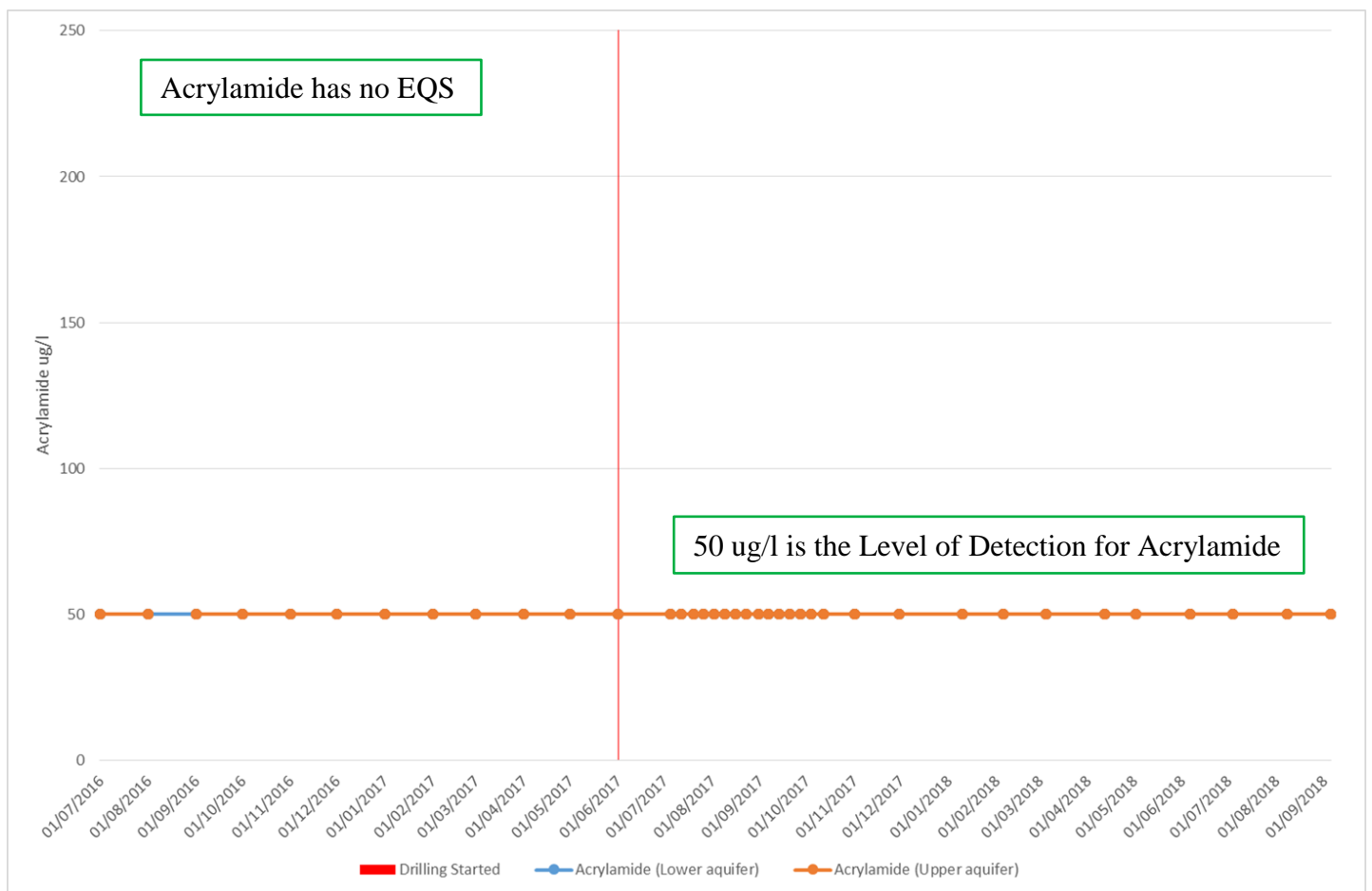


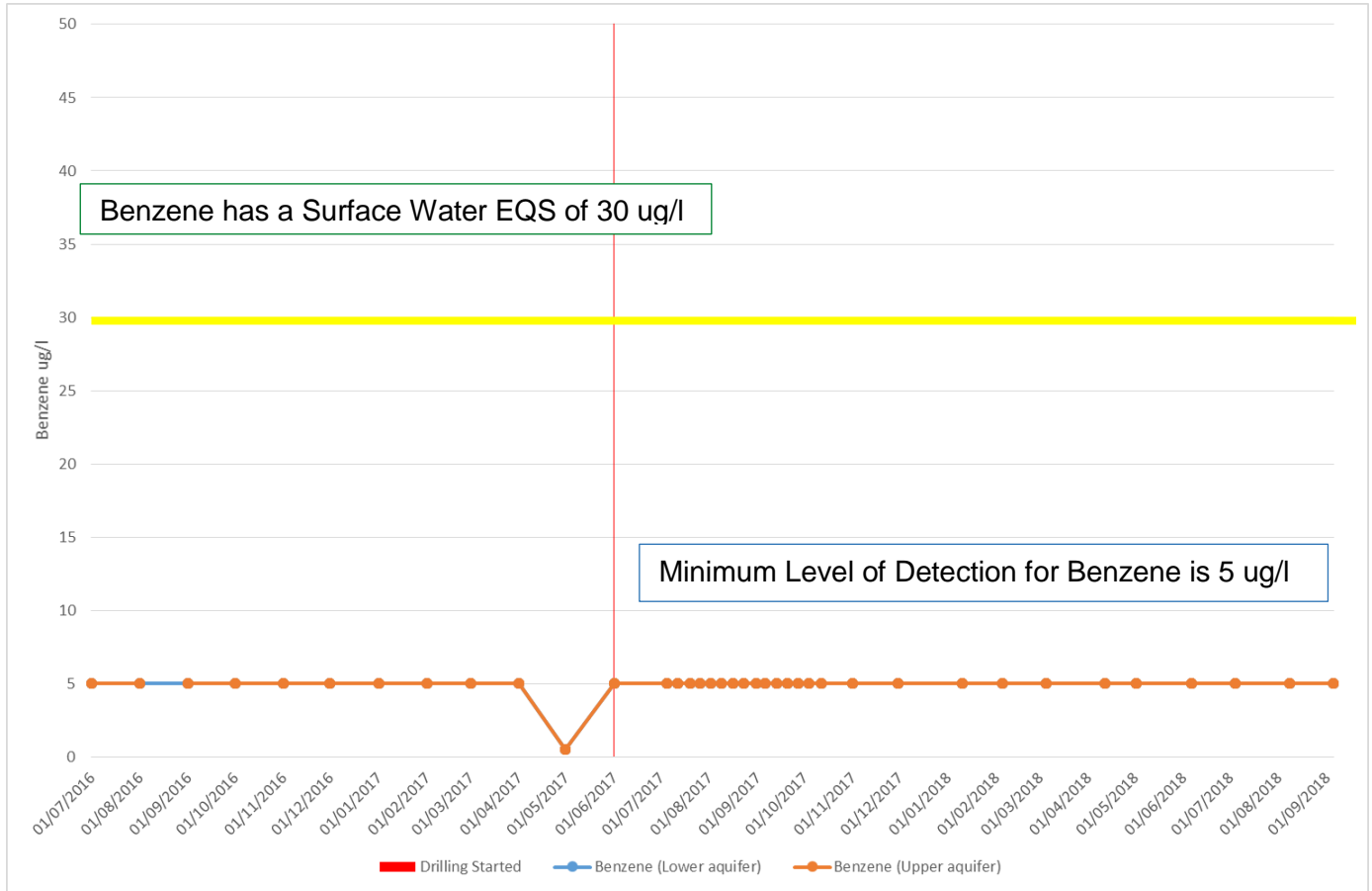
Preston New Road Groundwater Monitoring Data Q3 2018

The following report includes Cuadrilla's quarterly groundwater monitoring data for Q3 2018 (July - September 2018).

