



To: Shaun Denny
CC: Andrew Williams
Date: 03/10/2024
From: Tenant Sibanda
Business Area: Land and Mineral Resources
Address: Pinnacle House, Main street, Breedon on the Hill, Derby, DE73 8AP
Re: Gilfach Quarry: Cefn Faes Uchaf Farm Spring Water Levels and Groundwater Level Data

Please find enclosed data pursuant to conditions 39 and 40 of the planning permission reference no. 2010/655 relating to groundwater level monitoring and spring water level monitoring at Cefn Faes Uchaf Farm.

Groundwater level monitoring

Groundwater level is currently monitored on a monthly basis at 7no. observation boreholes around the quarry. Enclosed groundwater level data include:

- Monthly groundwater level data from August 2007 to August 2024.
- Long term hydrograph with all monitoring boreholes on the current monitoring network.
- Hydrographs for BH01/07 and BH10/07 showing compliance with set trigger levels.

Commentary on hydrographs

Long term hydrographs do not show much change from 2007 to present. Seasonal fluctuation in groundwater levels are observed throughout the monitoring period. Groundwater levels for compliance borehole BH01/07 have remained above the warning and action trigger levels throughout the monitoring period. Groundwater levels in BH10/07 were recorded below the warning trigger levels in July 2023, June 2024 and July 2024 mainly due to seasonal fluctuations. Warning trigger levels have been triggered in previous years (2008, 2018, 2022) due to prolonged drier summer months. However, groundwater levels do bounce back above warning trigger levels in response to rainfall recharge.

Spring water level monitoring at Cefn Faes Uchaf Farm

Spring water levels are monitored every 15 minutes via an automatic datalogger which is linked to telemetry. The water levels are measured with reference to the datum of the logger sensor which is recorded as meters above ordinance datum (mAOD). The level sensor has a datum level of 197.41 mAOD, this datum was fixed in August 2020 when a new logger was installed. Hydrographs for spring water levels covering the period from August 2020 to September 2024 are enclosed.

The observed water level fluctuations are in response to pumping from the spring chamber to the Farm house. Water levels in the spring chamber sometimes fall below the sensor level due to a combination of pumping and seasonal fluctuations. However, water levels remain above the sensor level most of the time.

Spring water levels also show a good correlation with rainfall recharge. High water levels are observed in winter months (December & January) and low levels are observed around May and June as shown on the enclosed long term hydrographs.

Concluding remarks

Groundwater levels have remained within seasonal fluctuation range from 2007 to present. There is no apparent downward trend in groundwater levels as a result of quarry operations. Spring water levels show rapid fluctuations in response to rainfall recharge and pumping. The hydrogeological conceptual model for the site has not changed over time.

BH ID	BH01/07		BH02/07		BH03/07		BH04/07		BH05/07		BH06/07		BH07/07		BH10/07	
Ref. Elev. mAOD	160.47		191.03		199.92		191.7		187.98		181.76		149.49		154.44	
Piezo depth (mbgl)	27.0		33.0		36.5		30.5		41.0		54.5		46.0		35.0	
	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
22-Aug-07	12.57	147.90	8.03	183.00	2.52	197.40	0.8	190.90	23.58	164.40	55.06	126.70	32.49	117.00	11.54	142.90
10-Nov-07	22.17	138.30	12.23	178.80	1.32	198.60	1.2	190.50	28.68	159.30	54.36	127.40	33.89	115.60	12.44	142.00
16-Jan-08	11.07	149.40	4.93	186.10	2.42	197.50	0.3	191.40	19.08	168.90	51.16	130.60	27.49	122.00	6.94	147.50
08-Feb-08	11.67	148.80	7.73	183.30	3.72	196.20	0.8	190.90	25.88	162.10	52.26	129.50	28.89	120.60	8.84	145.60
07-Mar-08	12.37	148.10	9.93	181.10	4.02	195.90	1	190.70	27.68	160.30	54.06	127.70	30.79	118.70	10.54	143.90
28-Mar-08	12.57	147.90	10.93	180.10	10.22	189.70	0.8	190.90	27.48	160.50	53.86	127.90	30.19	119.30	11.24	143.20
06-May-08	14.07	146.40	15.13	175.90	11.32	188.60	1.6	190.10	28.58	159.40	53.46	128.30	33.09	116.40	14.44	140.00
02-Jun-08	15.67	144.80	17.23	173.80	11.32	188.60	1.8	189.90	30.18	157.80	54.16	127.60	34.99	114.50	15.34	139.10
29-Jun-08	16.47	144.00	17.93	173.10	3.82	196.10	1.3	190.40	30.38	157.60	54.53	127.23	32.99	116.50	15.84	138.60
03-Aug-08	15.37	145.10	12.73	178.30	3.02	196.90	0.9	190.80	28.28	159.70	54.16	127.60	31.99	117.50	14.14	140.30
14-Sep-08	11.97	148.50	8.63	182.40	1.32	198.60	0.8	190.90	24.58	163.40	54.16	127.60	30.89	118.60	10.24	144.20
19-Oct-08	11.07	149.40	4.73	186.30	3.32	196.60	0.3	191.40	22.78	165.20	54.14	127.62	28.29	121.20	8.44	146.00
07-Dec-08	11.97	148.50	9.13	181.90	3.4	196.52	0.9	190.80	26.28	161.70			29.29	120.20	10.34	144.10
13-Feb-09	12.22	148.25	8.98	182.05	1.16	198.76							29.22	120.27		
09-Apr-09	13.46	147.01	13.44	177.59	4.76	195.16	5.09	186.61	27.98	160.00			32.95	116.54	13.62	140.82
14-May-09	12.70	147.77	11.83	179.20	4.12	195.80	1.27	190.43	26.27	161.71			33.49	116.00	12.03	142.41
12-Jun-09	12.48	147.99	9.96	181.07	3.13	196.79	1.1	190.60	25.98	162.00			36.02	113.47	11.88	142.56
10-Jul-09	12.60	147.87	9.44	181.59	2.85	197.07	1.03	190.67	26.08	161.90			31.89	117.60	11.8	142.64
07-Aug-09	11.80	148.67	8.28	182.75	3.19	196.73	0.8	190.90	21.39	166.59			28.32	121.17	9.7	144.74
17-Sep-09	12.48	147.99	9.4	181.63	6.72	193.20	1.02	190.68	24.06	163.92			31.86	117.63	11.21	143.23
15-Oct-09	14.92	145.55	14.66	176.37	2.19	197.73	1.37	190.33	27.03	160.95			33.43	116.06	14.1	140.34
06-Nov-09	11.62	148.85	7.55	183.48	2.79	197.13	0.82	190.88	21.45	166.53			29.94	119.55	8.42	146.02
04-Dec-09	3.29	157.18	8.23	182.80	3.64	196.28	0.78	190.92	19.95	168.03			27.93	121.56	9.03	145.41
03-Feb-10			9.12	181.91	3.49	196.43	0.92	190.78	20.39	167.59	54.11	127.65	29.62	119.87	10.81	143.63
18-Feb-10			9.78	181.25	4.42	195.50	0.94	190.76	20.72	167.26			30.37	119.12	11.36	143.08
05-Mar-10			11.19	179.84	3.96	195.96	1.24	190.46	24.94	163.04	54.13	127.63	32.07	117.42	11.53	142.91
22-Apr-10			10.36	180.67	11.1	188.82	1.22	190.48	25.11	162.87	54.1	127.66	30.3	119.19	12.59	141.85
17-May-10	3.20	157.27			11.44	188.48	1.78	189.92	26.19	161.79			32.22	117.27	14.22	140.22
04-Jun-10			18.22	172.81	11.97	187.95	2.1	189.60	28.18	159.80			32.47	117.02	14.97	139.47
15-Jul-10			19.51	171.52	11.31	188.61	1.84	189.86	32.04	155.94			33.84	115.65	15.54	138.90
20-Aug-10			19.28	171.75	3.45	196.47	1.24	190.46	31.21	156.77			31.61	117.88	15.22	139.22
02-Sep-10			10.01	181.02	3.67	196.25	0.87	190.83	20.44	167.54			30.05	119.44	10.11	144.33
12-Oct-10			10.02	181.01	3.02	196.90	0.85	190.85	20.53	167.45			30.27	119.22	10.79	143.65
05-Nov-10			8.91	182.12	4.21	195.71	0.79	190.91	20.09	167.89	52.34	129.42	30.97	118.52	9.33	145.11
10-Dec-10			10.98	180.05	1.34	198.58	0.99	190.71	23.99	163.99			31.05	118.44	11.62	142.82
14-Jan-11	3.17	157.30	3.9	187.13	1.99	197.93	0.15	191.55	16.09	171.89			28.3	121.19	5.41	149.03

