



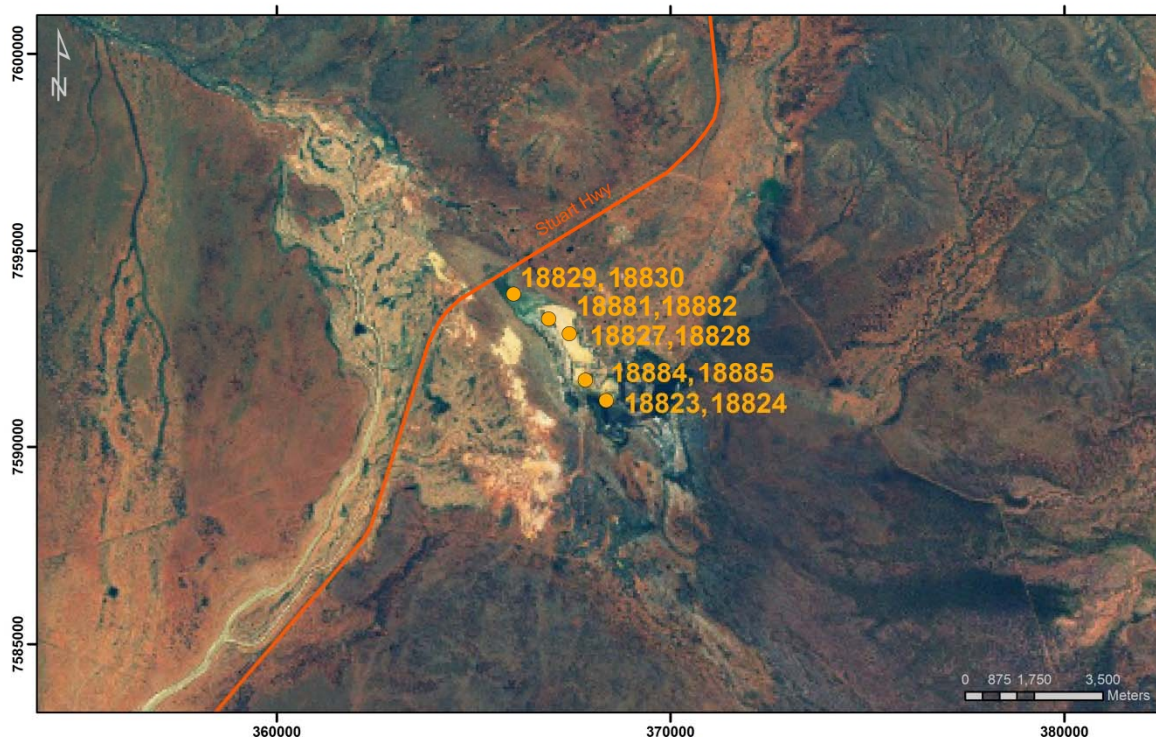
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	367842
Unique Well ID	18884	GPS Northing		7591685
Completion Date	2 June 2012	Location		Stirling Swamp, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-Swing Top	Depth Drilled		11.0 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 1.3 L/s			
Project Comments: 18884 is a triple completion multi-level piezometer. It is located adjacent to 18885. Together, these bores provide a nest of four piezometers sampling different depths in the unconfined aquifer.				

Bore ID	Casing Size (mm)/ Type	TOC (mAHD)	Casing Depth (mBGL)		Screen Size (mm)/ Aperture (mm)/ Type	Cement (mBGL)		Screen Depth (mBGL)		SWL (mTOC)
	200/Steel		-1.0	1.0	NA	0.0	1.0	NA	NA	NA
18884-1	50/PVC12	475.676	-0.8	4.4	50/0.5/UPVC18	2.8	3.1	3.6	4.2	2.22
18884-2	50/PVC12	475.699	-0.82	7.2	50/0.5/UPVC18	5.0	5.55	6.0	7.0	2.12
18884-3	50/PVC12	475.733	-0.85	10.41	50/0.5/UPVC18	9.27	9.44	9.91	10.41	2.22

