



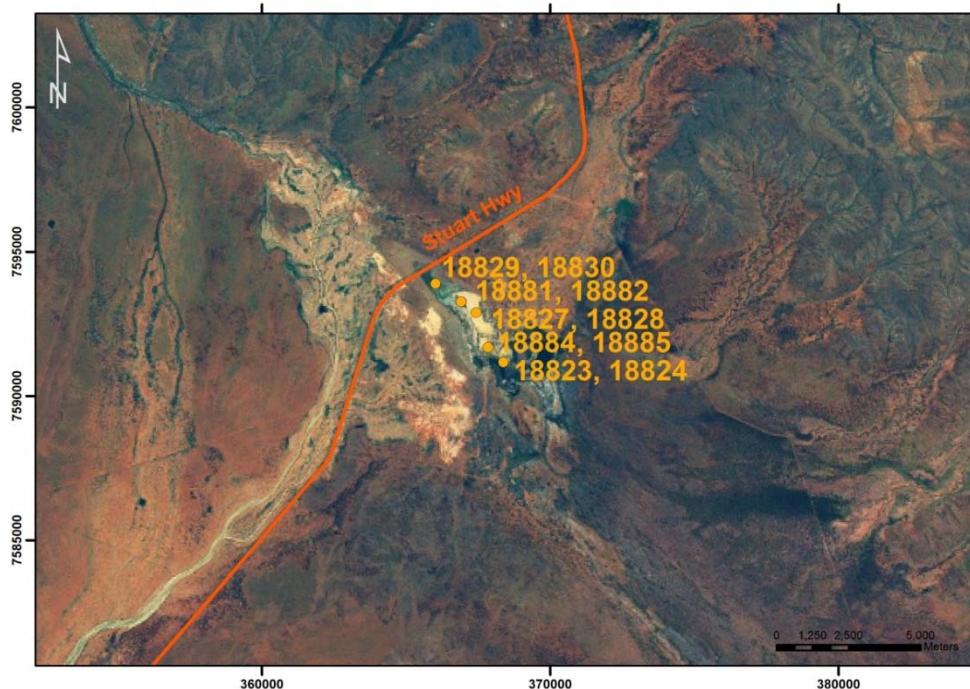
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report



Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	366017
Unique Well ID	18829	GPS Northing		7593896
Completion Date	30 May 2012	Location		Stirling Swamp, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-Swing Top	Depth Drilled		12.4 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 0.5 L/s			
Project Comments: 18829 is a triple completion multi-level piezometer. It is located adjacent to 18830. 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
18829-1	50/PVC12	475.911	-0.96	6.96	50/0.5/UPVC18	5.68	5.78	6.06	6.46	3.23
18829-2	50/PVC12	475.908	-0.945	10.6	50/0.5/UPVC18	6.78	8.6	9.5	9.9	3.26
18829-3	50/PVC12	475.765	-0.81	11.5	50/0.5/UPVC18	10.25	10.49	11.0	11.5	3.13