GILFACH QUARRY: MONTHLY GROUNDWATER LEVEL MONITORING DATA

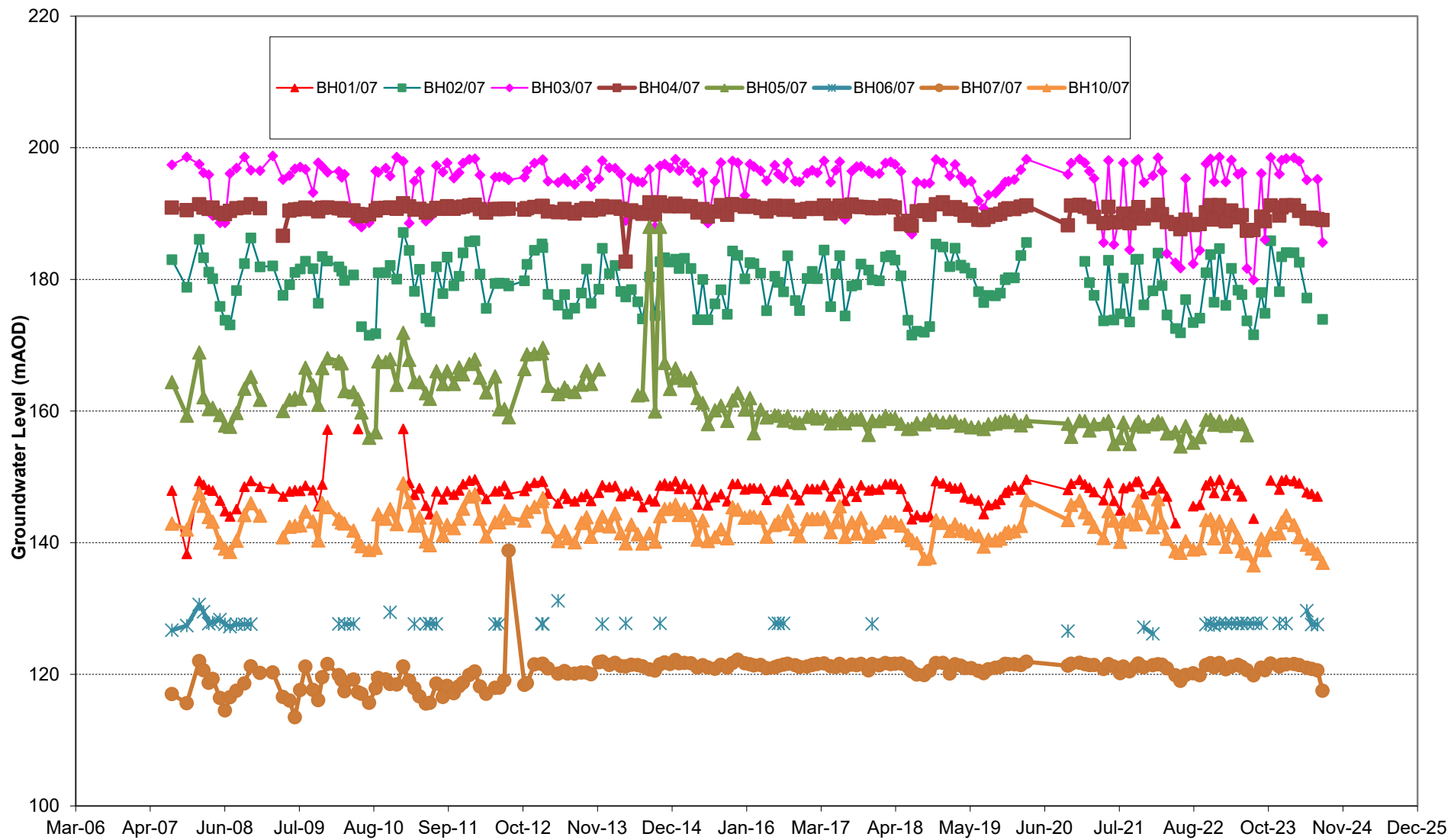
BH ID	BH01/07		BH02/07		BH03/07		BH04/07		BH05/07		BH06/07		BH07/07		BH10/07	
Ref. Elev. mAOD	160.47		191.03		199.92		191.7		187.98		181.76		149.49		154.44	
Piezo depth (mbgl)	27.0		33.0		36.5		30.5		41.0		54.5		46.0		35.0	
	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
15-Feb-11	11.37	149.10	6.63	184.40	11.37	188.55	0.62	191.08	20.21	167.77			30.44	119.05	8.27	146.17
15-Mar-11	13.20	147.27	12.84	178.19	4.99	194.93	1.11	190.59	23.57	164.41	54.13	127.63	31.60	117.89	11.83	142.61
11-Apr-11	12.19	148.28	9.50	181.53	3.53	196.39	0.99	190.71	23.59	164.39			32.86	116.63	10.61	143.83
16-May-11	14.85	145.62	16.92	174.11	11.06	188.86	1.57	190.13	25.27	162.71	54.13	127.63	33.95	115.54	14.24	140.20
06-Jun-11	16.15	144.32	17.46	173.57	10.52	189.40	1.24	190.46	26.13	161.85	54.07	127.69	33.83	115.66	14.83	139.61
11-Jul-11	12.66	147.81	9.10	181.93	2.65	197.27	0.86	190.84	21.92	166.06	54.1	127.66	30.90	118.59	10.61	143.83
15-Aug-11	13.88	146.59	13.19	177.84	3.62	196.30	0.98	190.72	23.89	164.09			32.94	116.55	13.33	141.11
07-Sep-11	12.65	147.82	7.65	183.38	2.19	197.73	0.60	191.10	21.90	166.08			31.26	118.23	11.75	142.69
13-Oct-11	13.18	147.29	11.99	179.04	4.53	195.39	0.98	190.72	23.86	164.12			32.36	117.13	12.22	142.22
10-Nov-11	12.52	147.95	10.56	180.47	3.69	196.23	0.76	190.94	21.34	166.64			31.31	118.18	10.77	143.67
01-Dec-11	11.57	148.90	6.99	184.04	2.25	197.67	0.66	191.04	22.39	165.59			30.78	118.71	9.27	145.17
04-Jan-12	11.04	149.43	5.30	185.73	1.67	198.25	0.46	191.24	20.83	167.15			29.61	119.88	7.42	147.02
02-Feb-12	10.86	149.61	5.16	185.87	1.59	198.33	0.38	191.32	20.14	167.84			29.07	120.42	7.11	147.33
01-Mar-12	12.40	148.07	10.22	180.81	4.07	195.85	1.03	190.67	22.91	165.07			31.35	118.14	10.77	143.67
03-Apr-12	13.82	146.65	15.44	175.59	9.42	190.50	1.57	190.13	25.15	162.83			32.47	117.02	13.49	140.95
21-May-12	12.65	147.82	11.64	179.39	4.38	195.54	1.03	190.67	22.72	165.26	54.12	127.64	31.55	117.94	11.34	143.10
