

Kilmessan

Water Level Monitoring Programme

Hole	Date	Time	Depht To Water (metres)	mAOD
M1	08/01/2013		6.92	77.5
M2			15.58	73.48
M3			24.33	71.81
M4			0.38	73.96
M1	07/02/2013		8.14	76.28
M2			15.33	73.73
M3			23.51	72.63
M4			0.48	73.86
M1	12/03/2013		8.28	76.14
M2			16.66	72.4
M3			24.82	71.32
M4			0.86	73.48
M1	09/04/2013		8.99	75.43
M2			17.81	71.25
M3			24.01	72.13
M4			0.95	73.39
M1	07/05/2013		9.43	74.99
M2			17.44	71.62
M3			25.27	70.87
M4			1.22	73.12
M1	05/06/2013		9.48	74.94
M2			12.65	76.41
M3			25.11	71.03
M4			1.23	73.11
M1	04/07/2013		10.27	74.15
M2			17.22	71.84
M3			27.36	68.78
M4			1.32	73.02
M1	05/08/2013		12.25	72.17
M2			19.85	69.21
M3			26.02	70.12
M4			2.23	72.11
M1	10/09/2013		11.75	72.67
M2			18.55	70.51
M3			23.32	72.82
M4			2.1	72.24
M1	07/10/2013		11.7	72.72
M2			18.35	70.71
M3			22.74	73.4
M4			1.9	72.44
M1	05/11/2013		10.2	74.22
M2			16.9	72.16
M3			24.5	73.64
M4			1.71	72.66
M1	06/12/2013		11.27	74.15
M2			19.8	69.26
M3			26.44	69.73
M4			2.85	71.49
M1	08/01/2014		20.76	73.66
M2			15.6	73.46
M3			24.71	71.43
M4			1.6	72.74
M1	06/02/2014		9.1	75.32
M2			14.7	74.36
M3			23.8	72.34
M4			0.8	73.54
M1	10/03/2014		11.1	73.32
M2			15.9	73.16
M3			25.1	71.04
M4			1.9	72.44
M1	08/04/2014		12.5	71.92
M2			16.7	72.36
M3			27	69.14
M4			2.4	71.94
M1	07/05/2014		12.75	71.67
M2			16.4	72.66
M3			26.96	69.18
M4			2.46	71.88
M1	06/06/2014		12.5	71.92
M2			17.2	71.86
M3			26.45	69.69
M4			2.41	71.93
M1	07/07/2014		13.01	71.41
M2			17.84	71.22
M3			26.52	69.62
M4			2.78	71.56
M1	08/08/2014		13.21	71.21
M2			17.55	71.51
M3			26.23	69.91
M4			2.39	71.95
M1	07/09/2014		13.88	70.54
M2			17.71	71.35
M3			26.64	69.5
M4			3.02	71.32
M1	13/10/2014		10.78	73.64
M2			17.21	71.85
M3			20.2	75.94
M4			2.85	71.49

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Well monitoring ceased after October 2014.

Parameter	Dec 11/12/13	Jan 08/01/14	Feb 06/02/14	Mar 10/03/14	Apr	May 07/05/14	Jun 06/06/14	Jul	Aug	Sep	Oct	Nov	Dec 16/12/14	ELV	Units	Technique
BOD	**	0.00	0.00	0.00	*	0.00	0.00	*	*	*	*	*	0.00	2.00	mg/l	Respirometric
COD	5.0	56.0	17.0	<5	*	6.0	10.0	*	*	*	*	*	29.0	50.0	mg/l	Colorimetry
Suspended Solids	4.0	<10	16.0	<10	*	<10	<10	*	*	*	*	*	93.0	20.0	mg/l	Grav
pH	7.6	7.7	7.5	7.6	*	7.2	7.2	*	*	*	*	*	6.8	6.0 - 9.0	pH Units	Probe
Ortho Phosphate as P	<0.1	<0.1	<0.01	0.03	*	0.02	<0.02	*	*	*	*	*	0.06	0.06	mg/l	Ascorbic Acid
Nitrates as N	0.14	<0.5	<5	<0.05	*	1.10	<0.1	*	*	*	*	*	0.41	8.00	mg/l	Discrete Analyser
Ammonium as N	<0.5	0.13	<0.02	<0.05	*	<0.05	*	*	*	*	*	*	<0.05	0.10	mg/l	IC
TPH (C6-C40 not speciated)	<50	<0.01	<10	<0.02	*	<0.01	<0.01	*	*	*	*	*	0.01	50.00	µg/l	Calc
BTEX	<1.0	<10	<1.0	<1.0	*	<0.01	<1.0	*	*	*	*	*	<1.0	10.00	µg/l	GC/MS (Headspace)
Dissolved Oxygen	10.02	11.10	10.60	10.40	*	9.90	10.30	*	*	*	*	*	11.00	7.0 (Min Value)	mg/l	Photometric

