



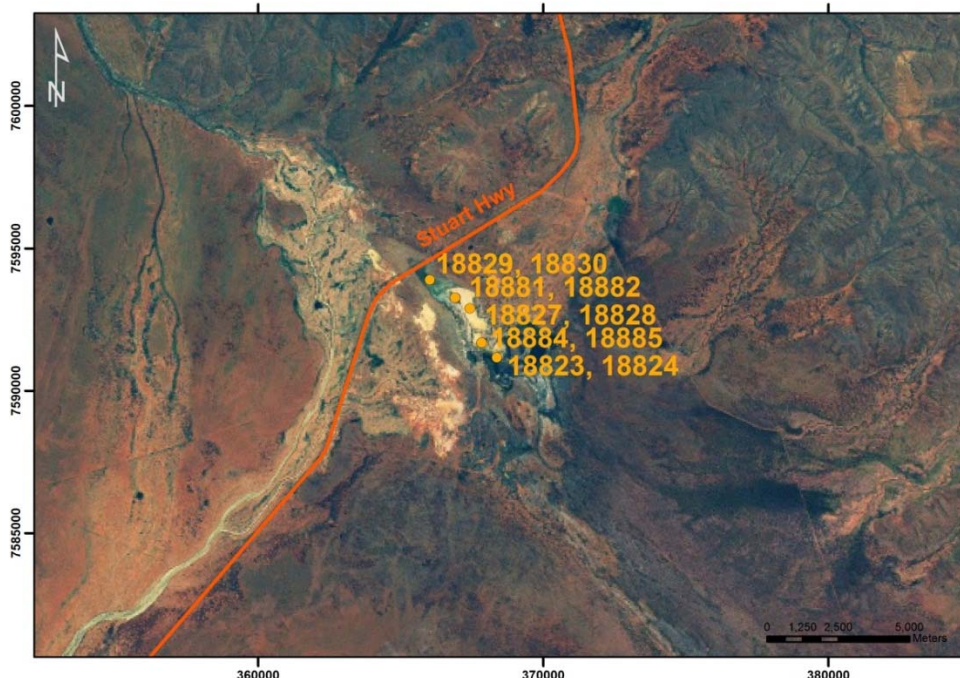
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	366912
Unique Well ID	18881	GPS Northing		7593263
Completion Date	31 May 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 2 L/s.			
Project Comments: 18881 is a triple completion multi-level piezometer. It is located adjacent to 18882. 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
18881-1	50/PVC12	475.304	-0.965	5.7	50/0.5/UPVC18	4.2	4.5	4.8	5.2	2.7
18881-2	50/PVC12	475.293	-0.945	8.6	50/0.5/UPVC18	6.75	6.85	7.1	8.1	2.69
18881-3	50/PVC12	475.243	-0.9	9.6	50/0.5/UPVC18	8.74	8.8	9.1	9.6	2.7