12-Jun-12	12.62	147.85	11.62	179.41	4.36	195.56	1.02	190.68	27.70	160.28	54.12	127.64	31.53	117.96	11.33	143.11
10-Jul-12	11.81	148.66	11.63	179.40	4.35	195.57	1.00	190.70	27.67	160.31			30.44	119.05	9.59	144.85
02-Aug-12	13.08	147.39	12.02	179.01	4.80	195.12	0.96	190.74	28.92	159.06			10.70	138.79	10.70	143.74
25-Oct-12	12.60	147.87	11.25	179.78	4.40	195.52	1.12	190.58	21.60	166.38			31.10	118.39	11.08	143.36
08-Nov-12	11.90	148.57	8.73	182.30	3.40	196.52	0.90	190.80	19.35	168.63			30.85	118.64	9.70	144.74
18-Dec-12	11.35	149.12	6.60	184.43	2.25	197.67	0.70	191.00	19.30	168.68			28.00	121.49	9.00	145.44
28-Jan-13	11.07	149.40	5.64	185.39	1.85	198.07	0.57	191.13	19.18	168.80	54.09	127.67	27.93	121.56	8.13	146.31
01-Feb-13	11.20	149.27	6.20	184.83	1.72	198.20	0.56	191.14	18.38	169.60	54.11	127.65	27.90	121.59	7.67	146.77
01-Mar-13	13.00	147.47	13.30	177.73	5.00	194.92	1.40	190.30	24.15	163.83			28.60	120.89	12.00	142.44
24-Apr-13	14.50	145.97	14.95	176.08	5.20	194.72	1.50	190.20	25.40	162.58	50.6	131.16	29.40	120.09	14.20	140.24
29-May-13	13.02	147.45	13.33	177.70	4.53	195.39	1.00	190.70	24.40	163.58			29.01	120.48	12.70	141.74
14-Jun-13	13.78	146.69	16.30	174.73	5.10	194.82	1.51	190.19	24.93	163.05			29.39	120.10	13.75	140.69
22-Jul-13	14.18	146.29	15.39	175.64	5.49	194.43	1.71	189.99	25.09	162.89			29.41	120.08	14.38	140.06
27-Aug-13	13.51	146.96	13.09	177.94	4.57	195.35	1.17	190.53	23.98	164.00			29.23	120.26	11.42	143.02
24-Sep-13	13.07	147.40	9.46	181.57	3.36	196.56	0.91	190.79	21.87	166.11			29.23	120.26	10.57	143.87
18-Oct-13	14.12	146.35	14.66	176.37	5.81	194.11	1.24	190.46	23.86	164.12			29.49	120.00	13.55	140.89
29-Nov-13	12.87	147.60	12.52	178.51	4.67	195.25	1.08	190.62	21.64	166.34			27.68	121.81	11.78	142.66
17-Dec-13	11.74	148.73	6.30	184.73	1.89	198.03	0.57	191.13			54.13	127.63	27.57	121.92	10.49	143.95
24-Jan-14	12.02	148.45	10.16	180.87	2.96	196.96	0.79	190.91					28.09	121.40	11.97	142.47
24-Feb-14	11.84	148.63	8.93	182.10	3.03	196.89	0.66	191.04					27.77	121.72	10.00	144.44