Parameter	Jan 02/02/15	Feb 25/02/15	Mar 13/03/15	Apr 01/05/15	May 18/05/15	Jun 17/06/15	Jul 14/07/15	Aug 17/08/15	Sep 01/09/15	Oct 02/10/15	Nov 03/11/15	Dec 04/12/15	ELV	Units	Technique
BOD	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	2.00	8.00	5.00	0.00	2.00	mg/l	Respirometric
COD	5.0	5.0	0.0	69.0	5.0	9.0	440.0	<5.0	540.0	<5.0	410.0	<5.0	50.0	mg/l	Colorimetry
Suspended Solids	<10	<10	<10	<10.0	<10.0	<10.0	17.0	<10.0	<10	<10	<10	<10.0	20.0	mg/l	Grav
pH	6.2	6.3	6.4	7.5	7.4	8.0	8.3	7.5	7.5	8.2	7.8	8.0	6.0 - 9.0	pH Units	Probe
Ortho Phosphate as P	0.04	0.10	0.02	0.09	0.10	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	mg/l	Ascorbic Acid
Nitrates as N	0.48	0.35	0.55	0.51	0.44	0.12	0.09	0.05	0.08	<0.5	<0.5	0.24	8.00	mg/l	Discrete Analyser
Ammonium as N	<0.05	0.44	0.13	<0.05	<0.05	0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	0.10	mg/l	IC
TPH (C6-C40 not speciated)	<10	190.0	0.1	20.0	10.0	10.0	50.0	100.0	290.0	10.0	240.0	<10	50.00	µg/l	Calc
BTEX	<1.0	<1.0	<0.01	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.00	µg/l	GC/MS (Headspace)
Dissolved Oxygen	**	**	10.00	11.00	11.00	10.50	10.40	10.00	10.00	10.50	10.10	10.10	7.0 (Min Value)	mg/l	Photometric

Parameter	Jan 08/01/16	Feb 03/02/16	Mar 01/03/16	Apr 04/04/16	May 03/05/16	Jun 03/06/16	Jul 04/07/16	Aug 02/08/16	Sep 01/09/16	Oct 03/10/16	Nov 03/11/16	Dec 06/12/16	ELV	Units	Technique
BOD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	mg/l	Respirometric
COD	<5.0	17.00	<5.0	5.00	5.00	5.00	<5	8.00	<5	<5.0	27.00	<5.0	50.00	mg/l	Colorimetry
Suspended Solids	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10	<10	<10.0	<10.0	<10.0	20.00	mg/l	Grav
pH	7.90	7.10	7.90	7.80	8.00	8.10	7.10	7.70	7.20	8.10	8.60	8.40	6.0 - 9.0	pH Units	Probe
Ortho Phosphate as P	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	mg/l	Ascorbic Acid
Nitrates as N	0.27	27.00	0.43	0.35	<0.5	0.36	<0.5	1.20	0.05	0.64	1.50	0.53	8.00	mg/l	Discrete Analyser
Ammonium as N	<0.05	<0.05	<0.05	<0.05	0.07	0.08	<0.05	0.55	<0.05	<0.05	0.08	0.17	0.10	mg/l	IC
TPH (C6-C40 not speciated)	<10	20.00	<30	10.00	10.00	10.00	10.00	<10	<10	170.00	<10	<10	50.00	µg/l	Calc
BTEX	<1.0	<1.0	**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.00	µg/l	GC/MS (Headspace)
Dissolved Oxygen	10.00	10.10	8.10	10.90	9.20	10.50	8.40	9.60	9.30	9.60	10.60	10.20	7.0 (Min Value)	mg/l	Photometric