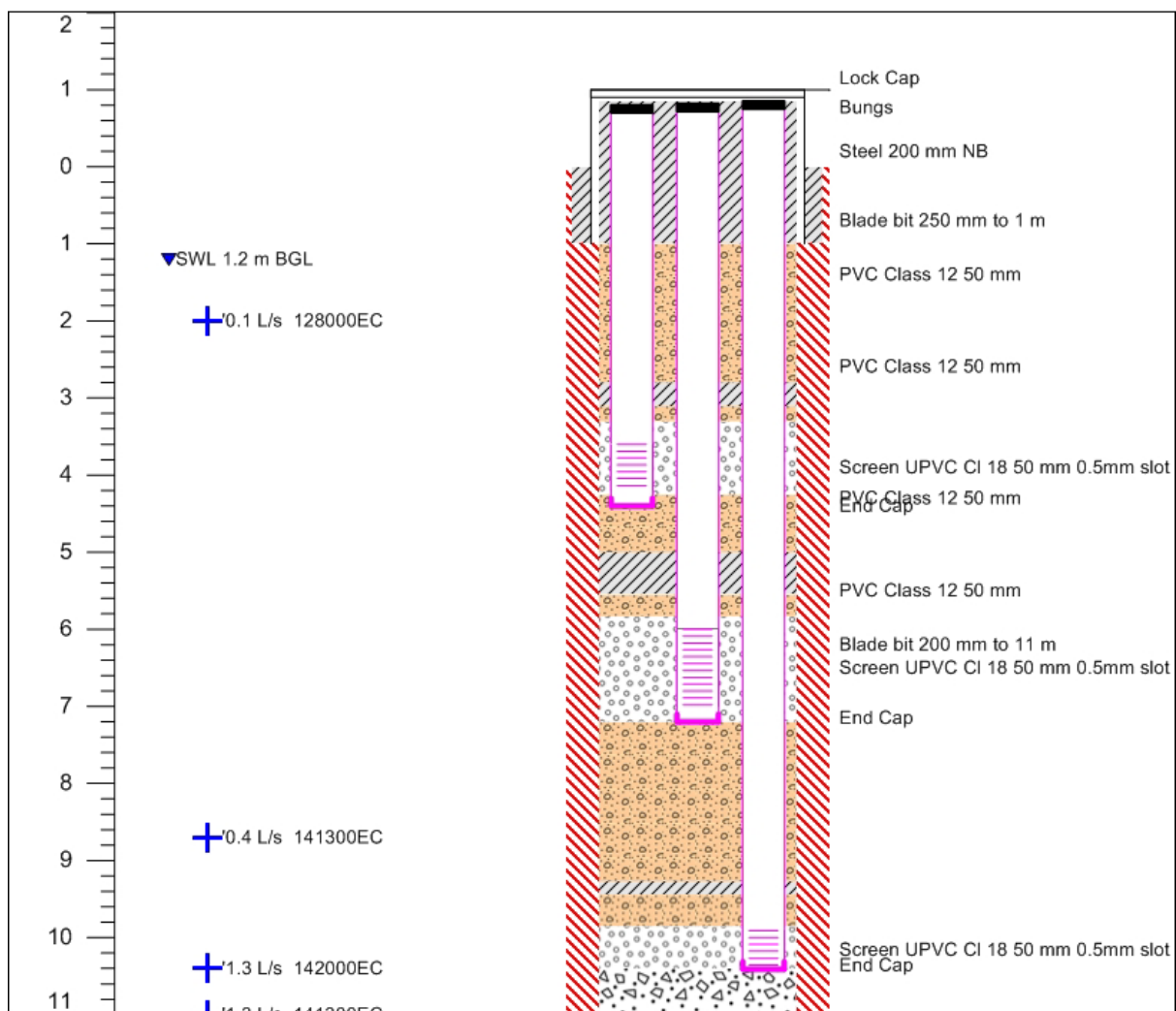


Map of Ti Tree Super Science Piezometer Locations, Stirling Swamp, NT.

Note* Appendix includes Well Completion, Lithology and Geophysical Logs, Hydraulic Test and Chemical Analysis.