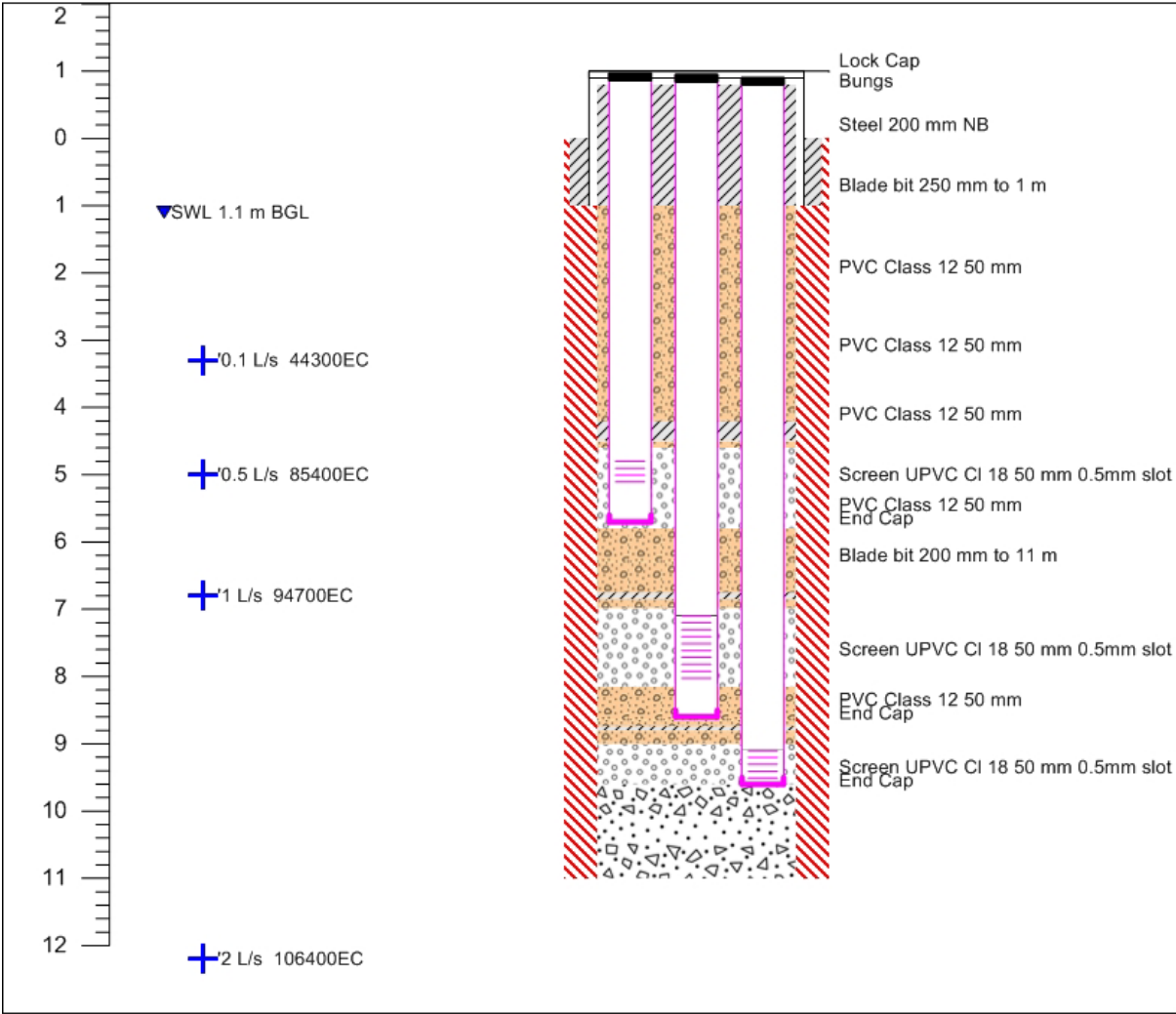


Map of Ti Tree Super Science Piezometer Locations, Stirling Swamp, NT.

