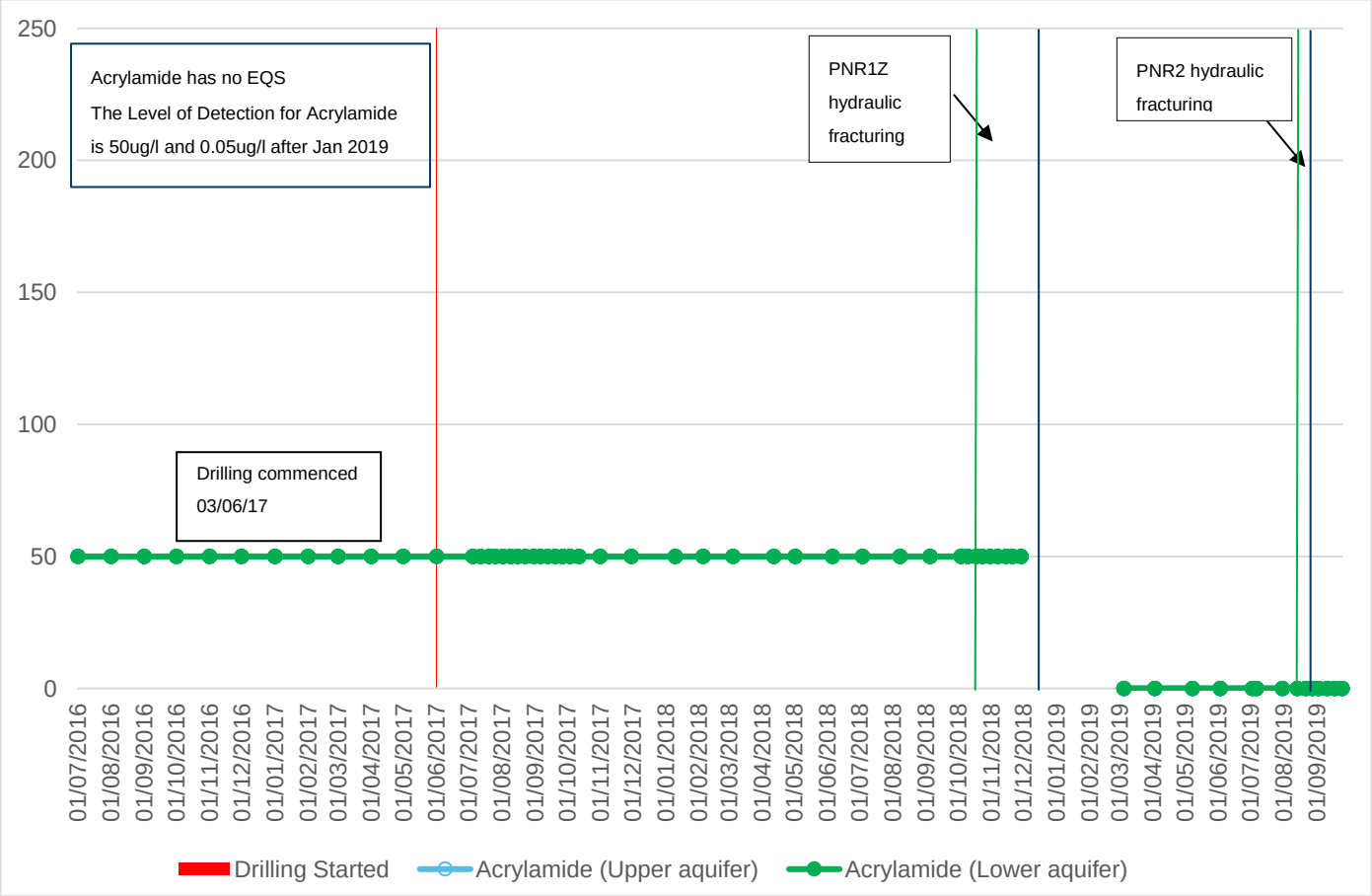
Preston New Road Groundwater Monitoring Data Q3 2019

The following report includes Cuadrilla's quarterly groundwater monitoring data for Quarter 3 2019 (July-September 2019). All weekly data is presented in the tables below. The data can be viewed by zooming in.