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Well Completion Log



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Date Start 24/05/2012

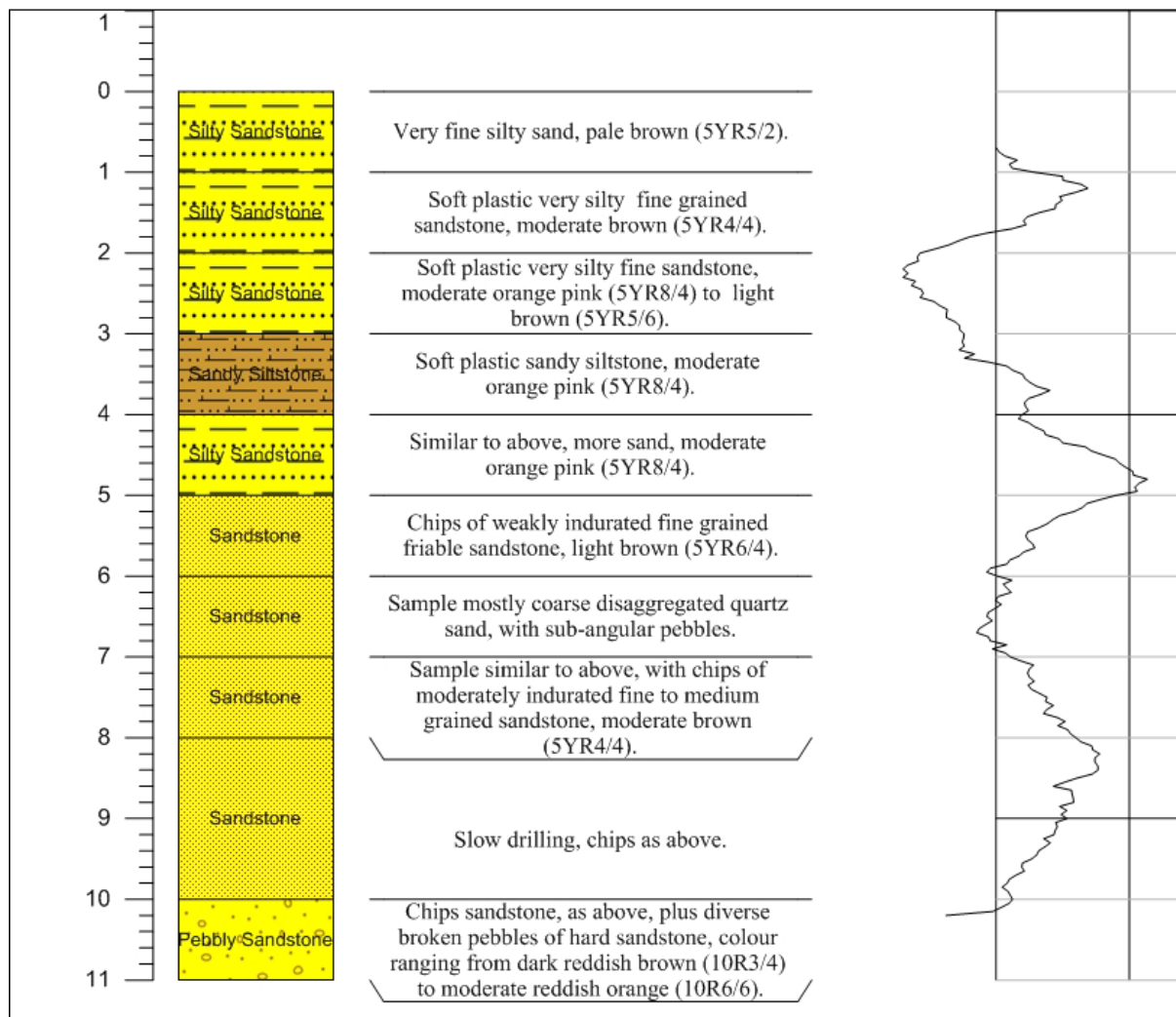
Completed 2/06/2012

Contractor NRETAS

Construction Legend

Steel	Gravel Pack	Creek Sand
PVC	Lock Cap	Fall Back
Slots	Bung	Soil
Hole	End Cap	Cuttings
Cement	Bentonite	Screen

