*Appendix 2. Basic data of groundwater observation tubes installed in overburden, shallow holes drilled in bedrock, permanent multi-level piezometers, OL-KR drillholes and packed-off ONKALO drillholes. Observation tubes and drillholes written in **bold** have not been monitored.*

Obs. tube	Length (m)	Thickness of the overburden (m)	Measuring level (i.e. perforated section) from ground surface (m)	References
OL-PVP1	3.50	1.50	0.5–3.5	
OL-PVP2	3.50	1.40	0.5–3.5	
OL-PVP3A	7.80	5.80	3.80–5.80	Lehto 2001
OL-PVP3B	3.80	-	1.80–3.80	Lehto 2001
OL-PVP4A	9.55	7.55	5.55–7.55	Lehto 2001
OL-PVP4B	8.00	7.12	2.00–4.00	Lehto 2001
OL-PVP5A	**7.02**	**5.02**	**3.02–5.02**	**Lehto 2001 (destroyed)**
OL-PVP5B	**3.02**	**-**	**1.02–3.02**	**Lehto 2001 (destroyed)**
OL-PVP6A	7.83	5.83	3.83–5.83	Lehto 2001
OL-PVP6B	3.83	-	1.83–3.83	Lehto 2001
OL-PVP7A	5.75	3.75	1.75–3.75	Lehto 2001
OL-PVP8A	9.45	6.45	4.45–6.45	Lehto 2001
OL-PVP8B	5.45	-	2.45–4.45	Lehto 2001
OL-PVP9A	9.00	7.00	5.00–7.00	Lehto 2001
OL-PVP9B	5.00	-	3.00–5.00	Lehto 2001
OL-PVP9C	3.00	-	1.00–3.00	Lehto 2001
OL-PVP10A	5.50	2.10	1.00–3.00	Lehto 2001
OL-PVP10B	3.00	2.00	0.30–0.50	Lehto 2001
OL-PVP11	5.20	3.20	1.20–3.20	Niemi & Roos 2004
OL-PVP12	6.30	4.30	2.30–4.30	Niemi & Roos 2004
OL-PVP13	7.10	5.10	3.10–5.10	Niemi & Roos 2004
OL-PVP14	10.40	8.40	6.40–8.40	Niemi & Roos 2004
OL-PVP15	**4.80**	**3.30**	**1.30–3.30**	**Niemi & Roos 2004 (destroyed)**
OL-PVP16	**7.90**	**2.30**	**4.90–6.90**	**Niemi & Roos 2004 (destroyed)**
OL-PVP17	6.30	4.00	2.30–4.30	Niinimäki & Rautio 2004
OL-PVP18A	9.00	4.80	3.00–6.00	Niinimäki & Rautio 2004
OL-PVP18B	**5.00**	**>2.33**	**2.00–3.00**	**Niinimäki & Rautio 2004**
OL-PVP19	17.15	15.15	9.15–11.15 13.15–15.15	Rautio 2004a
OL-PVP20	14.10	12.10	8.60–10.60	Rautio 2004a
OL-PVP21	11.60	8.60	6.60–8.60	
OL-PVP22	10.10	7.10	5.10–7.10	
OL-PVP23	7.40	4.40	2.40–4.40	
OL-PVP24	5.80	3.80	1.80–3.80	
OL-PVP25	5.90	2.90	1.90–2.90	
OL-PVP26	6.50	3.50	1.50–3.50	
OL-PVP27	4.60	2.60	0.60–2.60	
OL-PVP28	5.70	2.70	1.20–2.70	
OL-PVP29	6.00	3.00	1.50–3.00	
OL-PVP30	3.80	1.60	0.80–1.80	Toropainen 2009b
OL-PVP31A	6.50	4.50	2.72–4.72	Toropainen 2009b
OL-PVP31B	7.00	5.20	1.59–3.59	Toropainen 2009b
OL-PVP32	4.60	2.60	0.20–2.20	Toropainen 2009b
OL-PVP33	3.90	1.50	0.76–1.76	Toropainen 2009b