Acrylamide

Groundwater Monitoring Preston New Road Acrylamide in 2 aquifers Q3 2019



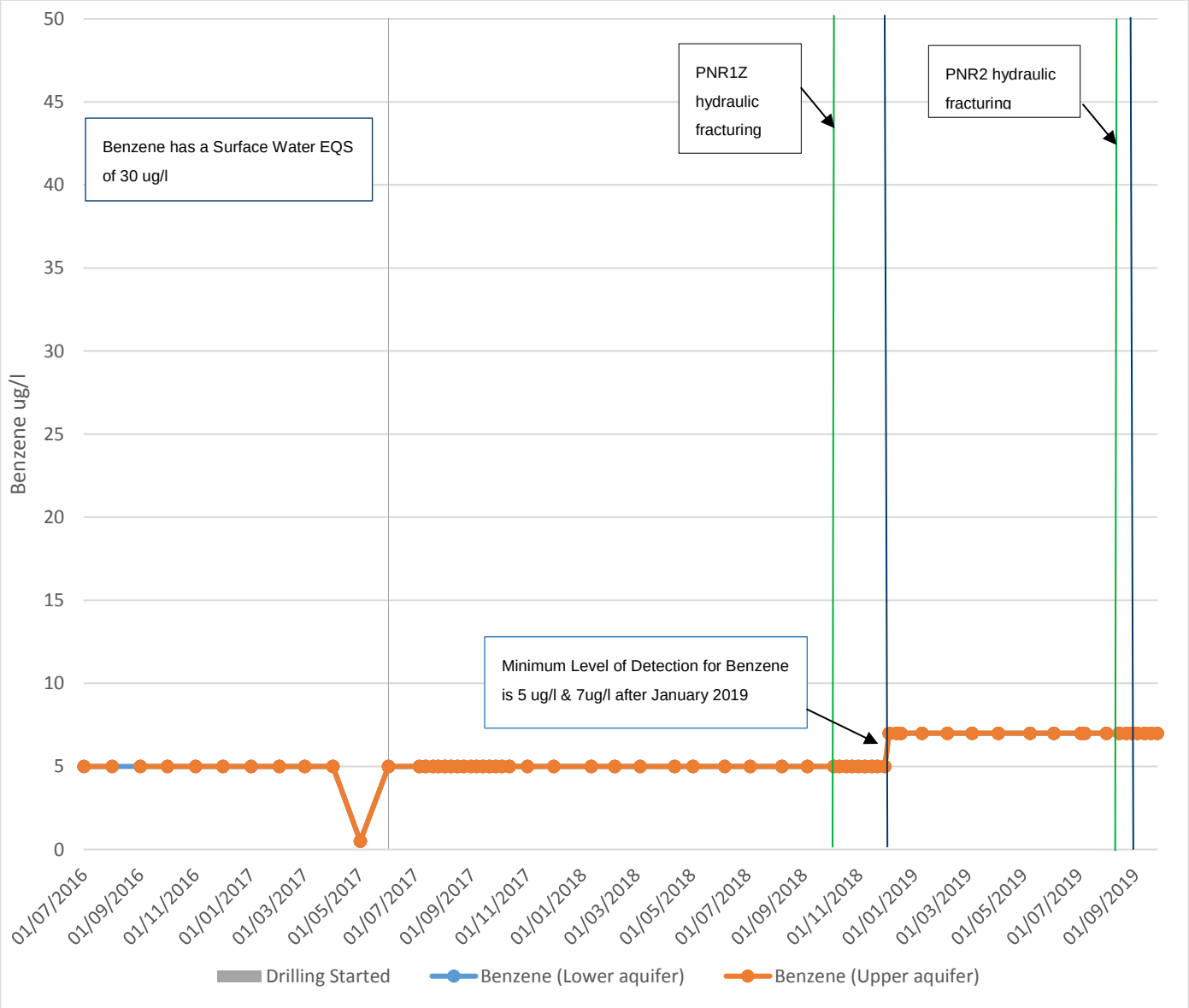
PNR1Z Hydraulic Fracturing commenced 15.10.2018 and stopped on 17.12.2018

PNR2 Hydraulic Fracturing commenced 13.08.2019 and stopped on 26.08.2019

No results for acrylamide were received for December 2018, January and February 2019. Please see CAR Form UP3431VF/0337394 for our investigation into this.