Lithology Log



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Air Lift Yield L/s 1.3

Date Start 24/05/2012 Electrical Conductivity μ Siemens/cm 142000

Completed 2/06/2012 Standing Water Level m BGL 1.2

Contractor NRETAS

Status Piezometer

60 110

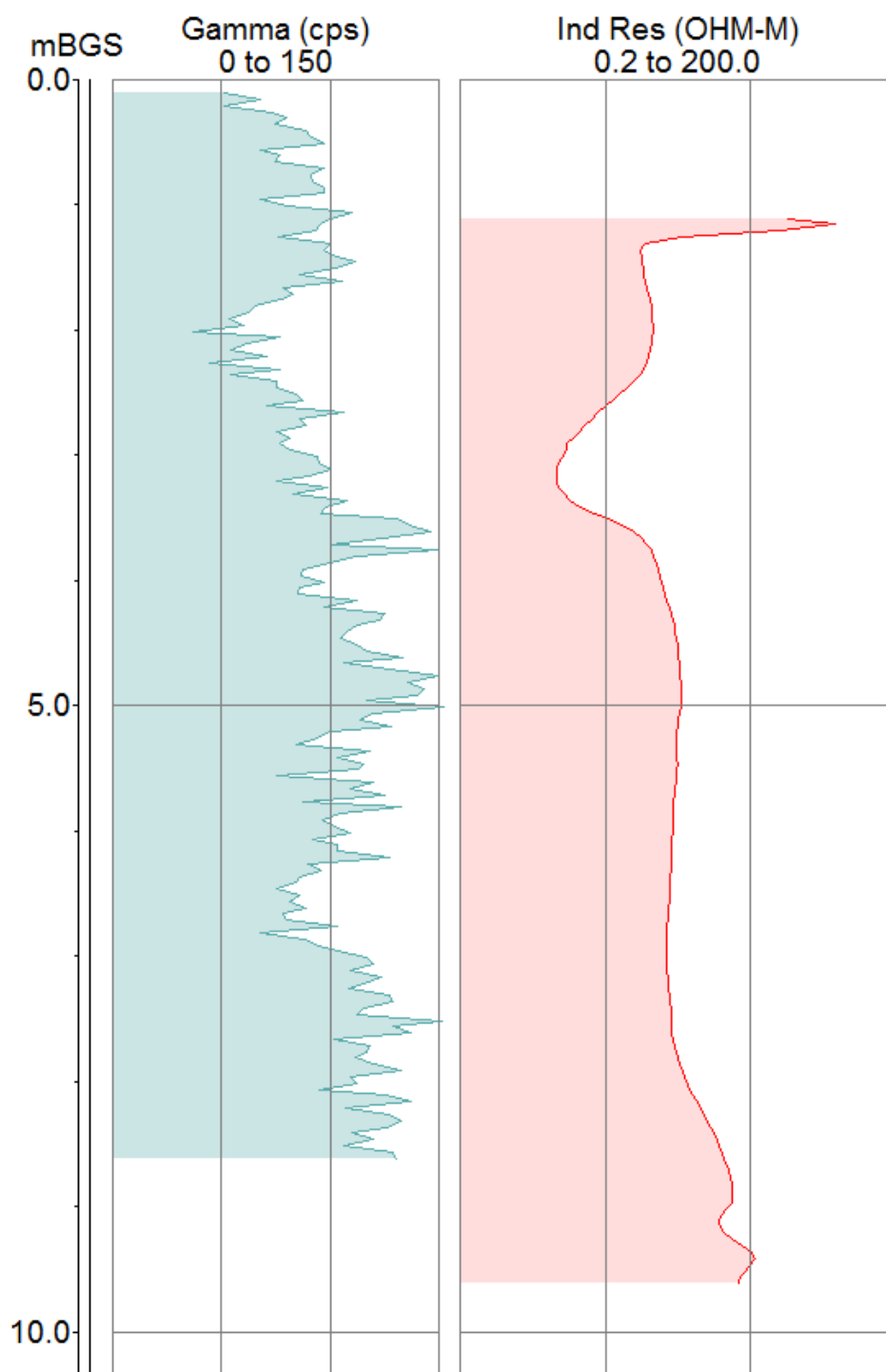