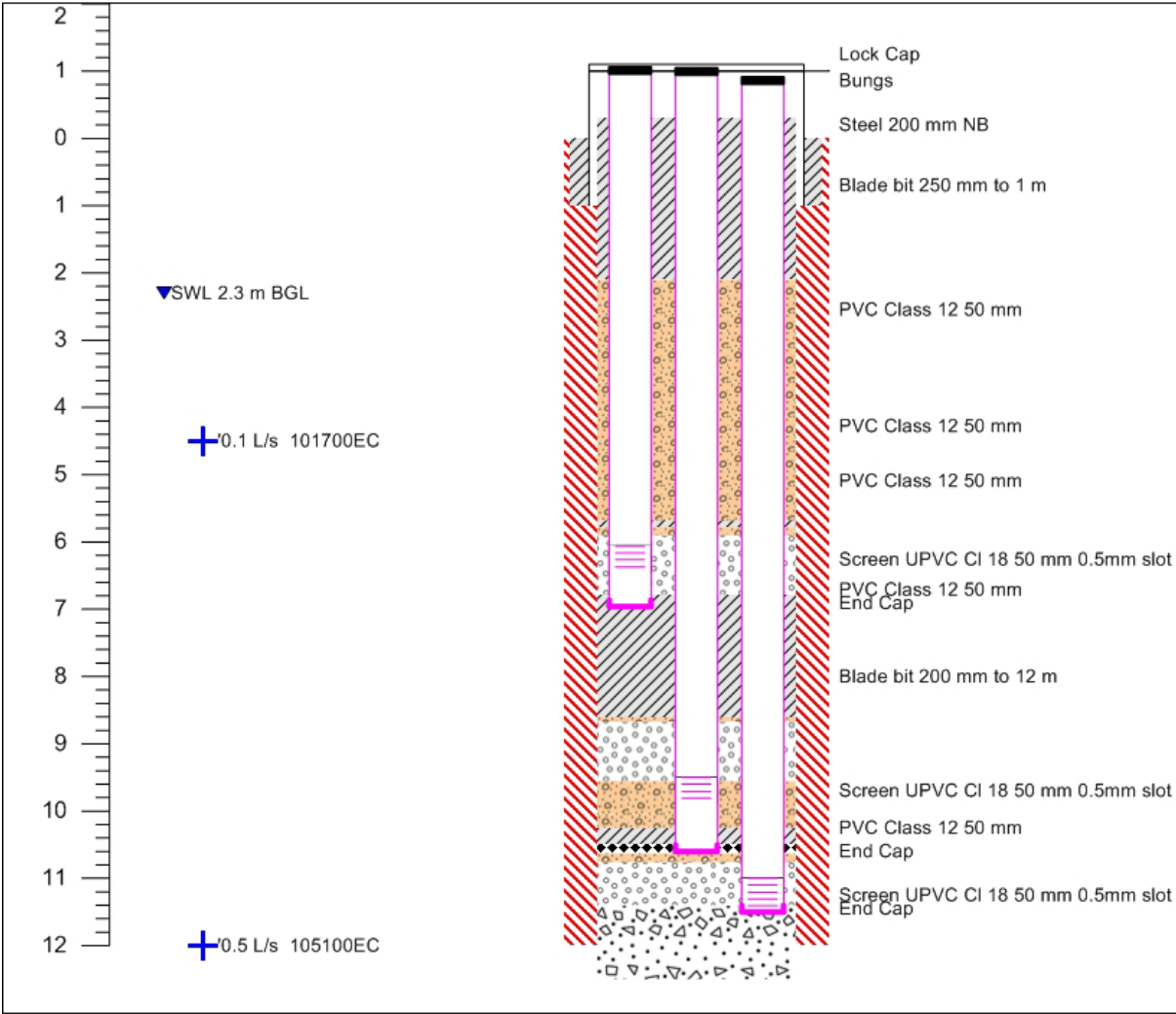


Map of Ti Tree Super Science Piezometer Locations, Stirling Swamp, NT.