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

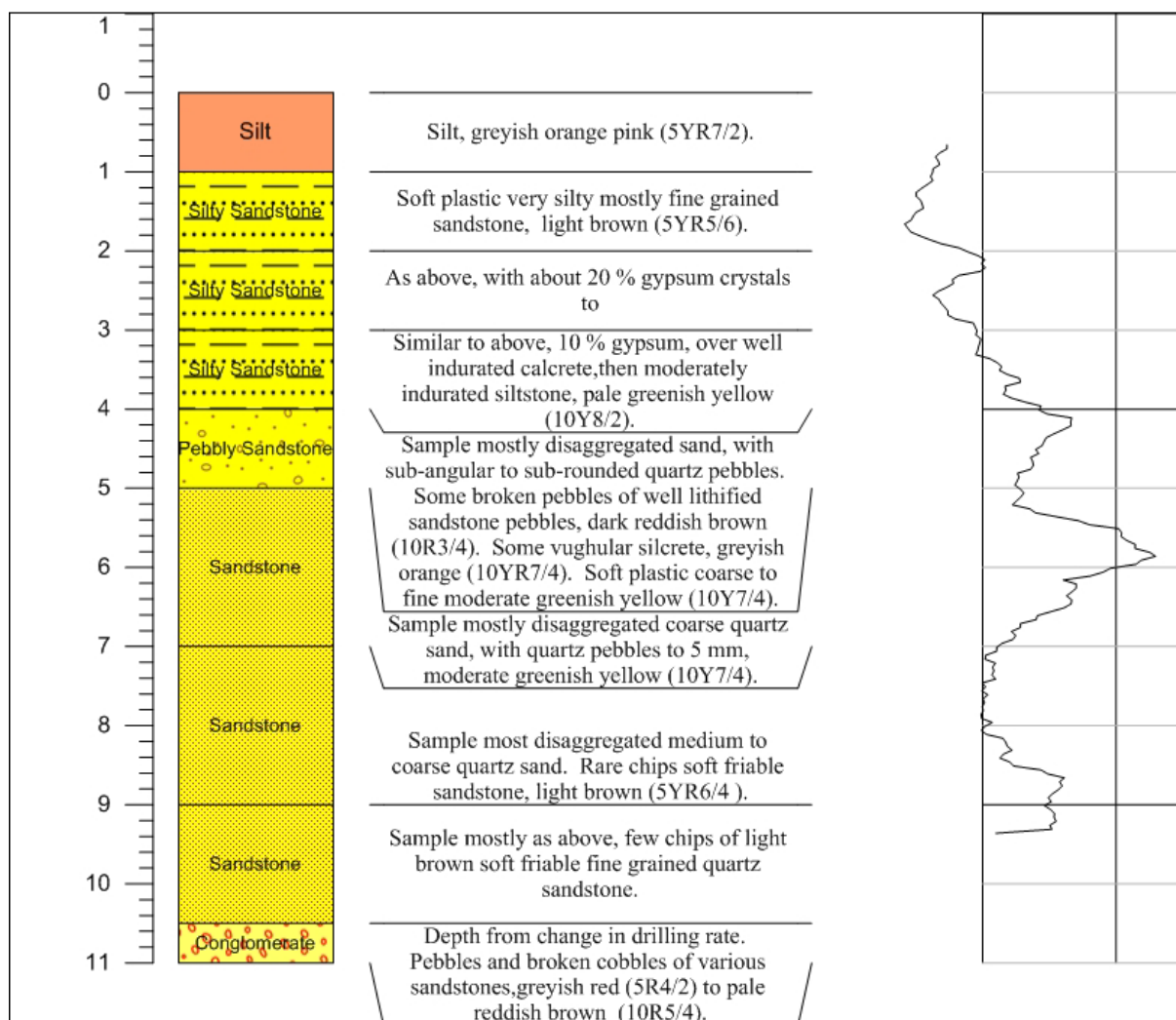
Infrastructure Report prepared by:	Contact Details:	Checked by:
	stephanie.villeneuve@flinders.edu.au Office: 08 8201 2724	Prof Peter Cook 

Well Completion Log



Page 1 of 1		Construction Legend	
Date Start 24/05/2012	Steel	Gravel Pack	Creek Sand
Completed 31/05/2012	PVC	Lock Cap	Fall Back
Contractor NRETAS	Slots	Bung	Soil
	Hole	End Cap	Cuttings
	Cement	Bentonite	Screen