Obs. tube	Length (m)	Thickness of the overburden (m)	Measuring level (i.e. perforated section) from ground surface (m)	References
OL-PVP34A	7.40	5.20	3.08–5.08	Toropainen 2009b
OL-PVP34B	7.60	5.60	1.21–3.21	Toropainen 2009b
OL-PVP35	3.80	1.60	0.40–1.40	Toropainen 2009b
OL-PVP36	5.50	2.80	0.80–2.80	Toropainen 2012a
OL-PVP37A	12.00	10.00	8.00–10.00	Toropainen 2012a
OL-PVP37B	**10.00**	**9.00**	**3.80–5.80**	**Toropainen 2012a**
OL-PVP37C	**9.50**	**8.50**	**0.80–2.80**	**Toropainen 2012a**
OL-PVP38A	14.80	12.80	10.80–12.80	Toropainen 2012a
OL-PVP38B	**13.70**	**11.70**	**7.70–9.70**	**Toropainen 2012a**
OL-PVP38C	**12.70**	**10.70**	**4.70–6.70**	**Toropainen 2012a**
OL-PVP38D	11.30	9.80	1.30–3.30	Toropainen 2012a
OL-PVP39	10.25	8.10	5.05–8.05	Toropainen 2013
OL-PVP40A	10.20	7.90	5.60–7.60	Toropainen 2013
OL-PVP40B	8.80	6.80	3.36–5.36	Toropainen 2013
OL-PVP41A	11.90	9.80	6.70–9.70	
OL-PVP41B	8.00	6.80	3.58–6.58	
OL-PVP42A	8.00	5.90	3.98–5.98	
OL-PVP42B	5.85	3.80	1.81–3.81	

Drillhole	Length (m)	Thickness of the overburden (m)	References
OL-PP1	17.50	4.10	Suomen Malmi Oy 1989d
OL-PP2	23.80	13.00	Suomen Malmi Oy 1989d
OL-PP3	14.30	3.00	Suomen Malmi Oy 1989d
OL-PP5	12.35	1.50	Suomen Malmi Oy 1989d
OL-PP6	19.50	6.50	Suomen Malmi Oy 1989d
OL-PP7	**16.20**	**5.40**	**Suomen Malmi Oy 1989d (under asphalt, well)**
OL-PP8	15.20	6.20	Suomen Malmi Oy 1989d
OL-PP9	14.70	3.70	Suomen Malmi Oy 1989d
OL-PP10	12.00	1.30	Suomen Malmi Oy 1989d
OL-PP31	25.10	1.90	Suomen Malmi Oy 1989d
OL-PP32	**22.60**	**1.40**	**Suomen Malmi Oy 1989d (destroyed)**
OL-PP34	**22.30**	**7.10**	**Suomen Malmi Oy 1989d (destroyed)**
OL-PP35	**23.60**	**3.80**	**Suomen Malmi Oy 1989d (destroyed)**
OL-PP36	12.05	1.50	Niemi & Roos 2004
OL-PP37	11.55	0.90	Niemi & Roos 2004
OL-PP38	**13.57**	**2.80**	**Niemi & Roos 2004 (destroyed)**
OL-PP39	13.71	4.00	Niemi & Roos 2004
OL-PP51	20.40	0	Rautio 2007
OL-PP52	20.50	0.05	Rautio 2007
OL-PP53	20.10	0	Rautio 2007
OL-PP54	20.20	1.15	Rautio 2007
OL-PP55	20.25	0.55	Rautio 2007
OL-PP56	55.95	1.50	Rautio 2007
OL-PP66	24.88	8.87	Kuusirati & Tarvainen 2009
OL-PP67	25.13	7.50	Kuusirati & Tarvainen 2009
OL-PP68	25.37	3.14	Kuusirati & Tarvainen 2009
OL-PP69	25.40	4.12	Kuusirati & Tarvainen 2009
OL-PP70	20.05	2.30	Toropainen 2012a
OL-PP71	21.02	0	Toropainen 2012a
OL-PP90	24.60	4.50	Toropainen 2013
OL-PR1	13.00	0	
OL-PR2	13.00	0	(closed in 2017)
OL-PR3	**30.00**	**0**	**(destroyed)**
OL-PR4	**30.00**	**0**	**(clogged up)**
OL-L1/1	c. 15	0	(closed in 2017)
OL-L2/1	c. 15	0	
OL-L3/1	c. 15	0	
OL-L4/1	c. 15	0	
OL-L7/1	c. 15	unknown	
OL-L7/2	c. 15	unknown	
OL-L7/3	c. 15	unknown	
OL-L8/1	c. 15	unknown	
OL-L9/1	c. 15	unknown	
OL-L9/2	c. 15	unknown	
OL-L9/3	c. 15	unknown	
OL-L13/3	c. 15	0	
OL-L14/3	c. 15	0	
OL-L15/1	c. 15	unknown	
OL-L16/2	c. 15	unknown	
OL-L26/1	c. 15	unknown	
OL-L27/1	c. 15	unknown	
OL-PA1/1	**c. 15**	**unknown**	
OL-PA1/2	c. 15	unknown	