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

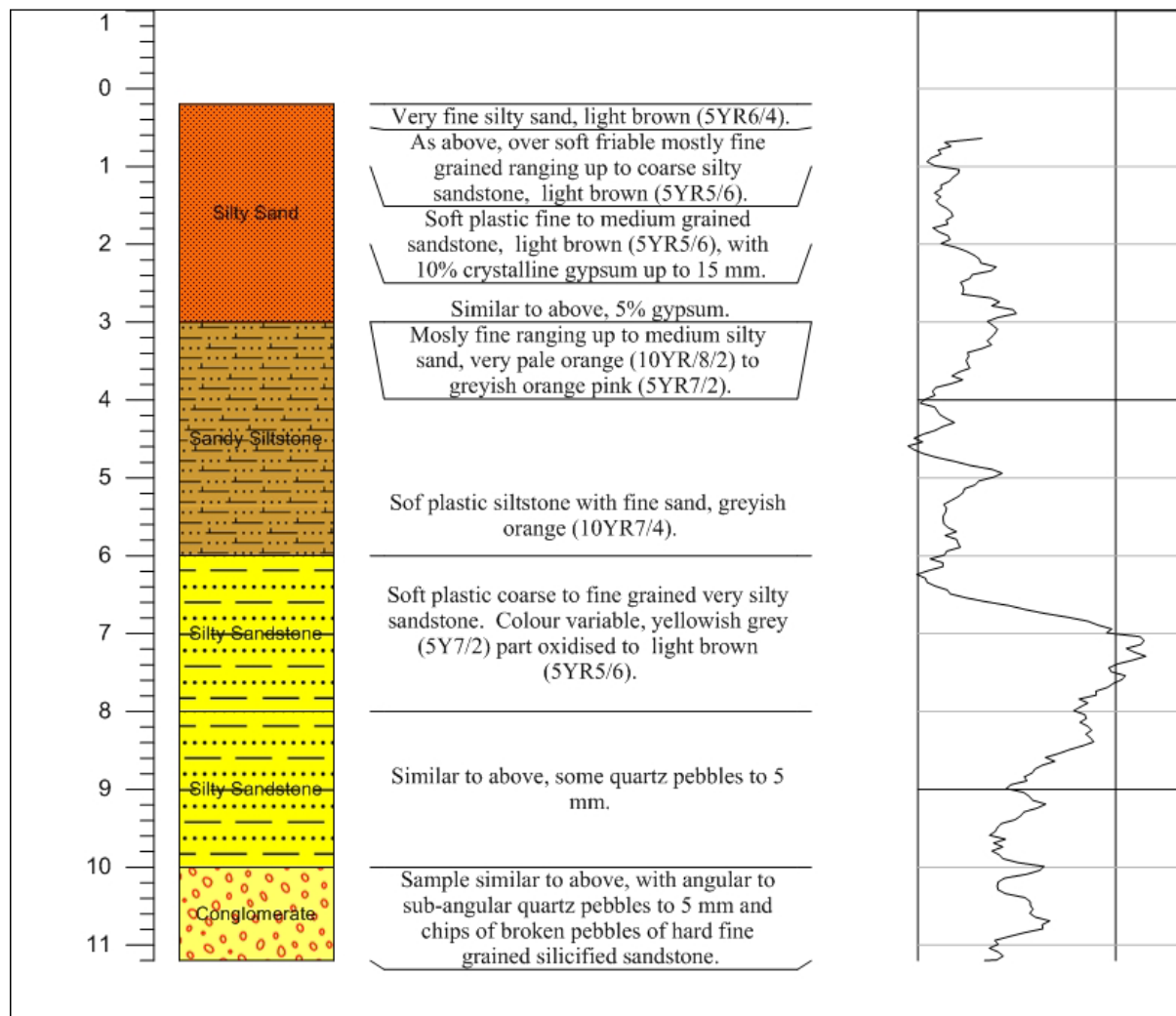
Infrastructure Report prepared by:	Contact Details:	Checked by:
	stephanie.villeneuve@flinders.edu.au Office: 08 8201 2724	Prof Peter Cook 

Well Completion Log



Page 1 of 1		Construction Legend	
Date Start 24/05/2012	Steel	Gravel Pack	Creek Sand
Completed 30/05/2012	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 0.5