Lithology Log



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Air Lift Yield L/s 2

Date Start 24/05/2012 Electrical Conductivity μ Siemens/cm 106400

Completed 31/05/2012 Standing Water Level m BGL 1.1

Contractor NRETAS

Status

Piezometer

60 110

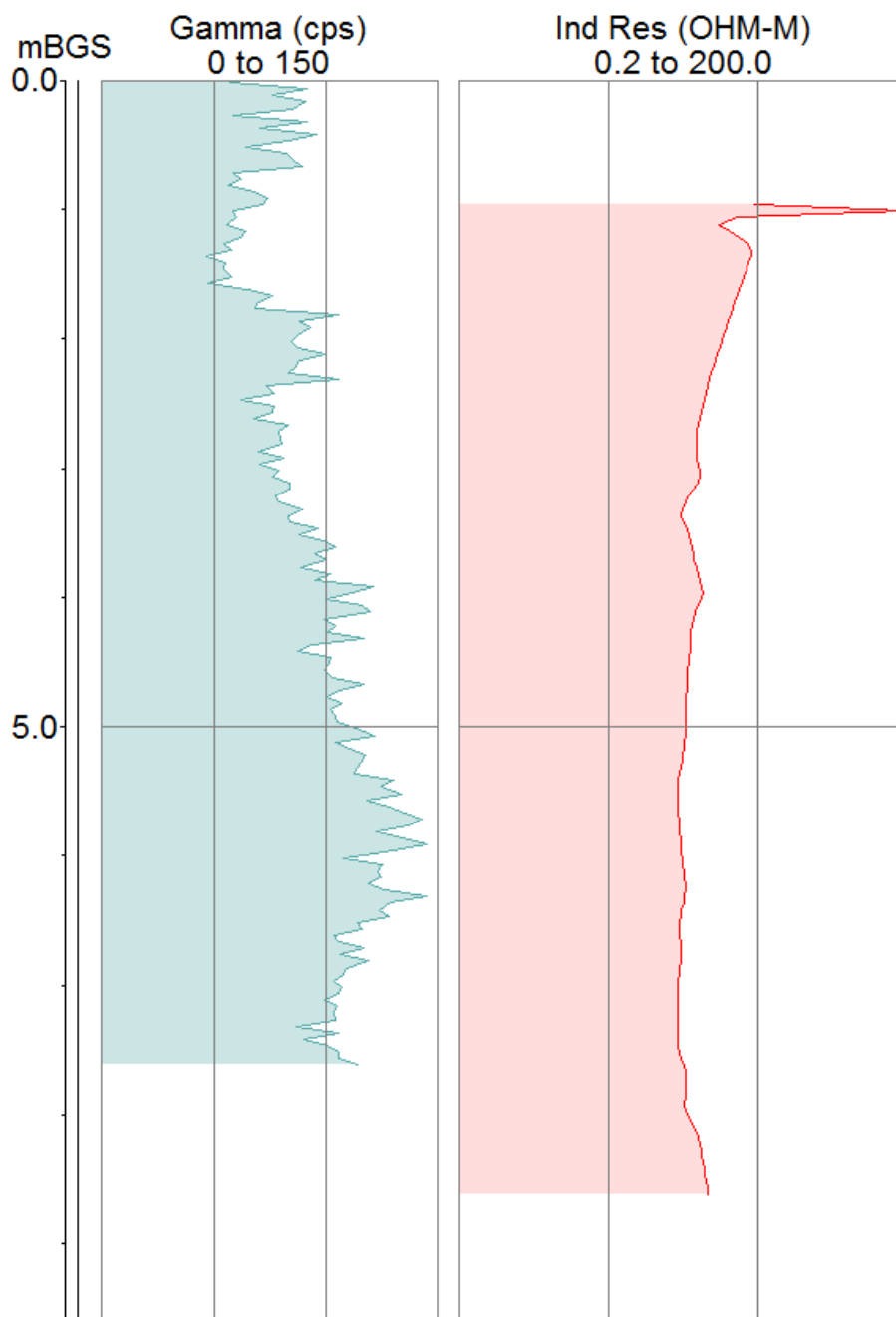