BH ID	BH01/07		BH02/07		BH03/07		BH04/07		BH05/07		BH06/07		BH07/07		BH10/07	
Ref. Elev. mAOD	160.47		191.03		199.92		191.7		187.98		181.76		149.49		154.44	
Piezo depth (mbgl)	27.0		33.0		36.5		30.5		41.0		54.5		46.0		35.0	
	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
27-Mar-14	13.40	147.07	12.86	178.17	3.92	196.00	0.98	190.72					28.25	121.24	13.00	141.44
22-Apr-14	13.04	147.43	13.68	177.35	10.99	188.93	9.01	182.69			54.03	127.73	28.31	121.18	14.54	139.90
22-May-14	12.69	147.78	12.57	178.46	4.59	195.33	1.22	190.48					28.05	121.44	11.68	142.76
26-Jun-14	13.30	147.17	14.43	176.60	5.08	194.84	1.50	190.20	25.59	162.39			28.11	121.38	13.18	141.26
21-Jul-14	15.05	145.42	17.02	174.01	5.16	194.76	1.75	189.95	25.48	162.50			28.29	121.20	14.56	139.88
28-Aug-14	13.88	146.59	10.65	180.38	3.19	196.73		191.70		187.98			28.76	120.73	13.02	141.42
26-Sep-14	14.17	146.30	16.52	174.51	11.92	188.00	1.87	189.83	28.03	159.95			28.93	120.56	14.28	140.16
23-Oct-14	11.79	148.68	8.35	182.68	2.68	197.24		191.70		187.98	54.03	127.73	28	121.49	10.4	144.04
17-Nov-14	11.48	148.99	7.74	183.29	2.4	197.52	0.48	191.22	20.68	167.30			27.69	121.80	9.32	145.12
16-Dec-14	11.85	148.62	8.39	182.64	3	196.92	0.6	191.10	24.63	163.35			27.94	121.55	9.28	145.16
14-Jan-15	11.14	149.33	7.95	183.08	1.65	198.27	0.21	191.49	21.5	166.48			27.32	122.17	8.67	145.77
02-Feb-15	12.28	148.19	9.36	181.67	3.4	196.52	0.59	191.11	22.94	165.04			27.83	121.66	10.23	144.21
03-Mar-15	11.56	148.91	7.83	183.20	2.3	197.62	0.56	191.14	23.31	164.67			27.76	121.73	9.37	145.07
07-Apr-15	12.28	148.19	9.36	181.67	3.4	196.52	0.59	191.11	22.94	165.04			27.83	121.66	10.23	144.21
12-May-15	14.65	145.82	17.16	173.87	5.18	194.74	1.54	190.16	25.99	161.99			28.47	121.02	13.96	140.48
09-Jun-15	12.35	148.12	11.03	180	3.7	196.22	1.03	190.67	26.76	161.22			28.12	121.37	11.03	143.41
07-Jul-15	14.78	145.69	17.15	173.88	11.35	188.57	2.16	189.54	29.96	158.02			28.46	121.03	14.19	140.25
14-Aug-15	13.54	146.93	14.74	176.29	4.99	194.93	1.41	190.29	27.87	160.11			28.66	120.83	13.58	140.86
15-Sep-15	13.08	147.39	12.61	178.42	2.18	197.74	0.43	191.27	27.17	160.81			28.07	121.42	12.41	142.03
19-Oct-15	14.18	146.29	16.33	174.7	9.75	190.17	1.89	189.81	29.47	158.51			28.49	121	13.77	140.67
16-Nov-15	11.55	148.92	6.72	184.31	1.91	198.01	0.28	191.42	26.37	161.61			27.78	121.71	9.06	145.38
14-Dec-15	11.52	148.95	7.36	183.67	2.19	197.73	0.44	191.26	25.25	162.73			27.28	122.21	9.43	145.01
21-Jan-16	12.37	148.1	10.95	180.08	7.17	192.75	0.68	191.02	27.76	160.22			27.83	121.66	10.65	143.79
18-Feb-16	12.19	148.28	8.48	182.55	2.41	197.51	0.53	191.17	26.01	161.97			27.98	121.51	10.4	144.04
10-Mar-16	12.21	148.26	8.64	182.39	2.79	197.13	0.66	191.04	31.35	156.63			28.16	121.33	10.51	143.93
15-Apr-16	12.23	148.24	10.08	180.95	3.44	196.48	0.88	190.82	27.78	160.2			28.08	121.41	10.62	143.82
17-May-16	13.95	146.52	15.79	175.24	4.94	194.98	1.4	190.3	28.95	159.03			28.56	120.93	13.53	140.91
30-Jun-16	12.59	147.88	10.56	180.47	2.56	197.36	0.52	191.18	28.63	159.35	54.03	127.73	28.44	121.05	11.74	142.7
19-Jul-16	12.46	148.01	11.48	179.55	3.91	196.01	0.89	190.81	28.7	159.28	54.03	127.73	28.23	121.26	11.19	143.25
16-Aug-16	12.71	147.76	12.91	178.12	4.58	195.34	1.13	190.57	29.42	158.56	54.03	127.73	28.03	121.46	11.54	142.9
07-Sep-16	11.56	148.91	7.43	183.6	2.21	197.71	0.56	191.14	28.76	159.22			27.89	121.6	9.59	144.85
18-Oct-16	13.14	147.33	14.25	176.78	5	194.92	1.14	190.56	29.65	158.33			28.12	121.37	12.4	142.04
10-Nov-16	14	146.47	15.76	175.27	5.1	194.82	1.44	190.26	29.8	158.18			28.38	121.11	13.47	140.97
20-Dec-16	12.31	148.16	10.88	180.15	3.8	196.12	1	190.7	28.85	159.13			28.33	121.16	10.83	143.61
17-Jan-17	12.28	148.19	9.81	181.22	3.35	196.57	0.88	190.82	28.61	159.37			28.09	121.4	10.82	143.62
13-Feb-17	12.34	148.13	10.93	180.1	3.72	196.2	1.01	190.69	29.09	158.89			27.93	121.56	10.84	143.6