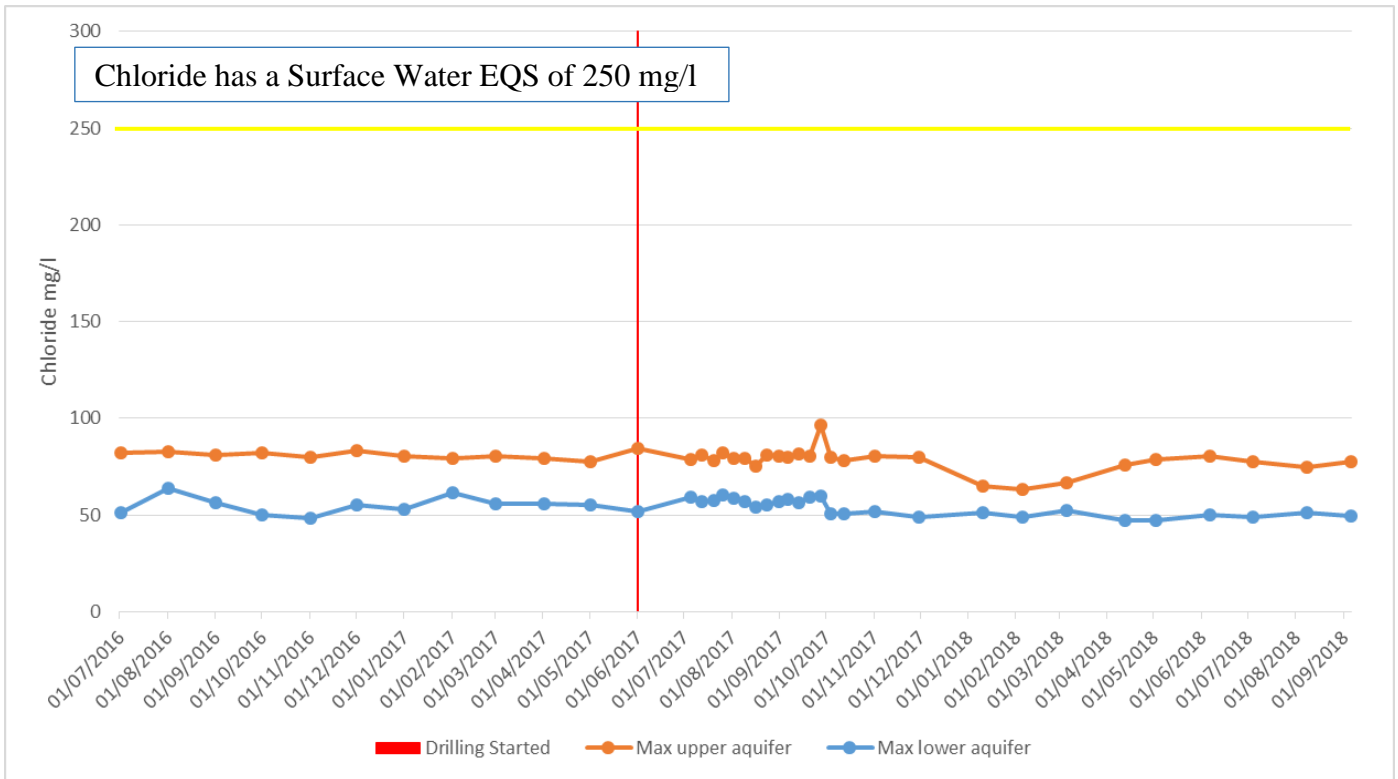
Acrylamide



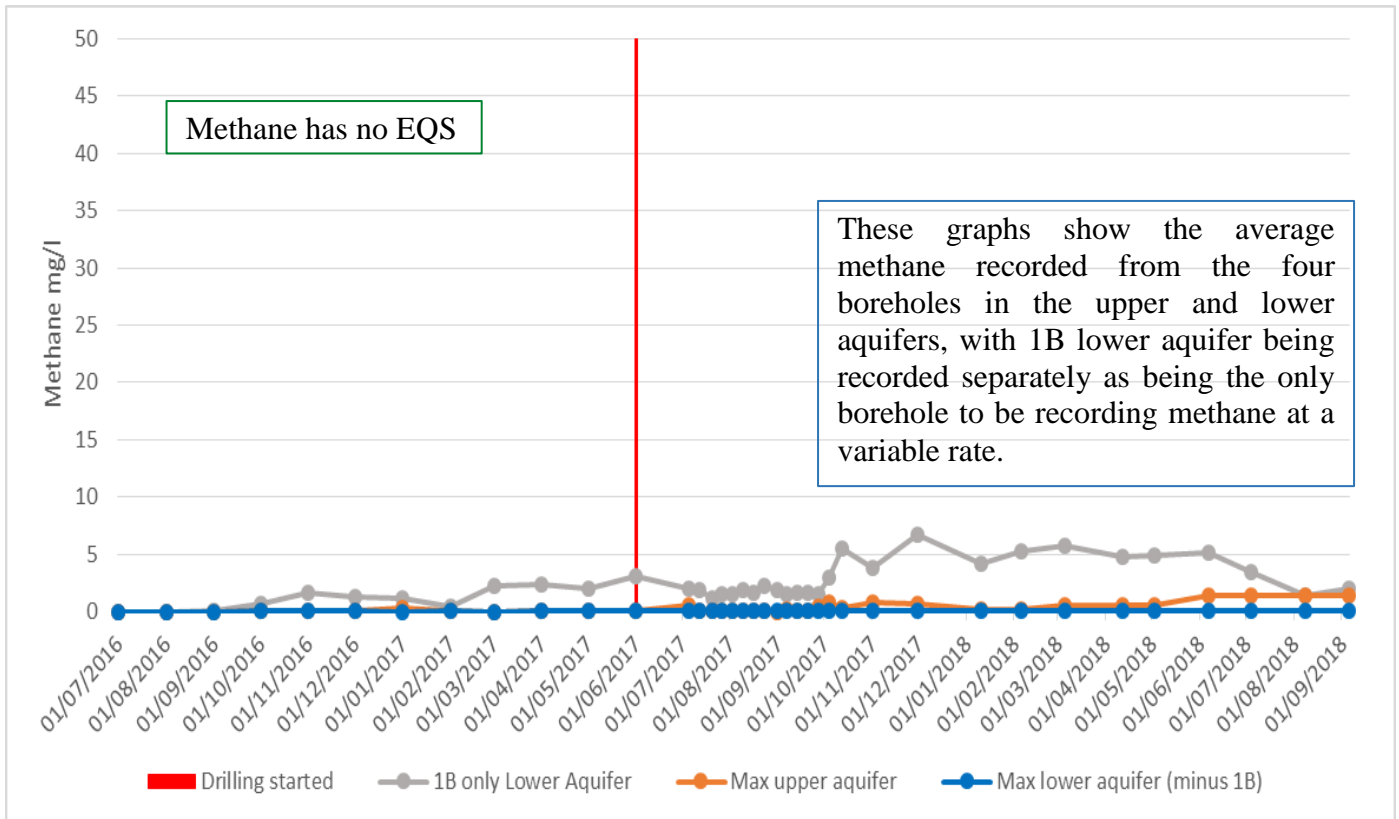
Benzene



Chloride



Methane



Cuadrilla Preston New Road Groundwater Quality Monitoring Q3 2018 - Upper Aquifer