Benzene

Groundwater Monitoring Preston New Road Benzene in 2 Aquifers (Maximum Values) Quarter 3 2019

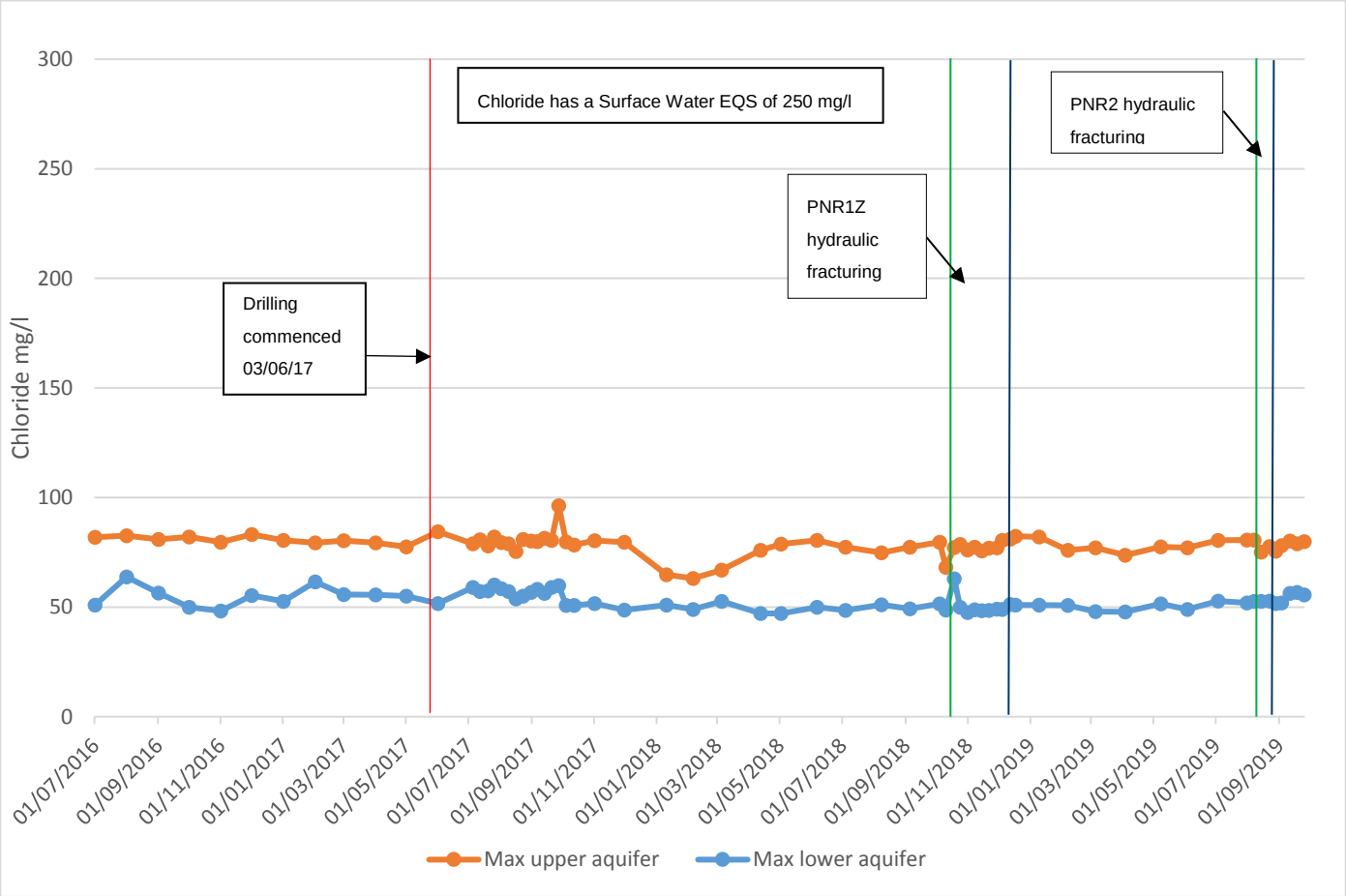


PNR1Z Hydraulic Fracturing commenced 15.10.2018 and stopped on 17.12.2018

PNR2 Hydraulic Fracturing commenced 13.08.2019 and stopped on 26.08.2019

Chloride

Groundwater Monitoring Preston New Road Chloride in 2 Aquifers (Maximum Values) Quarter 3 2019