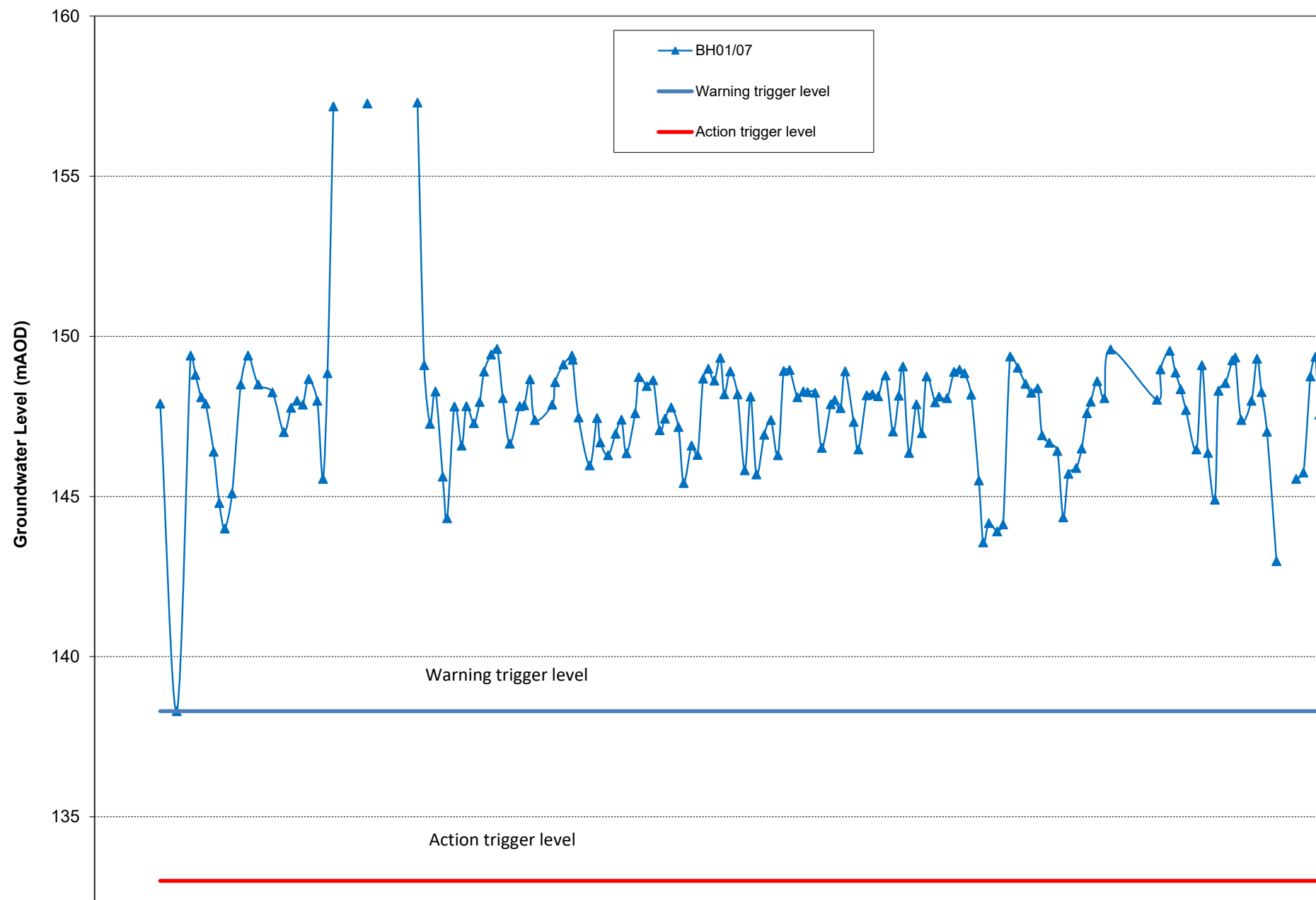
BH ID	BH01/07		BH02/07		BH03/07		BH04/07		BH05/07		BH06/07		BH07/07		BH10/07	
Ref. Elev. mAOD	160.47		191.03		199.92		191.7		187.98		181.76		149.49		154.44	
Piezo depth (mbgl)	27.0		33.0		36.5		30.5		41.0		54.5		46.0		35.0	
	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
21-Mar-17	11.69	148.78	6.56	184.47	1.91	198.01	0.49	191.21	28.84	159.14			27.85	121.64	10.57	143.87
26-Apr-17	13.44	147.03	15.17	175.86	5.15	194.77	1.69	190.01	29.85	158.13			28.29	121.2	12.83	141.61
24-May-17	12.32	148.15	10.19	180.84	3.33	196.59	0.9	190.8	29.41	158.57			28.38	121.11	11.29	143.15
13-Jun-17	11.41	149.06	7.42	183.61	2.05	197.87	0.5	191.2	28.76	159.22			27.91	121.58	8.91	145.53
12-Jul-17	14.11	146.36	16.58	174.45	10.8	189.12	1.41	190.29	29.83	158.15			28.39	121.1	13.57	140.87
17-Aug-17	12.59	147.88	12.04	178.99	3.47	196.45	0.34	191.36	29.03	158.95			28.02	121.47	11.35	143.09
12-Sep-17	13.49	146.98	11.86	179.17	2.79	197.13	0.68	191.02	29.27	158.71			28.13	121.36	13.05	141.39
05-Oct-17	11.72	148.75	8.7	182.33	2.76	197.16	0.7	191	29.1	158.88			27.91	121.58	10.68	143.76
15-Nov-17	12.53	147.94	9.61	181.42	3.42	196.5	0.75	190.95	31.62	156.36			28.9	120.59	13.54	140.9
04-Dec-17	12.35	148.12	11.09	179.94	3.79	196.13	0.89	190.81	29.43	158.55	54.1	127.66	27.94	121.55	12.99	141.45
12-Jan-18	12.4	148.07	11.25	179.78	3.85	196.07	0.9	190.8	29.5	158.48			28.14	121.35	12.75	141.69
14-Feb-18	11.58	148.89	7.6	183.43	2.24	197.68	0.51	191.19	28.7	159.28			27.79	121.7	11.26	143.18
13-Mar-18	11.51	148.96	7.41	183.62	2.07	197.85	0.63	191.07	29.17	158.81			27.96	121.53	11.35	143.09
06-Apr-18	11.62	148.85	8.08	182.95	2.43	197.49	0.79	190.91	29.08	158.9			27.89	121.6	11.32	143.12
08-May-18	12.29	148.18	10.48	180.55	3.52	196.4	3.33	188.37	29.9	158.08			27.86	121.63	11.83	142.61
14-Jun-18	14.97	145.50	17.24	173.79	12.36	187.56	2.82	188.88	30.69	157.29			28.35	121.14	13.31	141.13
05-Jul-18	16.9	143.57	19.5	171.53	13.05	186.87	3.56	188.14	30.65	157.33			29.05	120.44	14.05	140.39
01-Aug-18	16.3	144.17	18.9	172.13	5.12	194.8	1.35	190.35	29.8	158.18			29.53	119.96	14.5	139.94
10-Sep-18	16.56	143.91	19.04	171.99	5.36	194.56	1.21	190.49	29.99	157.99			29.62	119.87	16.89	137.55
09-Oct-18	16.34	144.13	18.2	172.83	5.3	194.62	1.9	189.8	29.2	158.78			28.95	120.54	16.68	137.76
12-Nov-18	11.1	149.37	5.65	185.38	1.7	198.22	0.3	191.4	29.4	158.58			27.78	121.71	11.02	143.42
19-Dec-18	11.45	149.02	6.1	184.93	2.2	197.72		191.7	29.7	158.28			27.76	121.73	11.42	143.02
25-Jan-19	11.95	148.52	9.09	181.94	4.2	195.72	1	190.7	29.56	158.42			29.38	120.11	12.65	141.79
22-Feb-19	12.23	148.24	6.29	184.74	2.45	197.47	0.75	190.95	29.53	158.45			27.98	121.51	11.63	142.81
25-Mar-19	12.09	148.38	8.87	182.16	4.33	195.59	1.12	190.58	30.2	157.78			28.2	121.29	12.43	142.01
15-Apr-19	13.56	146.91	9.32	181.71	5.2	194.72	2.04	189.66	30.04	157.94			28.54	120.95	12.65	141.79
20-May-19	13.79	146.68	10.09	180.94	5.03	194.89	1.69	190.01	30.45	157.53			28.56	120.93	13.03	141.41
28-Jun-19	14.05	146.42	12.89	178.14	7.98	191.94	2.65	189.05	30.42	157.56			28.98	120.51	13.37	141.07
26-Jul-19	16.12	144.35	14.54	176.49	9.12	190.8	2.67	189.03	30.71	157.27			29.32	120.17	15.02	139.42
20-Aug-19	14.76	145.71	13.47	177.56	7.12	192.8	2.21	189.49	29.98	158			28.74	120.75	13.97	140.47
27-Sep-19	14.58	145.89	13.52	177.51	6.81	193.11	1.89	189.81	29.87	158.11			28.52	120.97	14.09	140.35
23-Oct-19	13.97	146.5	13.12	177.91	6.03	193.89	1.72	189.98	29.59	158.39			28.39	121.1	13.82	140.62
18-Nov-19	12.87	147.6	11.07	179.96	5.13	194.79	1.12	190.58	29.41	158.57			27.92	121.57	12.99	141.45
06-Dec-19	12.51	147.96	10.78	180.25	5.01	194.91	0.91	190.79	29.65	158.33			27.98	121.51	12.76	141.68
06-Jan-20	11.87	148.6	10.79	180.24	4.76	195.16	1.02	190.68	29.35	158.63			27.98	121.51	12.67	141.77
10-Feb-20	12.4	148.07	7.4	183.63	3.25	196.67	0.65	191.05	30.15	157.83			28.1	121.39	11.9	142.54

