-	<3	-	<3	<3	-	-	-	-	<3	<3
Hexachlorobutadiene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Isopropylbenzene	µg/l			1	11.2	<1	<1	-	-	-	29.2	28.1	-	-	-	25.6	-	<1	<1	-	-	-	-	5.18	<1
n-Butylbenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Propylbenzene	µg/l			1	14	<1	<1	-	-	-	59.7	46.5	-	-	-	31.5	-	<1	<1	-	-	-	-	8.4	<1
sec-Butylbenzene	µg/l			1	<1	<1	<1	-	-	-	<1	10.5	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Styrene	µg/l	72*	Canadian Water Quality Guidelines for Aquatic Life (2007)	1	<1	<1	<1	-	-	-	449	<1	-	-	-	<1	-	<1	<1	-	-	-	-	177	<1
tert-Amyl methyl ether (TAME)	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
tert-Butylbenzene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Tetrachloroethene	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	1.71	<1
trans-1-2-Dichloroethene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
trans-1-3-Dichloropropene	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Trichloroethene	µg/l	10	SI 272/2009 Annual Ave	1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	4.45	<1
Trichlorofluoromethane	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1
Vinyl Chloride	µg/l			1	<1	<1	<1	-	-	-	<1	<1	-	-	-	<1	-	<1	<1	-	-	-	-	<1	<1