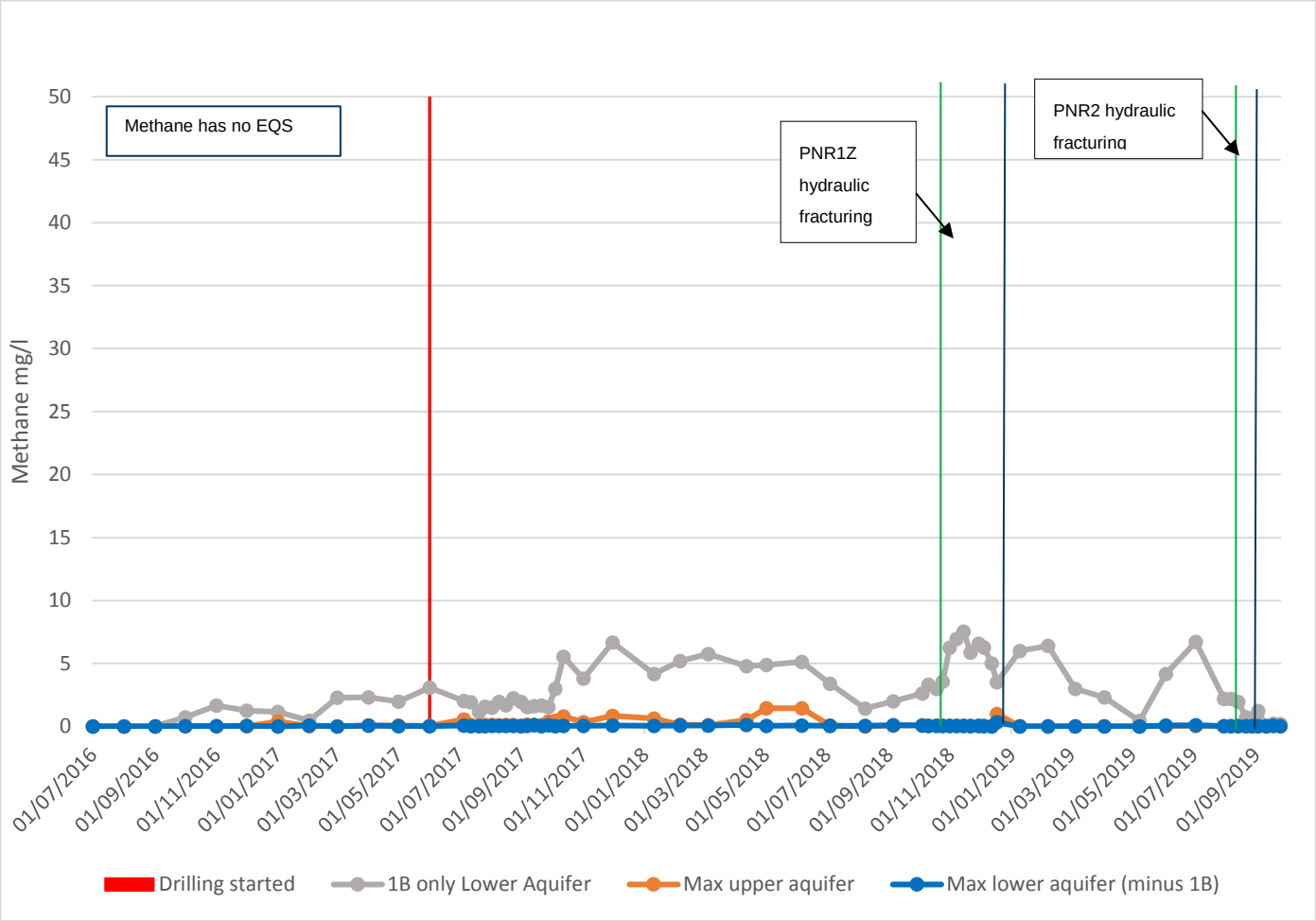


PNR1Z Hydraulic Fracturing commenced 15.10.2018 and stopped on 17.12.2018

PNR2 Hydraulic Fracturing commenced 13.08.2019 and stopped on 26.08.2019

Methane

Groundwater Monitoring Preston New Road Methane in 2 aquifers (Maximum Values) Quarter 3 2019



PNR1Z Hydraulic Fracturing commenced 15.10.2018 and stopped on 17.12.2018

PNR2 Hydraulic Fracturing commenced 13.08.2019 and stopped on 26.08.2019

Cuadrilla Preston New Road Groundwater Quality Monitoring Q3 2019 - Upper Aquifer