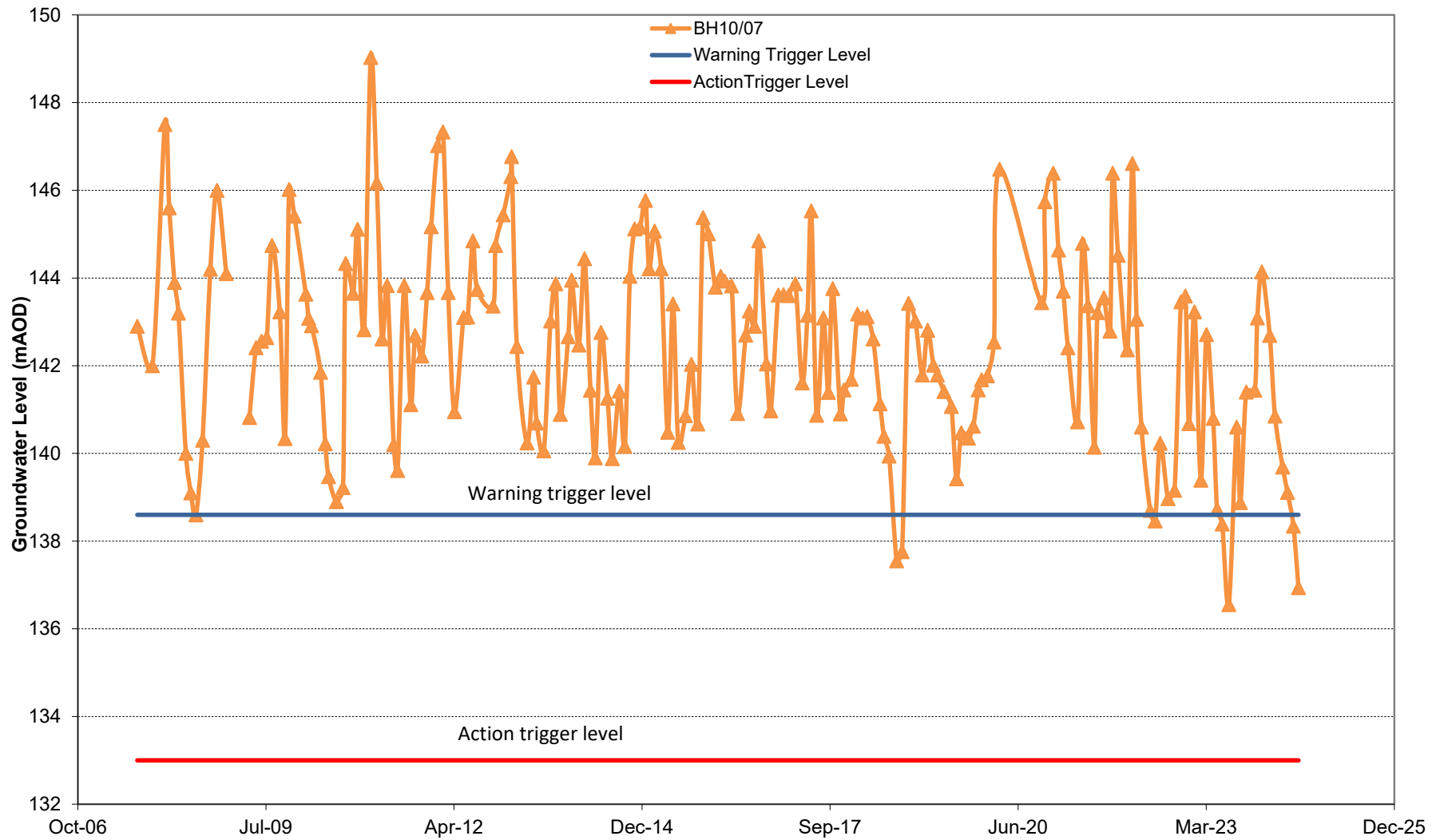
BH ID	BH01/07		BH02/07		BH03/07		BH04/07		BH05/07		BH06/07		BH07/07		BH10/07	
Ref. Elev. mAOD	160.47		191.03		199.92		191.7		187.98		181.76		149.49		154.44	
Piezo depth (mbgl)	27.0		33.0		36.5		30.5		41.0		54.5		46.0		35.0	
	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
11-Mar-20	10.88	149.59	5.42	185.61	1.66	198.26	0.47	191.23	29.5	158.48			27.58	121.91	7.96	146.48
20-Oct-20	12.45	148.02	191.03		3.95	195.97	3.49	188.21	29.91	158.07	55.2	126.56	28.2	121.29	11	143.44
06-Nov-20	11.5	148.97	191.03		2.25	197.67	0.48	191.22	31.9	156.08			27.9	121.59	8.7	145.74
21-Dec-20	10.92	149.55	191.03		1.62	198.3	0.39	191.31	29.45	158.53			27.75	121.74	8.05	146.39
18-Jan-21	11.6	148.87	8.3	182.73	2.22	197.7	0.68	191.02	29.5	158.48			27.95	121.54	9.8	144.64
12-Feb-21	12.12	148.35	11.52	179.51	3.47	196.45	0.92	190.78	30.92	157.06			28.1	121.39	10.74	143.7
09-Mar-21	12.77	147.7	13.45	177.58	4.58	195.34	2.21	189.49	30	157.98			28.08	121.41	12.03	142.41
29-Apr-21	14	146.47	17.32	173.71	14.32	185.6	3.18	188.52	29.9	158.08			28.69	120.8	13.72	140.72
25-May-21	11.37	149.1	8.12	182.91	1.85	198.07	0.69	191.01	29.48	158.5			27.95	121.54	9.65	144.79
23-Jun-21	14.11	146.36	17.2	173.83	14.62	185.3	3.04	188.66	32.98	155			28.33	121.16	11.07	143.37
27-Jul-21	15.57	144.9	16.25	174.78	9.57	190.35	3.01	188.69	32.1	155.88			29.33	120.16	14.3	140.14
13-Aug-21	12.17	148.3	10.86	180.17	2.21	197.71	1.72	189.98	29.7	158.28			28.33	121.16	11.23	143.21
16-Sep-21	11.93	148.54	17.5	173.53	15.4	184.52	3.18	188.52	32.98	155			29.04	120.45	10.89	143.55
19-Oct-21	11.22	149.25	7.99	183.04	1.97	197.95	1.7	190	30.1	157.88			28.33	121.16	11.65	142.79
02-Nov-21	11.13	149.34	7.95	183.08	1.68	198.24	0.72	190.98	29.6	158.38			27.87	121.62	8.05	146.39
01-Dec-21	13.08	147.39	14.9	176.13	5.21	194.71	2.47	189.23	30.33	157.65	54.61	127.15	28.42	121.07	9.92	144.52
19-Jan-22	12.48	147.99	12.77	178.26	4.17	195.75	1.95	189.75	29.98	158	55.6	126.16	28.12	121.37	12.08	142.36
15-Feb-22	11.17	149.3	7.04	183.99	1.43	198.49	0.38	191.32	29.53	158.45			27.97	121.52	7.83	146.61
09-Mar-22	12.21	148.26	11.96	179.07	3.48	196.44	1.8	189.9	29.85	158.13			28.05	121.44	11.38	143.06
04-Apr-22	13.45	147.02	16.43	174.6	16	183.92	3	188.7	31.38	156.6			28.58	120.91	13.84	140.6
20-May-22	17.49	142.98	18.49	172.54	17.4	182.52	3.3	188.4	31.17	156.81			29.64	119.85	15.74	138.7
16-Jun-22			19.15	171.88	18.21	181.71	4.09	187.61	33.35	154.63			30.49	119	15.98	138.46
13-Jul-22			14.1	176.93	4.59	195.33	2.64	189.06	30.26	157.72			29.61	119.88	14.21	140.23
23-Aug-22	14.92	145.55	17.58	173.45	17.55	182.37	3.45	188.25	32.78	155.2			29.35	120.14	15.47	138.97
27-Sep-22	14.72	145.75	16.92	174.11	15.49	184.43	3.3	188.4	31.93	156.05			29.65	119.84	15.28	139.16
31-Oct-22	11.72	148.75	10.01	181.02	2.34	197.58	1.53	190.17	29.32	158.66	54.2	127.56	28.1	121.39	10.98	143.46
24-Nov-22	11.11	149.36	7.25	183.78	1.6	198.32	0.44	191.26	29.23	158.75	54	127.76	27.8	121.69	10.85	143.59
13-Dec-22	12.91	147.56	14.51	176.52	5.08	194.84	2.62	189.08	30.03	157.95	54.3	127.46	28.43	121.06	13.76	140.68
11-Jan-23	10.92	149.55	6.35	184.68	1.35	198.57	0.44	191.26	29.52	158.46	54.03	127.73	27.79	121.7	11.21	143.23
14-Feb-23	13.33	147.14	14.97	176.06	5.11	194.81	2.88	188.82	30.22	157.76	54.06	127.7	28.74	120.75	15.05	139.39
16-Mar-23	11.51	148.96	9.35	181.68	1.79	198.13	1.24	190.46	29.5	158.48	54.03	127.73	28.35	121.14	11.73	142.71
20-Apr-23	12.48	147.99	12.66	178.37	3.94	195.98	2.29	189.41	29.91	158.07	54.04	127.72	28.06	121.43	13.64	140.8
11-May-23	13.44	147.03	13.34	177.69	3.67	196.25	1.96	189.74	29.96	158.02	54.03	127.73	28.36	121.13	15.71	138.73
07-Jun-23			17.32	173.71	18.25	181.67	4.33	187.37	31.65	156.33	54.05	127.71	28.86	120.63	16.05	138.39
13-Jul-23	16.81	143.66	19.44	171.59	20.01	179.91	4.21	187.49			54.03	127.73	29.66	119.83	17.89	136.55
23-Aug-23			13.02	178.01	3.82	196.1	2.18	189.52			54.02	127.74	28.5	120.99	13.84	140.6