Gamma cps

Depth of casing at logging 1 m

Geophysical Logs

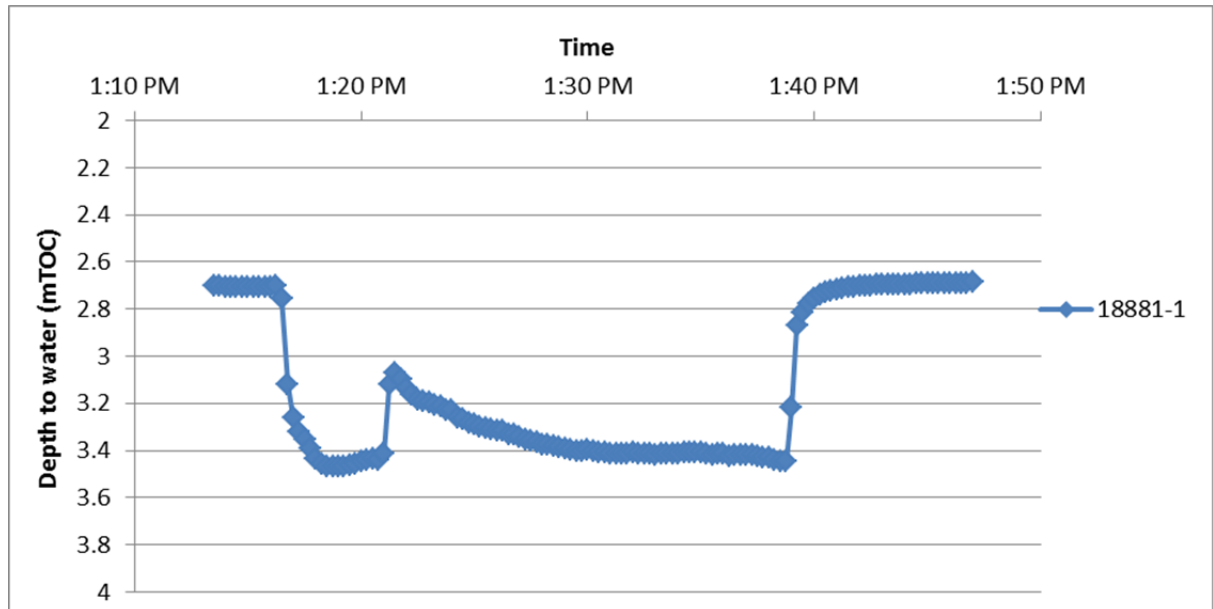
The portable Mount Sopris logging system was used to collect geophysical data from bore 18881-3, the deepest peizometer. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