Permit Number																										
Facility																										
																							Preston New Road Q3			
						Borehole 1A												Borehole 2A					Q3 Data		Pre Frack	
Substance/ Parameter	03-Jun-19	03-Jul-19	31-Jul-19	07-Aug-19	14-Aug-19	22-Aug-19	28-Aug-19	03-Sep-19	11-Sep-19	18-Sep-19	25-Sep-19	04-Jul-19	31-Jul-19	08-Aug-19	14-Aug-19	21-Aug-19	29-Aug-19	04-Sep-19	12-Sep-19	18-Sep-19	26-Sep-19	Aquifer A upper Min	Aquifer A upper Max	Aquifer A upper Min	Aquifer A upper Max
Dissolved Aluminium#	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	26.60	20	45
Dissolved Mercury#	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	1
Dissolved Antimony#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	3
Dissolved Arsenic#	0.688	0.768	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	17.5	0.704	14.8	14	<0.5	0.807	0.659	0.685	0.69	0.645	<0.5	14.8	2.5	12.7
Dissolved Barium#	214	204	171	159	161	164	171	157	156	158	160	74	115	71.1	77.4	99	118	107	109	115	120	43.90	214	37	421
Dissolved Beryllium	<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	0.5	0.5
Dissolved Boron	33.4	30.1	32	25.6	29.8	26.8	26.7	26.6	27.4	31.3	31.2	40.7	39.2	46.1	51.4	33.2	34	42	38.3	34.6	41.8	20.70	66.80	12	60
Dissolved Cadmium#	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.5	0.5
Total Dissolved Chromium#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.07	1.5	6.8
Dissolved Cobalt#	0.511	0.58	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.74	2	2
Dissolved Copper#	<0.3	<0.3	<0.3	0.708	0.589	0.536	<0.3	1.4	<0.3	0.528	0.624	<0.3	<0.3	<0.3	<0.3	0.363	<0.3	<0.3	<0.3	0.388	1.27	<0.3	1.40	7	8
Dissolved Lead#	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.427	5	5
Dissolved Lithium	9.48	8.83	8.57	8.55	8.39	8.32	8.32	8.09	8.83	8.24	9.31	13	11.6	13.5	13.7	10.3	11.1	12.3	11.7	12.2	11.9	8.09	15.2	5	48
Dissolved Nickel#	0.905	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.408	<0.4	<0.4	<0.4	<0.4	<0.4	4.52	2	11
Dissolved Selenium#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	10
Dissolved Strontium	253	245	244	236	241	232	247	231	233	246	242	616	309	609	609	262	308	296	303	306	333	198	607	202	649
Dissolved Vanadium#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.5	2.3
Dissolved Zinc#	7.23	2.46	3.04	3.5	2.34	1.54	1.62	2.93	1.97	1.96	2.52	1.91	2.6	5.92	1.85	1.9	2.2	<1	1.72	<1	1.43	<1	9.26	0	33
Dissolved Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	5
Dissolved Sodium#	34.4	33.4	31.5	31.8	30	30.4	30.5	29.8	32.7	31	31.4	28.2	27.4	28.8	28.5	25.6	26.3	27.7	27.4	26.7	26.8	25.60	42.8	24.1	42.3
Dissolved Magnesium#	37.8	38.1	37.2	34.6	36.3	36	36.7	35.1	38.4	36.6	36.5	36.3	37.7	36.4	33.3	34.4	36.7	39	37.7	37	37.9	32.50	39.00	32.1	39.7
Dissolved Potassium#	3.02	2.88	2.67	2.32	2.63	2.45	2.77	2.37	2.71	2.58	2.69	2.16	3.4	2.01	1.97	3.6	3.42	3.34	3.37	3.62	3.66	1.68	3.66	1.4	3.3
Dissolved Calcium#	125	131	123	117	123	120	127	117	126	116	122	128	125	124	123	106	128	125	127	127	136	103.00	136.00	101.9	138
Total Dissolved Iron#	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	605	<19	553	566	<19	<19	<19	<19	<19	<19	<19	566.00	20	2012
EPH (C8-C40)#	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	620
GRO (C4-C8) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	87
GRO (C8-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	18
GRO (C4-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	101
MTBE#	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.1	5
Benzene#	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	0.5	5
Toluene#	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	5	5
Ethylbenzene#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1	5
m/p-Xylene#	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	2	5
o-Xylene#	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	1	5
Fluoride	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.03	0.4
Bromide	0.178	0.17	0.157	0.159	0.189	0.159	0.17	0.215	0.158	0.175	0.149	0.153	0.155	0.14	0.192	0.173	0.135	0.177	0.158	0.152	0.145	0.135	0.216	0.05	0.18
Chloride#	61.6	64.6	65.5	61.9	61.9	63	60.1	50.9	63.6	64.2	62.5	48.8	55.8	48.6	49.9	51.6	51.8	52	53.3	52.6	53.6	48.6	80.6	24.6	96.3
Nitrate as NO3#	8.64	9.91	9.41	9.96	8.87	9.58	10.3	9.71	9.51	9.99	9.87	<0.0677	9.33	<0.0677	<0.0677	8.27	9.63	9.78	10.1	27	10	<0.0677	27	0.2	46.5
Nitrite as NO2#	<0.0152	<0.0152	<0.0152	0.0225	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	0.025	0.02	0.7
Ammoniacal Nitrogen as NH4#	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.03	0.66
Dissolved Ethene#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Sample damaged	<1	<1	<1	<1	<1	<1	1	1
Dissolved Ethane#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Sample damaged	<1	<1	<1	<1	<1	<1	1	1
Dissolved Butane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	Sample damaged	<2	<2	<2	<2	<2	<2	1	2
Dissolved Propane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	Sample damaged	<2	<2	<2	<2	<2	<2	1	2
Dissolved Methane	<0.001	<0.001	0.003	0.002	0.009	0.006	0.006	0.005	0.009	<0.001	0.01	0.002	<0.001	<0.001	<0.001	<0.001	Sample damaged	<0.001	<0.001	<0.001	<0.001	<0.001	0.038	0.01	1.45
Dissolved Carbon Dioxide	102.6	26.6	26.6	29.9	32.3	27.4	34	36.9	31.1	34.4	30.5	25.4	28.3	25.2	24.6	27.3	27.4	27.6	27	24.8	31.9	18.8	102.6	17.4	63.2
δ13C - CH4	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	-	NDP	-74.6	28
δ13C - CO2	-23.6	-22.9	-23.1	-23.8	-23.1	-22.8	-23.4	-23.4	-23.4	-23	-23.1	-21.8	-22.2	-22	-21.7	-22.2	-22.7	-22.7	-22.7	-22.4	-22.3	-20.8	-23.8	-63.9	29.16
Total Alkalinity as CaCO3#	358	430	350	350	345	347	313	350	350	335	355	350	345	305	341	345	328	310	350	342	345	305	430	250	600
Acrylamide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	50	50
Laurylamine		-	-	-	-																			50	50
Hydroxyethyl ethylene diamine		-	-	-	-																			50	50
Myristyl dimethlyamine		-	-	-	-																			50	50
Octyldimethylamine		-	-	-	-																			50	50
para phenylene diamine		-	-	-	-																			50	50
BOD (Settled)#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	32
COD (Settled)#	26.6	78.9	<7	7.27	8.69	<7	<7	11.6	<7	<7	<7	<7	<7	<7	20.5	<7	<7	8.47	<7	<7	<7	<7	78.9	5	22
pH#	7.68	7.8	7.76	7.45	7.85	7.81	7.67	7.73	7.72	7.48	7.7	7.8	7.88	7.65	7.73	7.9	7.57	7.75	7.79	7.73	7.64	7.45	8.16	6.81	7.95
Salinity	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.1	11.2
Total Dissolved Solids#	607	632	604	586	591	616	567	590	581	636	602	548	623	585	587	609	528	656	577	639	495	495	659	384	2242
Total Suspended Solids#	116	1320	28.2	<2	5.8	<2	<2	<2	<2	<2	<2	5	<2	<2	<2	<2	<2	<2	<2	2.2	<2	<2	1320	10	7669