Gamma cps

Depth of casing at logging 1 m

Geophysical Logs

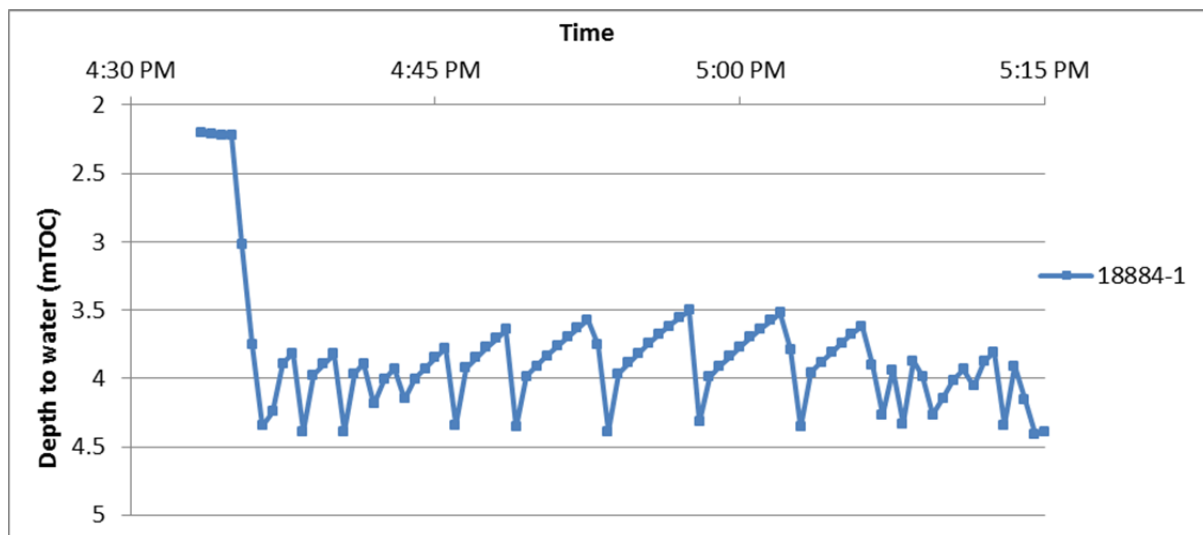
The portable Mount Sopris logging system was used to collect geophysical data from bore 18884-3, the deepest peizometer. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