Cuadrilla Preston New Road Upper Aquifer Groundwater monitoring data Q3 2018													
July - September 2018													
		BH 1A			BH 2A			BH 3A			BH 4A		
		04-Jul-18	08-Aug-18	05-Sep-18	05-Jul-18	09-Aug-18	06-Sep-18	04-Jul-18	08-Aug-18	05-Sep-18	04-Jul-18	08-Aug-18	05-Sep-18
Dissolved Aluminium #	ug/l	20	20	20	20	20	20	20	20	20	20	20	20
Dissolved Antimony #	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Arsenic #	ug/l	2.5	4.4	2.5	2.5	3.7	3.4	2.5	5.6	2.5	2.5	6.2	2.5
Dissolved Barium #	ug/l	185	163	179	99	97	100	44	46	47	139	134	143
Dissolved Beryllium	ug/l	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Boron	ug/l	23	36	29	35	38	33	48	54	57	21	33	33
Dissolved Cadmium #	ug/l	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Calcium #	mg/l	125.8	138	129	125.5	134.7	127.3	122.6	132.6	122.1	125.7	136.7	124.1
Total Dissolved Chromium #	ug/l	6.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Dissolved Cobalt #	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Copper #	ug/l	7	7	7	7	7	7	7	7	7	7	7	7
Total Dissolved Iron #	ug/l	20	20	20	20	20	20	20	20	20	20	20	20
Dissolved Lead #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Dissolved Lithium	ug/l	13	9	12	17	12	10	19	13	19	13	11	9
Dissolved Magnesium #	mg/l	36.4	39.3	36.9	35.6	38.6	35.8	33.4	36.2	34.7	35.3	38.7	36
Dissolved Mercury #	ug/l	1	1	1	1	1	1	1	1	1	1	1	1
Dissolved Nickel #	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Potassium #	mg/l	2.5	2.7	2.5	3	3.2	3	2	2	1.9	1.6	1.8	1.7
Dissolved Selenium #	ug/l	3	3	3	3	3	3	3	3	3	3	3	3
Dissolved Silver	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Dissolved Sodium #	mg/l	33	32.2	29.1	27.6	27.3	24.8	31.9	31.3	31.3	41.2	40.9	40.5
Dissolved Strontium	ug/l	246	211	225	305	272	290	579	501	554	234	202	223
Dissolved Vanadium #	ug/l	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Dissolved Zinc #	ug/l	3	3	3	3	3	3	13	9	8	3	3	3
EPH (C8-C40) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
GRO (C4-C8) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
GRO (C8-C12) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
GRO (C4-C12) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
MTBE #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Benzene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Toluene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Ethylbenzene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
m/p-Xylene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
o-Xylene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Fluoride	mg/l	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Bromide	mg/l	0.05	0.07	0.05	0.05	0.08	0.05	0.05	0.05	0.05	0.05	0.05	0.06
Chloride #	mg/l	62.5	59.2	63.1	51.7	50.8	51.8	54.1	52.6	54.1	77.4	74.8	77.4
Nitrate as NO3 #	mg/l	41.1	41.2	40.6	41.9	41.1	39.1	1.1	1	0.3	28.9	27.9	27.6
Nitrite as NO2 #	mg/l	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.06	0.02	0.02	0.02
Ammoniacal Nitrogen as NH4 #	mg/l	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Dissolved Ethene #	ug/l	1	1	1	1	1	1	1	1	1	1	1	1
Dissolved Ethane #	ug/l	1	1	1	1	1	1	1	1	1	1	1	1
Dissolved Butane	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Propane	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Methane	mg/l	0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.01	0.08	0.01	0.01	0.01
Dissolved Carbon Dioxide	mg/l	41.1	37.6	42.1	27.3	41	32.1	32.5	30.7	32.3	42	43	32.6
δ13C - CH4	ppm ‰ VPDB	-	-	-	-	-	-	*	-	-65.3	-	-	-
δ13C - CO2	ppm ‰ VPDB	-24.6	-25.4	-24.1	-23.7	-25.4	-24.7	-22.9	-24.9	-22.3	-24.4	-25.1	-23.1
Total Alkalinity as CaCO3 #	mg/l	388	382	358	370	390	354	356	368	344	370	428	372
Acrylamide	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Laurylamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Hydroxyethyl ethylene diamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Myristyl dimethylamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Octyldimethylamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
para phenylene diamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
BOD (Settled) #	mg/l	3	1	1	4	1	1	1	1	1	1	1	1
COD (Settled) #	mg/l	7	7	7	7	7	7	7	7	7	7	7	7
pH #	pH units	7.29	7.74	7.59	7.04	7.38	7.72	7.11	7.31	7.81	7.05	7.79	7.72
Salinity	%	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Dissolved Solids #	mg/l	606	666	617	602	646	584	636	645	591	660	658	634
Total Suspended Solids #	mg/l	14	36	37	10	10	10	10	10	10	10	10	10

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
03459 88 11 88

Interpretation of Data

The data high-lighted in yellow show marginal increases over the background monitoring undertaken in the first year, but are not considered to be statistically significant.

Cuadrilla Preston New Road Groundwater Quality Monitoring Q3 2018 - Lower Aquifer