Substance/ Parameter	Borehole 3A (CMT1)										Borehole 4A										Preston New Road Q3			
																					Q3 Data		Pre Frack	
																					Aquifer A upper		Aquifer A upper	
	03-Jul-19	30-Jul-19	07-Aug-19	13-Aug-19	21-Aug-19	28-Aug-19	03-Sep-19	11-Sep-19	18-Sep-19	25-Sep-19	03-Jul-19	30-Jul-19	07-Aug-19	13-Aug-19	21-Aug-19	28-Aug-19	03-Sep-19	11-Sep-19	18-Sep-19	25-Sep-19	Min	Max	Min	Max
Dissolved Aluminium#	<10	<10	<10	<10	26.6	<10	<10	<10	<10	<10	<10	<10	13.6	10	10.6	<10	16.6	<10	<10	<10	<10	26.60	20	45
Dissolved Mercury#	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	1
Dissolved Antimony#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	3
Dissolved Arsenic#	0.751	1.16	1.05	0.94	<0.5	0.866	0.83	0.86	0.72	0.74	<0.5	<0.5	<0.5	<0.5	<0.5	0.501	0.606	<0.5	<0.5	<0.5	<0.5	14.8	2.5	12.7
Dissolved Barium#	49.2	51.1	52.4	50.9	43.9	48	48.7	49.9	52	50.8	154	151	145	148	132	159	147	145	138	146	43.90	214	37	421
Dissolved Beryllium	<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	0.5	0.5
Dissolved Boron	55.5	53.8	51.9	58.2	40.3	41.8	47	52	66.8	55.3	29.1	28.9	27.5	30.4	20.7	26.7	36.3	27.8	28.1	31.7	20.70	66.80	12	60
Dissolved Cadmium#	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.5	0.5
Total Dissolved Chromium#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.07	1.5	6.8
Dissolved Cobalt#	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.741	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.74	2	2
Dissolved Copper#	<0.3	<0.3	0.404	0.315	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.532	<0.3	<0.3	0.634	2.74	0.368	0.807	<0.3	1.40	7	8
Dissolved Lead#	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	0.427	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.427	5	5
Dissolved Lithium	14.5	14.3	14	13.8	12.9	13.1	12.8	14.7	13.7	15.2	9.19	9.2	8.74	8.73	8.21	8.94	8.56	9.34	9.54	9.67	8.09	15.2	5	48
Dissolved Nickel#	<0.4	0.713	0.749	0.884	4.52	0.824	0.776	0.631	0.92	1.56	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	4.52	2	11
Dissolved Selenium#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	10
Dissolved Strontium	575	555	570	585	499	547	540	571	607	589	236	222	226	232	198	237	221	229	210	228	198	607	202	649
Dissolved Vanadium#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.5	2.3
Dissolved Zinc#	6.27	8.75	9.26	6.96	5.94	7.45	5.14	5.9	5.24	7.64	1.21	1.82	1.14	2.3	5.09	3.24	1.8	1.78	1.37	<1	<1	9.26	0	33
Dissolved Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	5
Dissolved Sodium#	31.3	30.5	31.5	31.2	29.2	29.8	29.3	33.8	32.5	31.9	41.1	39.6	40	40	38	40.3	38.9	42.8	40	40.3	25.60	42.8	24.1	42.3
Dissolved Magnesium#	35.6	34.2	35.5	35.3	32.5	33.5	32.5	37.3	36.3	35.1	36.2	35.2	35.8	36.1	33.8	36.7	34.8	38.5	35.4	35.8	32.50	39.00	32.1	39.7
Dissolved Potassium#	2.05	2.15	1.97	2.06	1.68	1.82	1.85	2.13	1.98	2.14	2.02	1.77	1.76	2.04	1.47	2.1	1.76	2.37	2.11	1.79	1.68	3.66	1.4	3.3
Dissolved Calcium#	127	122	125	122	103	117	113	128	116	122	131	121	119	124	105	129	118	129	128	122	103.00	136.00	101.9	138
Total Dissolved Iron#	<19	78.5	<19	<19	<19	27	<19	<19	<19	210	<19	193	<19	<19	<19	<19	26.4	<19	<19	<19	<19	566.00	20	2012
EPH (C8-C40)#	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	620
GRO (C4-C8) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	87
GRO (C8-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	18
GRO (C4-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	101
MTBE#	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.1	5
Benzene#	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	0.5	5
Toluene#	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	5	5
Ethylbenzene#	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1	5
m/p-Xylene#	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	2	5
o-Xylene#	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	1	5
Fluoride	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.03	0.4
Bromide	0.166	0.162	0.155	0.145	0.191	0.183	0.148	0.171	0.162	0.163	0.197	0.175	0.163	0.19	0.193	0.192	0.185	0.216	0.211	0.174	0.135	0.216	0.05	0.18
Chloride#	57.7	59.3	56.2	53.8	54.2	54.6	55	58	56.3	56.4	80.5	80.6	80.6	75.1	77.6	75.6	78.1	80.2	79	79.9	48.6	80.6	24.6	96.3
Nitrate as NO3#	0.424	0.464	0.436	0.396	0.382	0.374	0.402	0.411	0.476	0.453	7.02	6.99	6.92	6.95	6.66	6.55	6.74	6.47	6.85	6.68	<0.0677	27	0.2	46.5
Nitrite as NO2#	0.0222	0.0201	0.0222	0.024	0.0192	0.0192	0.0243	0.0198	0.025	0.0228	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	0.025	0.02	0.7
Ammoniacal Nitrogen as NH4#	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.279	<0.2	<0.2	<0.2	0.03	0.66
Dissolved Ethene#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
Dissolved Ethane#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
Dissolved Butane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	1	2
Dissolved Propane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	1	2
Dissolved Methane	<0.001	0.029	0.035	0.038	0.034	0.028	0.029	0.027	0.022	0.03	0.043	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.038	0.01	1.45
Dissolved Carbon Dioxide	21.5	19.9	22.3	24.2	25.8	23	24.5	22.3	18.8	22.1	30.7	26.8	29.4	29.9	32.3	30.6	28.6	29.8	31.4	33	18.8	102.6	17.4	63.2
δ13C - CH4	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	-	NDP	-74.6	28
δ13C - CO2	-21.2	-20.9	-21.1	-21.2	-20.9	-21.2	-21.2	-21.2	-21.3	-22.6	-23.1	-22.4	-23.2	-23.2	-22.8	-23.3	-23	-23	-22.8	-20.8	-20.8	-23.8	-63.9	29.16
Total Alkalinity as CaCO3#	326	320	340	323	330	316	330	330	324	325	354	360	355	348	355	329	405	360	356	355	305	430	250	600
Acrylamide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	50	50
Laurylamine																							50	50
Hydroxyethyl ethylene diamine																							50	50
Myristyl dimethlyamine																							50	50
Octyldimethylamine																							50	50
para phenylene diamine																							50	50
BOD (Settled)#	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	32
COD (Settled)#	<7	9.15	<7	10.8	<7	8.15	<7	<7	<7	13.4	<7	<7	9.95	10.4	7.3	8.49	<7	<7	20.3	<7	<7	78.9	5	22
pH#	7.67	7.7	7.68	7.63	7.9	7.78	7.87	7.8	7.67	8.16	7.56	7.67	7.57	7.6	7.83	7.85	7.92	7.56	7.91	7.76	7.45	8.16	6.81	7.95
Salinity	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.1	11.2
Total Dissolved Solids#	633	646	588	642	600	566	589	582	636	618	627	636	600	647	659	572	603	575	635	640	495	659	384	2242
Total Suspended Solids#	<2	<2	<2	<2	2.55	<2	<2	<2	<2	<2	<2	<2	<2	<2	5.7	4.45	<2	<2	<2	<2	<2	1320	10	7669