Drillhole	**Length (m)**	**Thickness of the overburden (m)**	**References**
OL-PA1/3	**c. 15**	**unknown**	
OL-PA2/3	c. 15	0	
OL-PA3/1	**c. 15**	**unknown**	
OL-PA3/2	**c. 15**	**unknown**	
OL-PA3/3	c. 15	unknown	
OL-PA4	**c. 15**	**0**	**(clogged up)**
OL-PA5/3	c. 15	unknown	(closed in 2017)

Drillhole	Drilling year	Length (m)	Reference
OL-KR1	1989	1001.05	Suomen Malmi Oy 1989a
OL-KR2	1989	503.65	Suomen Malmi Oy 1989b
extension	1995	1051.89	Rautio 1995c
OL-KR3	1989	502.00	Suomen Malmi 1989c
OL-KR4	1990	503.20	Suomen Malmi 1990a
extension	1995	901.58	Rautio 1995b
OL-KR5	**1990**	**558.85**	**Suomen Malmi Oy 1990b (closed in 2016)**
OL-KR6	1991	300.62	Rautio & With 1991
extension	2000	600.77	Rautio 2000b
OL-KR7	1994	300.90	Jokinen 1994
extension	2000	811.05	Rautio 2000a
reaming	2014	419.60	POTTI
OL-KR8	1995	315.94	Rautio 1995a
extension	2002	600.59	Niinimäki 2002h
OL-KR9	1996	601.25	Rautio 1996b
OL-KR10	1995–1996	614.40	Rautio 1996a
OL-KR11	1999	1002.11	Rautio 1999
OL-KR12	2000	795.34	Niinimäki 2000
OL-KR13	2001	500.21	Niinimäki 2001a
OL-KR14	2001	514.10	Niinimäki 2001b
OL-KR15	2001	333.54	Niinimäki 2002a
extension	2002	518.85	Niinimäki 2002e
OL-KR15B	2001	45.14	Niinimäki 2002a
OL-KR16	2001	170.20	Niinimäki 2002b
OL-KR16B	2001	45.20	Niinimäki 2002b
OL-KR17	2001	157.13	Niinimäki 2002c
OL-KR17B	2001	45.3	Niinimäki 2002c
OL-KR18	2001	125.49	Niinimäki 2002d
OL-KR18B	2001	45.53	Niinimäki 2002d
OL-KR19	2002	544.34	Niinimäki 2002f
OL-KR19B	2002	45.05	Niinimäki 2002f
OL-KR20	2002	494.72	Niinimäki 2002g
OL-KR20B	2002	45.1	Niinimäki 2002g
OL-KR21	**2002**	**301.08**	**Niinimäki 2002i (closed in 2016)**
OL-KR22	2002	500.47	Niinimäki 2002j
OL-KR22B	2002	45.55	Niinimäki 2002j
OL-KR23	2002	302.1	Niinimäki 2002k
extension	2004	460.25	Niinimäki 2004b
OL-KR23B	2002	45.12	Niinimäki 2002k
OL-KR24 (ONK-KU1)	**2003**	**551.11**	**Niinimäki 2003b (destroyed) Niinimäki 2004a**
OL-KR25	2003	604.87	Niinimäki 2003a
OL-KR25B	2003	44.93	Niinimäki 2003a
OL-KR26	2003	103.00	Rautio 2003a
OL-KR27	2003	550.84	Niinimäki 2003c
OL-KR27B	2003	45.21	Niinimäki 2003c
OL-KR28	2003	656.33	Rautio 2003b
OL-KR28B	**2003**	**45.30**	**Rautio 2003b (clogged up)**
OL-KR29	2004	870.18	Rautio 2004b
OL-KR29B	2004	45.60	Rautio 2004b
OL-KR30	2004	98.28	Rautio 2004c
OL-KR31	2004	189.98	Rautio 2004d
extension	2006	340.15	Pussinen & Niinimäki 2006b
OL-KR31B	2004	45.18	Rautio 2004d