Cuadrilla Preston New Road Lower Aquifer Groundwater monitoring data Q3 2018													
July - September 2018													
		BH 1B			BH 2B			BH 3B			BH 4		
		04-Jul-18	08-Aug-18	05-Sep-18	05-Jul-18	09-Aug-18	06-Sep-18	04-Jul-18	08-Aug-18	05-Sep-18	04-Jul-18	08-Aug-18	05-Sep-18
Dissolved Aluminium #	ug/l	20	20	20	20	20	20	20	20	20	20	20	
Dissolved Antimony #	ug/l	2	2	2	2	2	2	2	2	2	2	2	
Dissolved Arsenic #	ug/l	2.5	5.9	4.7	14.2	19	9.7	2.5	5	2.5	14.8	18.3	8.7
Dissolved Barium #	ug/l	116	131	131	66	65	71	56	56	60	64	62	65
Dissolved Beryllium	ug/l	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Boron	ug/l	36	41	34	40	43	51	42	45	49	40	49	45
Dissolved Cadmium #	ug/l	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Dissolved Calcium #	mg/l	109.3	127.9	118.6	124.6	133.7	125.3	119	129.2	118.4	125.5	136	123.7
Total Dissolved Chromium #	ug/l	6.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Dissolved Cobalt #	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Copper #	ug/l	7	7	7	7	7	7	7	7	7	7	7	7
Total Dissolved Iron #	ug/l	20	20	20	611	600	605	524	504	523	784	680	731
Dissolved Lead #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Dissolved Lithium	ug/l	11	8	8	17	13	16	16	11	16	18	13	17
Dissolved Magnesium #	mg/l	36.7	40	37.6	34.2	37	35.8	32.6	35.6	33.5	35	38.1	35.8
Dissolved Mercury #	ug/l	1	1	1	1	1	1	1	1	1	1	1	1
Dissolved Nickel #	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Potassium #	mg/l	1.9	2.3	2.1	1.8	1.9	1.9	2	2	2	1.8	2	1.9
Dissolved Selenium #	ug/l	3	3	3	3	3	3	3	3	3	3	3	3
Dissolved Silver	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Dissolved Sodium #	mg/l	43.5	37.2	37	29.6	29	29.1	28.1	27.4	27.3	27.4	27.2	26.8
Dissolved Strontium	ug/l	225	208	223	617	534	589	508	452	501	562	487	547
Dissolved Vanadium #	ug/l	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Dissolved Zinc #	ug/l	3	5	4	3	3	3	3	3	3	3	3	3
EPH (C8-C40) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
GRO (C4-C8) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
GRO (C8-C12) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
GRO (C4-C12) #	ug/l	10	10	10	10	10	10	10	10	10	10	10	10
MTBE #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Benzene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Toluene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Ethylbenzene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
m/p-Xylene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
o-Xylene #	ug/l	5	5	5	5	5	5	5	5	5	5	5	5
Fluoride	mg/l	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Bromide	mg/l	0.05	0.06	0.05	0.05	0.06	0.05	0.05	0.1	0.05	0.05	0.06	0.05
Chloride #	mg/l	46.9	51.1	49.3	48.6	49.3	47.4	47.7	48.1	47.5	43.3	42.5	43
Nitrate as NO3 #	mg/l	10.1	15.1	11.8	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2
Nitrite as NO2 #	mg/l	0.15	0.23	0.21	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Ammoniacal Nitrogen as NH4 #	mg/l	0.03	0.03	0.03	0.04	0.05	0.05	0.03	0.03	0.03	0.05	0.05	0.06
Dissolved Ethene #	ug/l	1	1	1	1	1	1	1	1	1	1	1	1
Dissolved Ethane #	ug/l	1	1	1	1	1	1	1	1	1	1	1	1
Dissolved Butane	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Propane	ug/l	2	2	2	2	2	2	2	2	2	2	2	2
Dissolved Methane	mg/l	3.41	1.43	2.01	0.01	0.01	0.01	0.05	0.06	0.1	0.01	0.01	0.01
Dissolved Carbon Dioxide	mg/l	41.8	38.1	42.2	32.9	33.5	32.3	28.2	27.8	28.5	32.4	36.4	36.7
δ13C - CH4	ppm ‰, VPDB	-62.55	-58.6	-54.5	-	-	-	*	*	-55.1	-	-	-
δ13C - CO2	ppm ‰, VPDB	-29.5	-26.8	-25.3	-23.2	-24.4	-23.8	-22.7	-24.7	-22.1	-23.2	-25.4	-22.9
Total Alkalinity as CaCO3 #	mg/l	398	394	382	356	382	356	338	362	334	364	386	350
Acrylamide	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Laurylamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Hydroxyethyl ethylene diamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Myristyl dimethylamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
Octyldimethylamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
para phenylene diamine	ug/l	50	50	50	50	50	50	50	50	50	50	50	50
BOD (Settled) #	mg/l	1	3	2	1	1	1	1	1	1	1	1	1
COD (Settled) #	mg/l	7	7	7	7	7	7	7	7	7	7	7	7
pH #	pH units	7.09	7.2	6.95	7.1	7.21	7.87	7.13	7.52	8.06	7.1	7.25	7.81
Salinity	%	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Dissolved Solids #	mg/l	566	634	557	624	617	574	598	587	579	574	661	559
Total Suspended Solids #	mg/l	252	10	64	10	12	13	10	10	10	10	10	10

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
03459 88 11 88

Interpretation of Data

The data high-lighted in yellow show marginal increases over the background monitoring undertaken in the first year, but are not considered to be statistically significant. Dissolved methane is seen to increase against the background maximum recorded within the 1st year in BH 1(B). The British Geological Survey have also detected methane in other parts of the aquifer and stated that methane (CH₄) is also often detected, though rarely at high concentrations. The composition of CH₄, where present, suggests that it has been produced in the superficial sediments by microbial reaction of organic matter.