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. High COD in BH 1A is considered to be a function of silt samples. Borehole 2A is seen to have marginally higher Potassium than previous detected, and should be monitored further to see if this is a natural background trend. Borehole 4A is seen to have marginally higher Bromide than previous detected, and should be monitored further to see if this is a natural background trend.

*"Q3 Data" columns are the minimum and maximum readings for each determinand for comparison against the pre-hydraulic fracturing background minimum and maximum results.

Cuadrilla Preston New Road Groundwater Quality Monitoring Q3 2019 - Lower Aquifer

Permit Number																										
Facility																							Preston New Rd Q3			
																							Q3 Assess			
																							Lwr Aquifer		Pre Frack	
Substance/ Parameter	BH 1										BH 2B										Min	Max	Background	
	03-Jul-19	31-Jul-19	07-Aug-19	14-Aug-19	22-Aug-19	28-Aug-19	03-Sep-19	11-Sep-19	18-Sep-19	25-Sep-19	04-Jul-19	31-Jul-19	08-Aug-19	14-Aug-19	21-Aug-19	29-Aug-19	04-Sep-19	12-Sep-19	18-Sep-19	26-Sep-19			Min	Max
Dissolved Aluminium #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10.2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	15.8	20	45
Dissolved Mercury #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	1
Dissolved Antimony #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	4
Dissolved Arsenic #	1.47	0.838	0.712	0.833	0.804	0.702	0.758	0.718	0.631	0.561	0.627	16.3	0.828	0.886	13.6	15.3	16.6	14.8	15.8	15.8	0.561	16.6	2.5	21.2
Dissolved Barium #	116	128	128	138	134	148	136	140	148	141	112	75.2	108	113	68	79.1	74.6	71.1	77.1	77.6	61.7	148	49	397
Dissolved Beryllium	<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	0.5	0.6
Dissolved Boron	53.3	39.8	34.3	41.5	31.9	30	32.1	33.1	37.2	36.7	34.7	48.4	44	46.1	39.6	42.3	43.4	45.2	40.4	51.8	30	53.3	19	55
Dissolved Cadmium #	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.5	0.6
Total Dissolved Chromium #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.5	6.6
Dissolved Cobalt #	0.502	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.502	2	2
Dissolved Copper #	<0.3	<0.3	0.625	<0.3	0.325	<0.3	1.65	<0.3	0.506	0.471	<0.3	<0.3	0.744	0.623	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	1.65	7	22
Dissolved Lead #	0.322	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.25	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.322	5	6
Dissolved Lithium	10.8	9.9	9.81	9.29	9.67	9.56	9.25	9.97	9.18	10.2	11.1	14.1	11.5	10.3	12.7	13.2	13.5	14	14.4	14	9.18	16.1	5	55
Dissolved Nickel #	<0.4	0.884	1.24	1.19	0.937	0.894	0.774	0.641	0.932	0.627	<0.4	<0.4	<0.4	0.487	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	1.24	2	20
Dissolved Selenium #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	4
Dissolved Strontium	271	275	253	251	239	252	228	239	250	244	299	626	303	301	539	632	621	617	632	676	228	676	207	683
Dissolved Vanadium #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.5	2.7
Dissolved Zinc #	4.73	4.88	11.4	4.37	4.72	3.29	4.66	4.98	4.45	10.1	13.2	2	4.04	1.93	6.66	1.76	2.27	<1	1.04	1.56	<1	13.2	0	28
Dissolved Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	5
Dissolved Sodium #	37.9	37.5	37.8	36.2	33.3	34.9	34.1	38	35	33	27.4	29.6	27.1	25.7	27.7	28.7	28.6	28.4	27.7	28.5	25.4	38	24.9	53.1
Dissolved Magnesium #	38.2	37.9	37	32.2	35.2	36.6	35.1	39.5	37.1	35.2	38	36.9	36.8	31.9	33.7	35.6	35.8	35.8	35.3	36	31.7	39.5	31.4	40
Dissolved Potassium #	1.89	2.15	2.16	2.25	2.09	2.49	2.13	2.49	2.3	2.4	3.34	2.01	3.3	3.12	1.68	2.11	2	1.98	2.13	2.2	1.64	3.34	1.6	3.7
Dissolved Calcium #	113	112	110	107	107	119	110	122	110	113	131	124	123	116	108	129	127	123	124	134	101	138	98.2	136
Total Dissolved Iron #	28.8	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	557	<19	<19	<19	567	602	557	557	590	<19	756	20	3472
EPH (C8-C40) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	18	<10	<10	<10	<10	<10	<10	<10	<10	<10	15	10	11
GRO (C4-C8) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	60
GRO (C8-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	51
GRO (C4-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	97
MTBE #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.1	5
Benzene #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	0.5	5
Toluene #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	5	5
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1	5
m/p-Xylene #	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	2	5
o-Xylene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	1	5
Fluoride	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	1.1
Bromide	0.123	0.149	0.144	0.187	0.223	0.16	0.163	0.137	0.155	0.15	0.2	0.149	0.173	0.179	0.17	0.163	0.158	0.138	0.158	0.148	0.123	0.223	0.05	0.17
Chloride #	39.2	48.8	48.5	51.5	52.8	51.7	52	56.3	56.8	55.6	52.8	51.9	52.7	52.7	47.9	49	48.5	50.3	49.6	50.6	39.2	56.8	10	63.8
Nitrate as NO3 #	<0.0677	2.95	4.38	5.45	4.92	6.1	6.65	7.1	7.02	6.73	9.89	<0.0677	9.35	9.61	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	9.89	0.2	15.1
Nitrite as NO2 #	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	0.0292	0.02	0.24
Ammoniacal Nitrogen as NH4 #	<0.2	<0.2	<0.2	0.22	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.03	0.41
Dissolved Ethene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
Dissolved Ethane #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
Dissolved Butane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	2
Dissolved Propane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	2
Dissolved Methane	6.727	2.204	2.206	1.956	0.733	0.638	1.243	<0.001	0.212	0.209	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.727	0.01	6.66
Dissolved Carbon Dioxide	30.5	26.5	29.1	31.7	30.8	28.1	25.1	25.1	29.6	30.6	27.9	24.1	28.3	28.8	23.8	26.5	22.6	23.8	23.3	27.2	18.3	30.6	9.8	47.9
613C - CH4	-63.1	-62.4	-65.3	-55.4	NDP	-62.3	-48.2	-48.2	-43.9	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	-65.3	-73.6	0
613C - CO2	-22.6	-23.2	-23.9	-23.2	-22.7	-23.4	-23.3	-23.3	-23.2	-22.9	-22.5	-20.9	-22.9	-23.9	-21.3	-21.8	-21.8	-21.8	-21.6	-21.4	-20.7	-21.4	-35.3	27.2
Total Alkalinity as CaCO3 #	359	365	365	348	358	327	360	360	352	355	350	350	313	332	365	310	336	350	335	355	313	365	262	510
Acrylamide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	50	50
Laurylamine																					-	-	50	50
Hydroxyethyl ethylene diamine	-	-	-	-	-	-	-	-													-	-	50	50
Myristyl dimethlyamine	-	-	-	-	-	-	-	-													-	-	50	50
Octyldimethylamine	-	-	-	-	-	-	-	-													-	-	50	50
para phenylene diamine	-	-	-	-	-	-	-	-													-	-	50	50
BOD (Settled) #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	15
COD (Settled) #	<7	12.6	12.3	10.9	<7	<7	<7	<7	7.44	<7	<7	8.84	<7	8.35	<7	<7	<7	<7	<7	<7	<7	12.6	7	26
pH #	7.59	8.01	7.78	7.62	8.05	8.04	7.93	7.68	7.54	7.98	7.63	7.91	7.74	8.03	7.89	8.03	8.01	7.85	7.87	7.65	7.45	8.05	6.84	8.06
Salinity	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.1	10.2
Total Dissolved Solids #	564	566	548	566	575	547	573	574	617	632	341	626	543	589	622	536	635	561	596	595	341	655	393	901
Total Suspended Solids #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.05	<2	<2	14.2	5.25	<2	<2	<2	2.25	<2	21	10	8891