Drillhole	Drilling year	Length (m)	Reference
OL-KR32	2004	191.81	Rautio 2005a
OL-KR33	2004	311.02	Rautio 2005b
OL-KR33B	2004	45.53	Rautio 2005b
OL-KR34	**2005**	**100.07**	**Rautio 2005c (destroyed)**
OL-KR35	2005	100.87	Rautio 2005d
OL-KR36	2005	205.17	Niinimäki & Rautio 2005
OL-KR37	2005	350.00	Niinimäki 2005a
OL-KR37B	2005	45.10	Niinimäki 2005a
OL-KR38 (ONK-KU2)	**2005**	**530.60**	**Rautio 2005e (destroyed)**
OL-KR39	2005	502.97	Niinimäki 2005b
OL-KR39B	2005	45.11	Niinimäki 2005b
OL-KR40	2005–2006	1030.00	Pussinen & Niinimäki 2006a
OL-KR40B	2006	45.15	Pussinen & Niinimäki 2006a
OL-KR41	2006	401.42	Pussinen & Niinimäki 2006c
OL-KR41B	2006	45.60	Pussinen & Niinimäki 2006c
OL-KR42	2006	400.85	Pussinen & Niinimäki 2006d
OL-KR42B	2006	45.00	Pussinen & Niinimäki 2006d
OL-KR43	2006	1000.26	Niinimäki 2006
OL-KR43B	2006	45.01	Niinimäki 2006
OL-KR44	2007	900.47	Pohjolainen 2007
OL-KR44B	2007	45.05	Pohjolainen 2007
OL-KR45	2007	1023.30	Toropainen 2007a
OL-KR45B	2007	44.75	Toropainen 2007a
OL-KR46	2007	600.1	Toropainen 2007b
OL-KR46B	2007	45.16	Toropainen 2007b
OL-KR47	2007	1008.76	Toropainen 2008a
OL-KR47B	2007–2008	44.31	Toropainen 2008a
OL-KR48 (ONK-KU3)	**2007**	**530.11**	**Toropainen 2008b (destroyed)**
OL-KR49	2008	1060.22	Toropainen 2008c
OL-KR50	2008	939.33	Toropainen 2009a
OL-KR50B	2008	45.44	Toropainen 2009a
OL-KR51	2009	650.55	Toropainen 2009c
OL-KR52	2009	427.35	Toropainen 2009d
OL-KR52B	2009	45.04	Toropainen 2009d
OL-KR53	2009	300.48	Toropainen 2009e
OL-KR53B	2009	45.44	Toropainen 2009e
OL-KR54	2010	500.18	Toropainen 2010a
OL-KR55	2010	998.40	Toropainen 2010b
OL-KR55B	2010	44.99	Toropainen 2010b
OL-KR56	2011–2012	1201.65	Toropainen 2012c
OL-KR57	2011	401.71	Toropainen 2012b
OL-KR57B	2012	45.01	Toropainen 2012b
OL-KR58	2016	1201.14	
OL-KR58B	2016	41.28	

Multi-level piezometer	Thickness of the overburden (m)	Length (m)	Reference
OL-EP1	0.88	102.98	Vuento & Liedes 1989
OL-EP2	0.03	101.54	Vuento & Liedes 1989
OL-EP3	3.37	103.77	Vuento & Liedes 1989
OL-EP4	0.72	103.42	Vuento & Liedes 1989
OL-EP5	2.65	103.65	Vuento & Liedes 1989
OL-EP6	0.6	103.1	Vuento & Liedes 1989 (closed in 2017)
OL-EP7	1.87	102.57	Vuento & Liedes 1989
OL-EP8	1.00	52.0	Mäkeläinen & Hiironen 1999

Drillhole	Drilling year	Length (m)	Reference
ONK-PP262	2010	25.02	Toropainen 2011a
ONK-PP274	2010	23.88	Toropainen 2011a
ONK-KR13	2010	120.45	Toropainen 2011b
ONK-KR14	2011	75.27	Toropainen 2011b
ONK-KR16	2013	69.88	
ONK-KR17	2015	71.04	
ONK-PH21	2013	80.03	
ONK-PH22	2012	88.21	
ONK-PH23	**2012**	**77.13**	**Destroyed, AJYH5**
ONK-PVA11	2014	30.05	Toropainen 2014