Date Start 24/05/2012 Electrical Conductivity μ Siemens/cm 105000

Completed 30/05/2012 Standing Water Level m BGL 2.3

Contractor NRETAS

Status

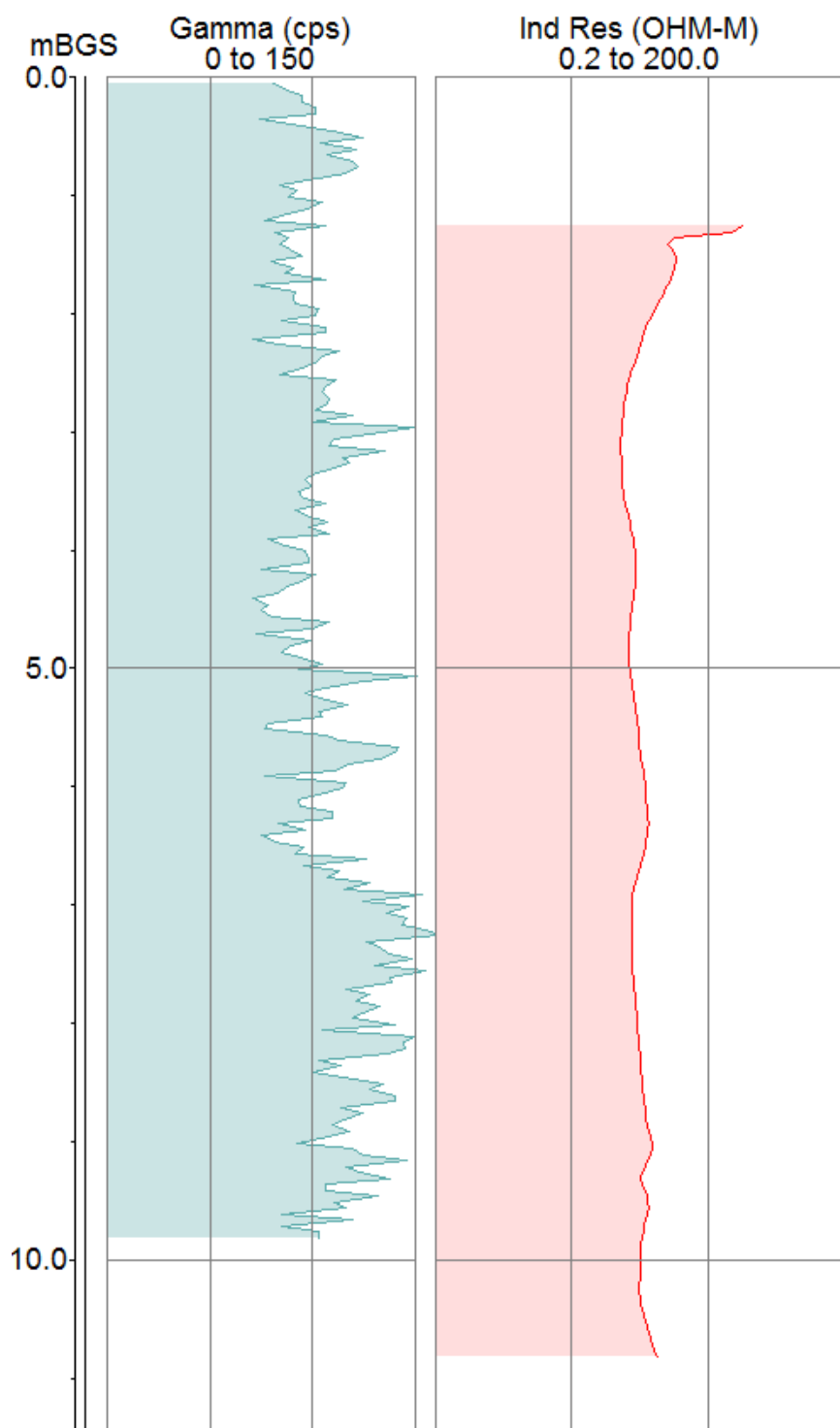
Piezometer

Gamma cps
Depth of casing at logging 1 m

Geophysical Logs