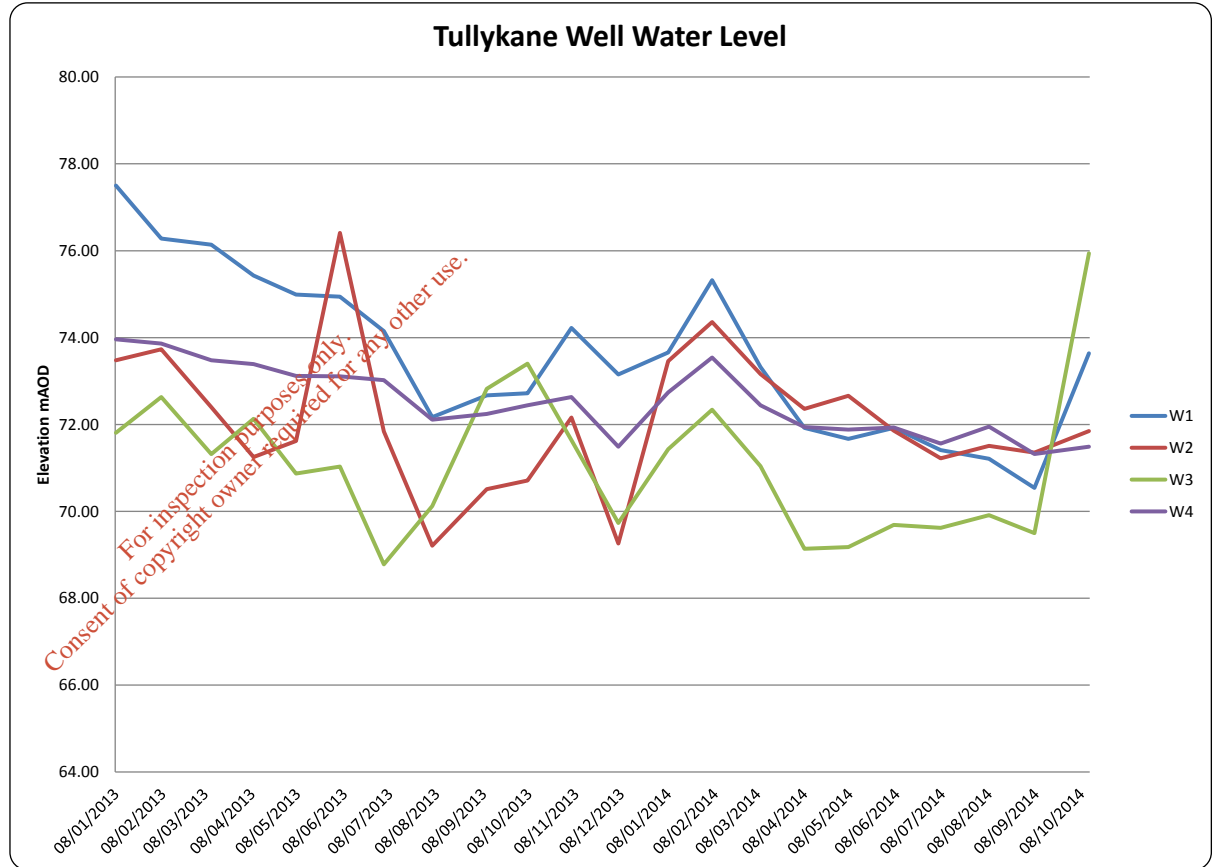
Parameter	Jan	Feb	Mar 07/03/17	Apr 06/04/17	May 03/05/17	Jun 03/06/17	Jul 31/07/17	Aug 10/08/17	Sep 28/09/17	Oct 12/10/17	Nov 24/11/17	Dec 06/12/17	ELV	Units	Technique
BOD	*	*	0.00	0.00	0.00	0.00	<2	<2	1.60	<2	<2	4.00	2.00	mg/l	Respirometric
COD	*	*	5.00	19.00	14.00	<5.0	16.00	21.00	18.00	11.00	10.00	5.00	50.00	mg/l	Colorimetry
Suspended Solids	*	*	<10.0	<10.0	<10.0	<10.0	2.00	3.00	<2	<2	4.00	5.00	20.00	mg/l	Grav
pH	*	*	7.40	7.60	7.90	7.90	8.10	8.10	7.90	7.90	8.00	7.80	6.0 - 9.0	pH Units	Probe
Ortho Phosphate as P	*	*	0.03	0.02	0.02	0.02	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.06	mg/l	Ascorbic Acid
Nitrates as N	*	*	<0.5	<0.5	5.00	<0.5	<0.11	<0.11	<0.11	<0.11	0.27	<0.11	8.00	mg/l	Discrete Analyser
Ammonium as N	*	*	<0.05	0.06	<0.05	<0.05	<0.1	<0.1	<0.1	0.31	0.01	0.05	0.10	mg/l	IC
TPH (C6-C40 not speciated)	*	*	<10	<20	10.00	10.00	<1.0	<1.0	<1.0	<1.0	548.23	<1.0	50.00	µg/l	Calc
BTEX	*	*	<1.0	<1.0	<1.0	<1.0	<0.75	<0.75	<0.75	<0.75	<1.0	<1.0	10.00	µg/l	GC/MS (Headspace)
Dissolved Oxygen	*	*	10.50	10.10	10.90	10.90	9.89	9.77	8.40	9.90	10.10	10.70	7.0 (Min Value)	mg/l	Photometric