18884-3

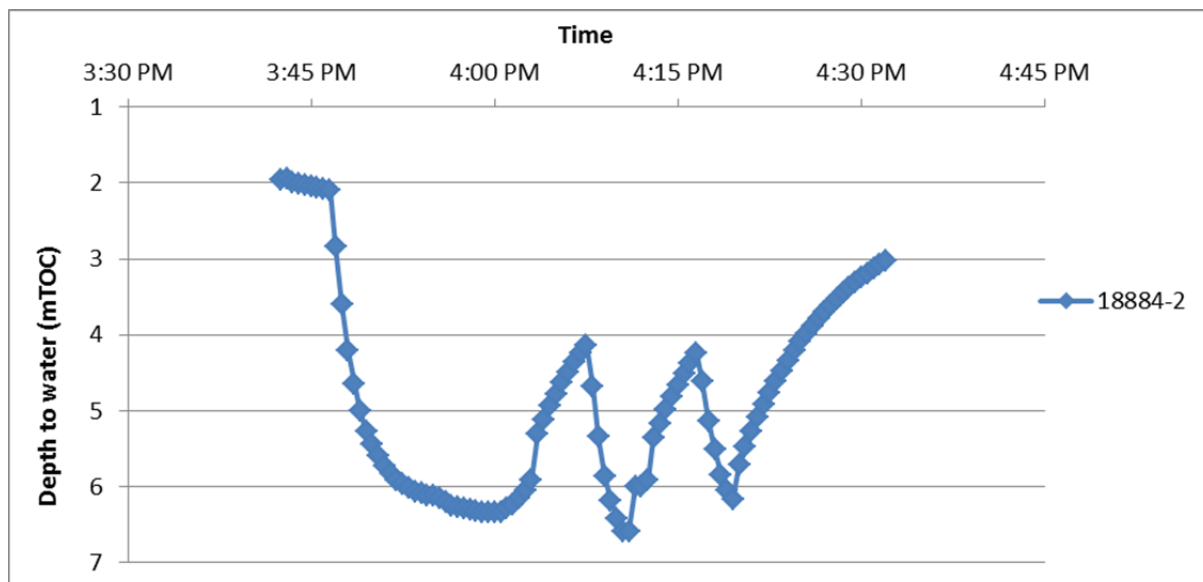


Pumping Test

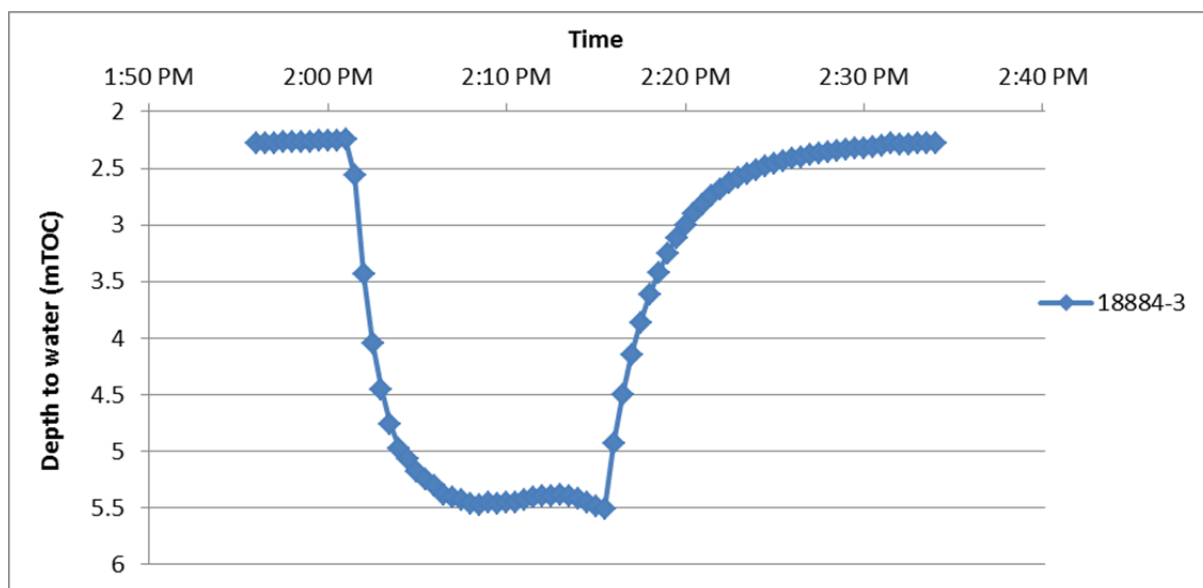
A pumping test was performed on piezometer 18884-1 on 29/06/2012 by attaching a level logger to a submersible Whale pump and lowering the pump to a depth of 4.5 mTOC. This bore pumped dry almost immediately and the flow rate was not measured. This test was performed during sampling so the level was allowed to recover somewhat before pumping again, and repeated until the required purge volume for sampling was reached. The results of the test are presented below. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18884-2 on 29/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 6.8 mTOC and using a flow rate of 2.57 L/min. This test was performed during sampling so the level was allowed to recover somewhat before pumping again, and repeated until the required purge volume for sampling was reached. The results of the test are presented below. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18884-3 on 29/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 8.5 mTOC and using a flow rate of 2.8 L/min. The results of the test are presented below. The report author may be contacted for the full data set.



Chemical Analysis

Basic chemical analysis of the dissolved solutes and concentration of ions in the borehole was performed. The testing also included hydrogen ion activity (pH) and fluid electrical conductivity (EC). Data from the chemical analysis is shown below.

Well ID	Date Sampled	SWL	Field Parameters				Laboratory Analyses							
		m TOC	pH	EC μS/cm	Temp °C	Alkalinity mg/L CaCo ³	Ca ²⁺ mg/L	K ⁺ mg/L	Mg ²⁺ mg/L	Na ⁺ mg/L	Si mg/L	Cl ⁻ mg/L	NO ₃ ⁻ mg/L	SO ₄ ²⁻ mg/L
18884-1	29/06/2012	2.22	9.4	125,973	24.7	2350	808	5200	2720	35200	<10	54188	1212	26532
18884-2	29/06/2012	2.12	10.1	131,411	25.5	2590	1300	5510	378	37000	<10	59063	1025	12607
18884-3	29/06/2012	2.22	7.22	128,075	25.3	2190	646	5130	4700	36500	<10	55614	854	31776