BH ID	BH01/07		BH02/07		BH03/07		BH04/07		BH05/07		BH06/07		BH07/07		BH10/07	
Ref. Elev. mAOD	160.47		191.03		199.92		191.7		187.98		181.76		149.49		154.44	
Piezo depth (mbgl)	27.0		33.0		36.5		30.5		41.0		54.5		46.0		35.0	
	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD	mbgl	mAOD
12-Sep-23			16.18	174.85	13.89	186.03	2.87	188.83					28.89	120.6	15.56	138.88
13-Oct-23	11	149.47	5.16	185.87	1.4	198.52	0.46	191.24					27.86	121.63	13.04	141.4
28-Nov-23	12.39	148.08	12.9	178.13	3.93	195.99	2	189.7			54.03	127.73	28.32	121.17	13	141.44
11-Dec-23	11.05	149.42	7.59	183.44	1.81	198.11	0.77	190.93			181.76		28.03	121.46	11.35	143.09
04-Jan-24	10.92	149.55	6.96	184.07	1.56	198.36	0.45	191.25			54.05	127.71	27.99	121.5	10.3	144.14
15-Feb-24	11.1	149.37	6.98	184.05	1.45	198.47	0.45	191.25					27.94	121.55	11.75	142.69
14-Mar-24	11.45	149.02	8.42	182.61	1.95	197.97	1.3	190.4					28.1	121.39	13.59	140.85
24-Apr-24	12.83	147.64	13.85	177.18	4.82	195.1	2.48	189.22			52.1	129.66	28.52	120.97	14.75	139.69
20-May-24	13.06	147.41					2.35	189.35			54.2	127.56	28.67	120.82	15.33	139.11
20-Jun-24	13.45	147.02			4.7	195.22	2.54	189.16			54.2	127.56	28.9	120.59	16.1	138.34
17-Jul-24			17.1	173.93	14.3	185.62	2.7	189					32	117.49	17.5	136.94
22-Aug-24	12.5	147.97	11.27	179.76	2.89	197.03	1.5	190.2					28.75	120.74	14.14	140.3