18881-3

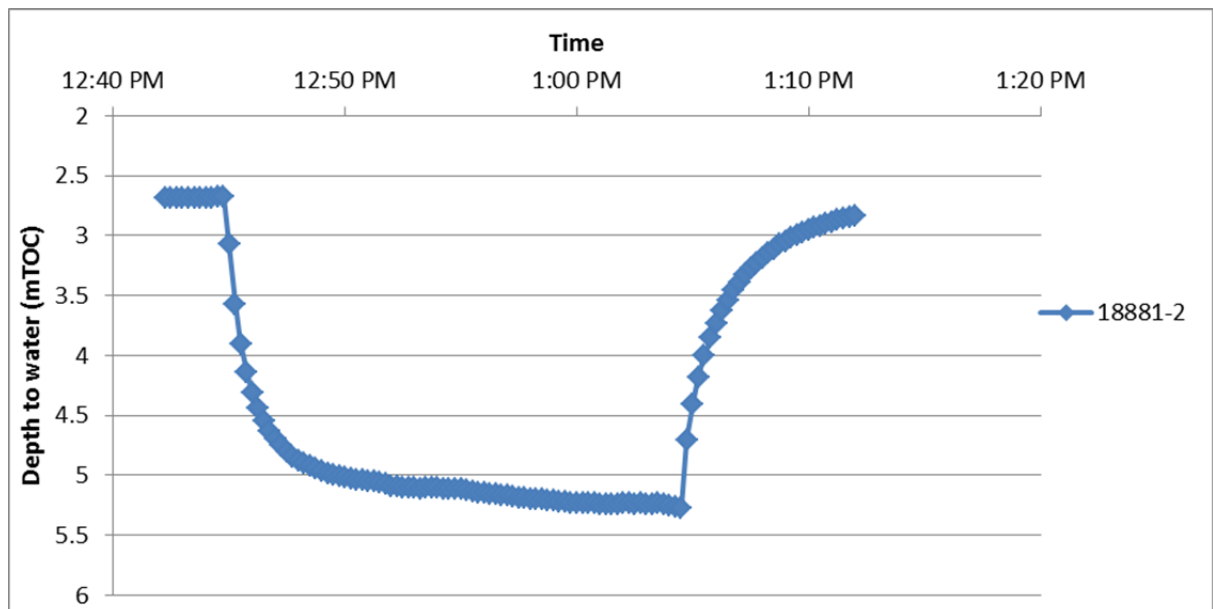


Pumping Test

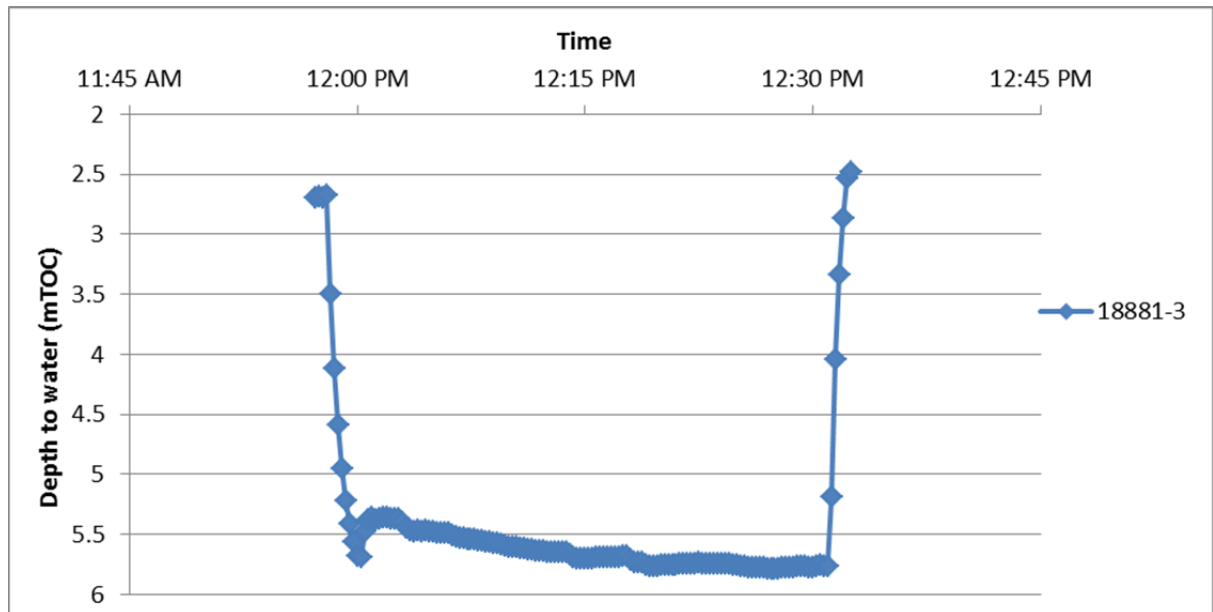
A pumping test was performed on piezometer 18881-1 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 4.9 mTOC and using a flow rate of 5.68 L/min. The results of the test are presented below. The pump was briefly turned off at ~1:20 pm, and a recovery following this can be seen in the graph. Pumping resumed almost immediately at the same flow rate. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18881-2 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 7.6 mTOC and using a flow rate of 6.75 L/min. 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 18881-3 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 8.9 mTOC and using a flow rate of 3.08 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
18881-1	27/06/2012	2.7	8.49	105,033	26.1	1320	729	3870	2530	27800	<10	42289	44	21526
18881-2	27/06/2012	2.69	8.6	121,785	26.9	1460	700	4670	3630	34000	<10	54832	37	26599
18881-3	27/06/2012	2.7	8.26	123,622	27.2	1440	672	4700	4410	34200	<10	53747	46	28737