Permit Number																									
Facility																							Preston New Rd Q3		
																							Q3 Assess		
																							Lwr Aquifer		Pre Frack
Substance/ Parameter	BH 3B (CMT 5)										BH 4B												Min	Max	Background
	03-Jul-19	30-Jul-19	07-Aug-19	13-Aug-19	21-Aug-19	28-Aug-19	03-Sep-19	11-Sep-19	18-Sep-19	25-Sep-19	03-Jul-19	30-Jul-19	07-Aug-19	13-Aug-19	21-Aug-19	28-Aug-19	03-Sep-19	11-Sep-19	18-Sep-19	25-Sep-19					Min Max
Dissolved Aluminium #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	15.8	<10	<10	<10	<10	15.8	20	45
Dissolved Mercury #	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1	1
Dissolved Antimony #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	4
Dissolved Arsenic #	1.45	1.44	1.58	1.5	0.737	1.77	1.43	1.52	1.38	1.45	14.5	13.8	13.7	13.8	11.9	13.9	12.6	14.5	13.8	14.5	0.561	16.6	2.5	21.2
Dissolved Barium #	62.7	63.4	64.7	64	56.1	66	62.1	61.9	64.1	63.4	72.4	71.5	69.3	70.9	61.7	69.3	65.8	67.4	63.6	74.5	61.7	148	49	397
Dissolved Beryllium	<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	0.5	0.6
Dissolved Boron	50.2	47.6	46.2	45.5	37.5	43.3	42.8	45.6	53.3	52.3	44.9	46.3	43.2	44.7	36.4	43.8	43.3	41.1	41.8	44.9	30	53.3	19	55
Dissolved Cadmium #	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.5	0.6
Total Dissolved Chromium #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.5	6.6
Dissolved Cobalt #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.502	2	2
Dissolved Copper #	<0.3	<0.3	0.406	0.436	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	1.65	7	22
Dissolved Lead #	<0.2	0.215	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.322	5	6
Dissolved Lithium	13.9	14	13.7	13.4	12.4	13.6	12.9	14.2	13.6	15.2	13.8	13.9	13.4	13.6	12.1	14.3	12.8	13.7	14.2	16.1	9.18	16.1	5	55
Dissolved Nickel #	<0.4	<0.4	<0.4	0.522	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.404	<0.4	<0.4	0.439	0.516	0.458	<0.4	<0.4	<0.4	<0.4	1.24	2	20
Dissolved Selenium #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	4
Dissolved Strontium	517	499	499	517	453	516	489	512	537	521	570	555	563	563	486	557	527	554	520	616	228	676	207	683
Dissolved Vanadium #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.5	2.7
Dissolved Zinc #	1.89	1.36	3.84	6.66	4.3	<1	2.82	<1	1.01	2.87	4.08	1.9	1.73	2.04	1.05	5.24	4.73	1.53	1.28	<1	<1	13.2	0	28
Dissolved Silver	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	5
Dissolved Sodium #	27.5	27.1	27.1	26.4	25.9	26.8	26.1	29	27.8	26.5	27.2	26.4	26.9	26.4	25.8	27.5	25.4	26.7	26.4	24.3	25.4	38	24.9	53.1
Dissolved Magnesium #	34.5	33.7	34.7	33.3	31.7	33.8	32.4	35.8	34.6	32.2	36.9	36.1	37.3	37	34.5	38.3	34.5	36.7	36.1	33.6	31.7	39.5	31.4	40
Dissolved Potassium #	2.05	2.07	1.99	2.18	1.72	2.23	1.87	2.14	2.07	2.03	2.07	1.98	1.93	1.99	1.64	2.1	1.84	1.99	1.88	2.12	1.64	3.34	1.6	3.7
Dissolved Calcium #	122	117	121	120	101	122	113	123	115	116	131	125	122	127	106	125	118	127	128	138	101	138	98.2	136
Total Dissolved Iron #	518	483	517	496	442	507	482	512	533	492	756	712	703	692	569	625	625	694	635	694	<19	756	20	3472
EPH (C8-C40) #	<10	<10	<10	15	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	15	10	11
GRO (C4-C8) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	60
GRO (C8-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	51
GRO (C4-C12) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	97
MTBE #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.1	5
Benzene #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	0.5	5
Toluene #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	5	5
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1	5
m/p-Xylene #	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	2	5
o-Xylene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	1	5
Fluoride	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.3	1.1
Bromide	0.13	0.131	0.144	0.153	0.197	0.161	0.147	0.133	0.147	0.129	0.136	0.131	0.136	0.176	0.154	0.156	0.157	0.163	0.14	0.132	0.123	0.223	0.05	0.17
Chloride #	49.7	50.5	49.2	47.3	48.2	47.8	48.3	50	50.5	49	45.1	45.9	44.7	43.4	44.1	43.9	44	45.6	46.2	44.8	39.2	56.8	10	63.8
Nitrate as NO3 #	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	0.117	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	<0.0677	9.89	0.2	15.1
Nitrite as NO2 #	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	0.0292	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	<0.0152	0.0292	0.02	0.24
Ammoniacal Nitrogen as NH4 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.03	0.41
Dissolved Ethene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
Dissolved Ethane #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1
Dissolved Butane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	2
Dissolved Propane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	2
Dissolved Methane	0.002	0.025	0.025	0.024	0.024	0.02	0.029	0.024	0.07	0.024	0.092	0.002	<0.001	<0.001	<0.001	<0.001	0.004	0.005	<0.001	0.004	<0.001	6.727	0.01	6.66
Dissolved Carbon Dioxide	18.3	21.4	20	21.2	18.4	15.8	22.1	21.9	23.2	22.3	26.6	28.2	27.1	28.6	28.9	24.1	25.4	23.1	26.9	29.5	18.3	30.6	9.8	47.9
613C - CH4	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	NDP	-65.3	-73.6	0
613C - CO2	-21.3	-21	-21.1	-21	-20.7	-21.3	-21.3	-21.3	-21.1	-21.2	-21.7	-21.3	-21.6	-21.6	-21.4	-21.6	-21.8	-21.8	-21.5	-20.8	-20.7	-21.4	-35.3	27.2
Total Alkalinity as CaCO3 #	320	320	325	316	315	303	320	315	319	320	339	345	340	335	345	318	345	345	337	345	313	365	262	510
Acrylamide	<0.05	<0.05	<0.05	0.052	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	50	50
Laurylamine																					-	-	50	50
Hydroxyethyl ethylene diamine																					-	-	50	50
Myristyl dimethlyamine																					-	-	50	50
Octyldimethylamine																					-	-	50	50
para phenylene diamine																					-	-	50	50
BOD (Settled) #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	15
COD (Settled) #	<7	<7	7.97	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	7.14	<7	7.67	<7	<7	12.6	7	26
pH #	7.69	7.76	7.75	7.66	7.97	7.79	8.08	7.78	7.61	7.92	7.58	7.57	7.68	7.67	7.73	7.76	7.88	7.45	7.74	8.08	7.45	8.05	6.84	8.06
Salinity	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.1	10.2
Total Dissolved Solids #	599	595	551	616	602	546	564	556	594	569	617	622	579	650	651	577	604	510	634	655	341	655	393	901
Total Suspended Solids #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	11.8	<2	2.55	<2	21	<2	<2	21	10	8891

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.

*"Q3 Assess" columns are the minimum and maximum readings for each determinand for comparison against the pre-hydraulic fracturing background minimum and maximum results.