Note* Samples not collected due to pumps not being in operation on the day of collection.

Note** Missing result

**Tullykane Quarry
Groundwater Monitoring**

Date	W1	W2	W3	W4
08/01/2013	77.50	73.48	71.81	73.96
07/02/2013	76.28	73.73	72.63	73.86
12/03/2013	76.14	72.40	71.32	73.48
09/04/2013	75.43	71.25	72.13	73.39
07/05/2013	74.99	71.62	70.87	73.12
05/06/2013	74.94	76.41	71.03	73.11
04/07/2013	74.15	71.84	68.78	73.02
05/08/2013	72.17	69.21	70.12	72.11
10/09/2013	72.67	70.51	72.82	72.24
07/10/2013	72.72	70.71	73.40	72.44
05/11/2013	74.22	72.16	71.64	72.63
06/12/2013	73.15	69.26	69.73	71.49
08/01/2014	73.66	73.46	71.43	72.74
06/02/2014	75.32	74.36	72.34	73.54
10/03/2014	73.32	73.16	71.04	72.44
08/04/2014	71.92	72.36	69.14	71.94
07/05/2014	71.67	72.66	69.18	71.88
06/06/2014	71.92	71.86	69.69	71.93
07/07/2014	71.41	71.22	69.62	71.56
08/08/2014	71.21	71.51	69.91	71.95
07/09/2014	70.54	71.35	69.5	71.32
13/10/2014	73.64	71.85	75.94	71.49



Parameter	Jan 08/01/13	Feb 07/02/13	Mar 12/03/13	Apr 09/04/13	May 07/05/17	Jun 05/06/13	Jul 04/07/13	Aug 07/10/13	Sep 10/09/13	Oct 25/10/13	Nov 05/11/13	ELV	Units
pH	7.07	7.25	7.6	7.73	6.63	8.52	7.77	7.3	7.11	7.06	7.16	6 to 9	pH Units
Suspended Solids	<10.00	<10.00	<10.00	<10.00	<10.00	<10.00	<10.00	2.4	<10	4	0.1	10	mg/l
Total Dissolved Solids	0.52	0.66	0.49	0.78	0.43	0.55	0.49	0.37	<0.01	0.55	0.85	10	mg/l
Dissolved Oxygen	*	*	*	*	*	*	*	9	11	9.3	12	60%	mg/l

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Parameter	Jan 08/01/13	Feb 07/02/13	Mar 12/03/13	Apr 09/04/13	May 07/05/17	Jun 05/06/13	Jul 04/07/13	Aug 07/10/13	Sep 10/09/13	Oct 25/10/13	Nov 05/11/13	ELV	Units
pH	7.28	7.23	6.91	8.91	6.89	8.72	7.79	7.6	7.12	7.1	7.17	6 to 9	pH Units
Suspended Solids	<10.00	<10.00	<10.00	<10.00	<10.00	<10.00	<10.00	9.7	<10.00	<10.00	<10.00	10	mg/l
Total Disolved Solids	0.71	0.63	0.63	0.35	0.44	0.48	0.49	0.48	0.68	0.74	0.57	10	mg/l
Dissolved Oxygen	*	*	*	*	*	*	*	6.5	10	9.5	12	60%	mg/l

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Volumetric Discharge Tullykane (m3/day)