GILFACH QUARRY - COMPOSITE LONG TERM GROUNDWATER HYDROGRAPH

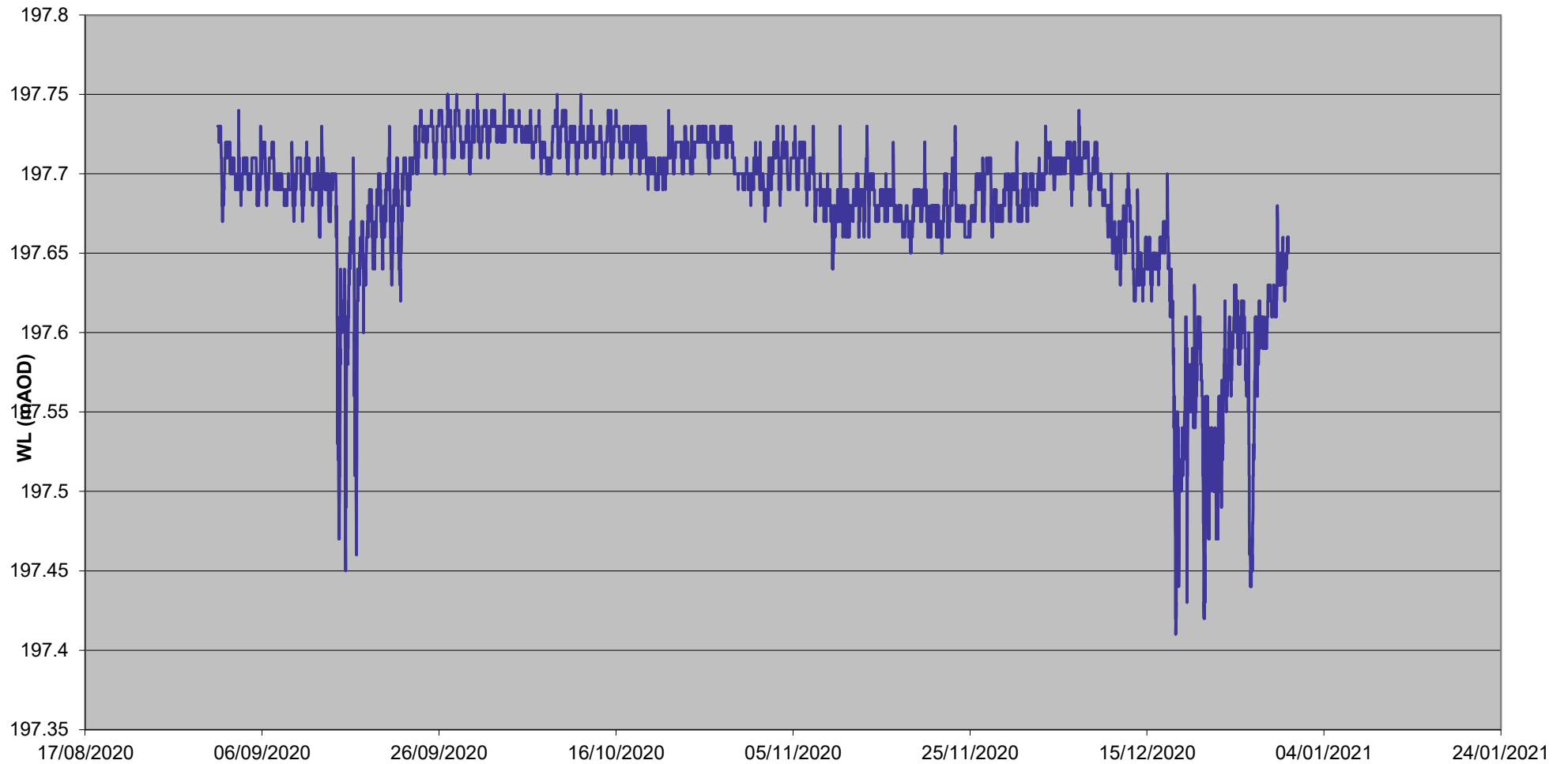




GILFACH QUARRY - BH10/07 HYDROGRAPH AND TRIGGER LEVELS

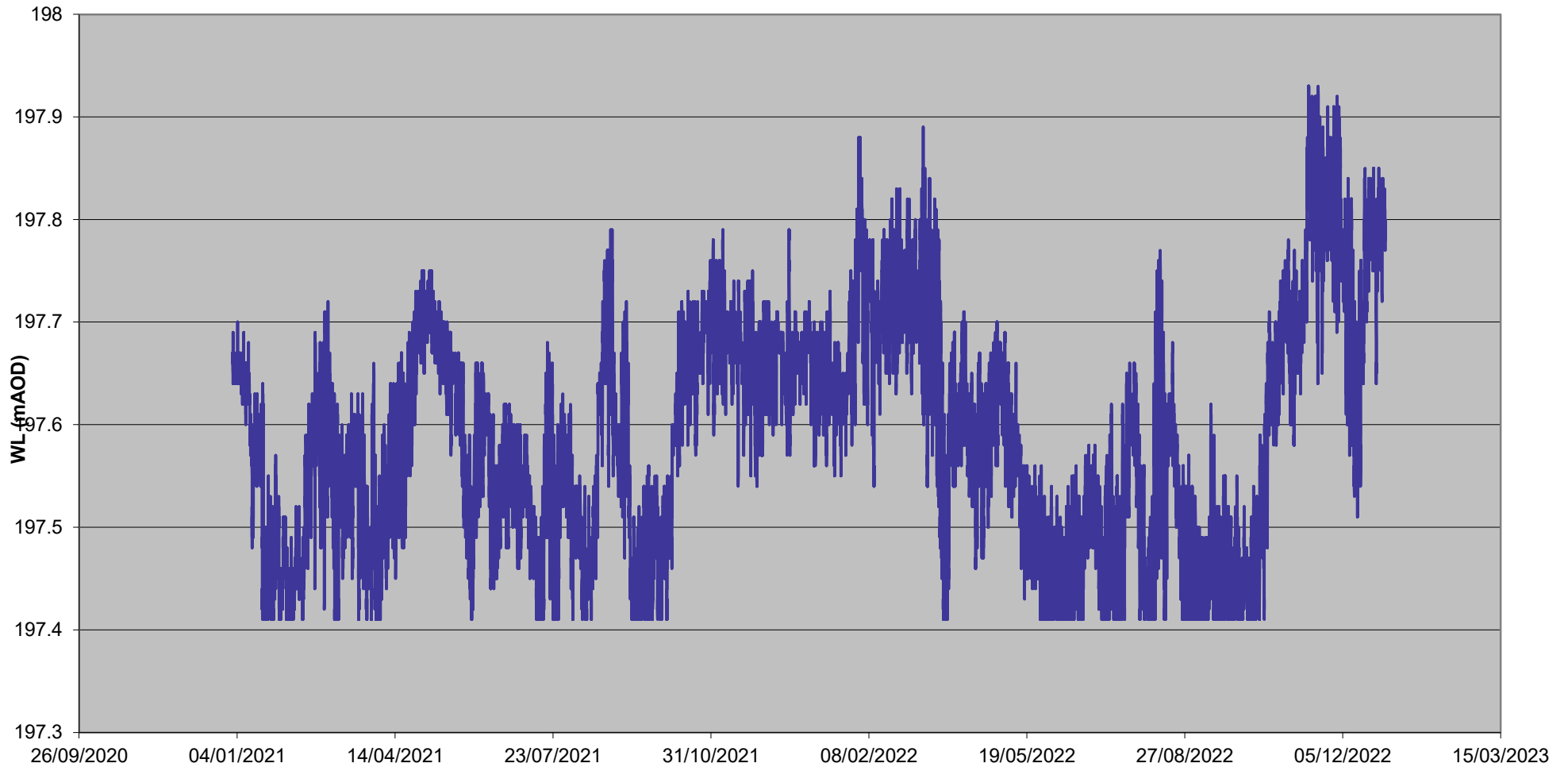
Gilfach Quarry: Cefn Faes Uchaf Farm Spring Water Level (mAOD)

August 2020 - December 2020



Gilfach Quarry: Cefn Faes Uchaf Farm Spring Water Level (mAOD)

January 2021 - December 2022



Gilfach Quarry: Cefn Faes Uchaf Farm Spring Water Level (mAOD)

January 2023 - September 2024