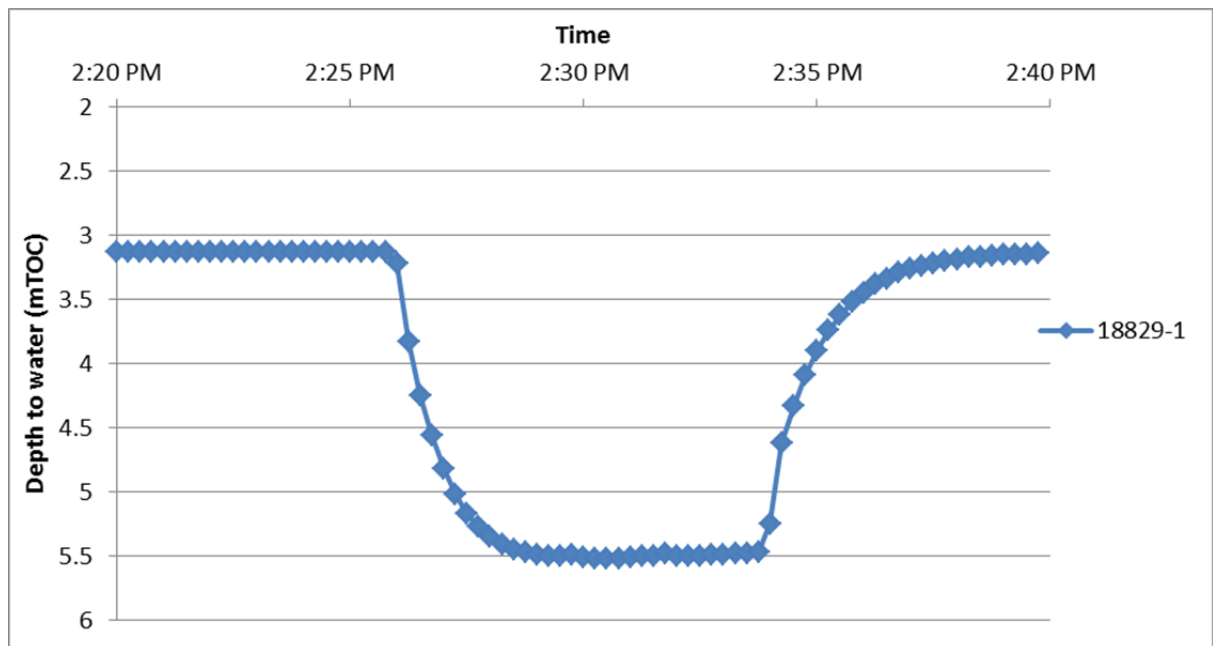
The portable Mount Sopris logging system was used to collect geophysical data from bore 18829-3, the deepest peizometer. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

18829-3

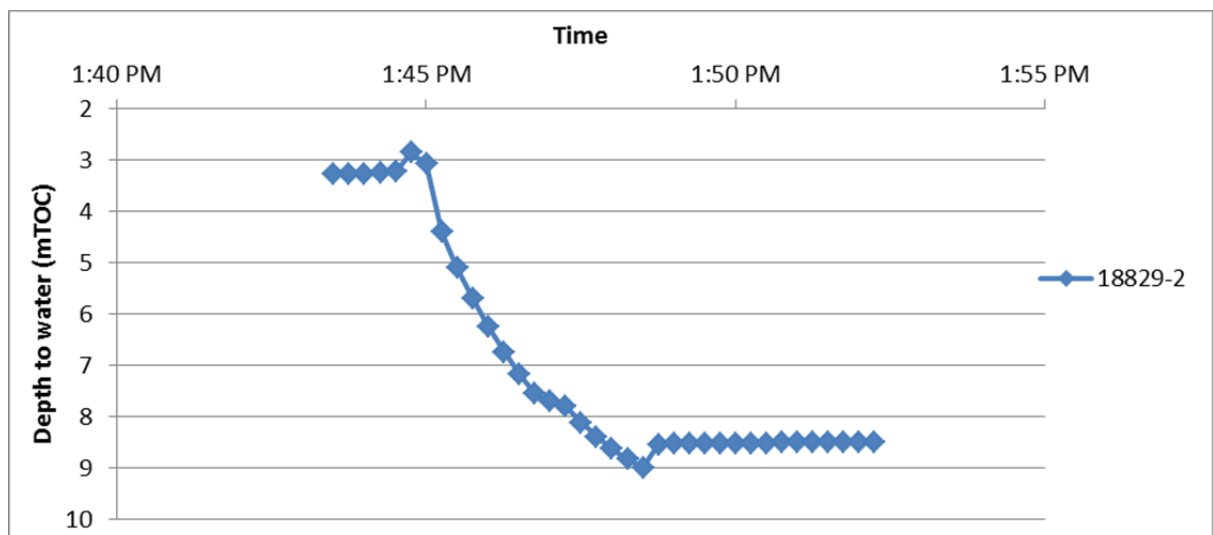


Pumping Tests

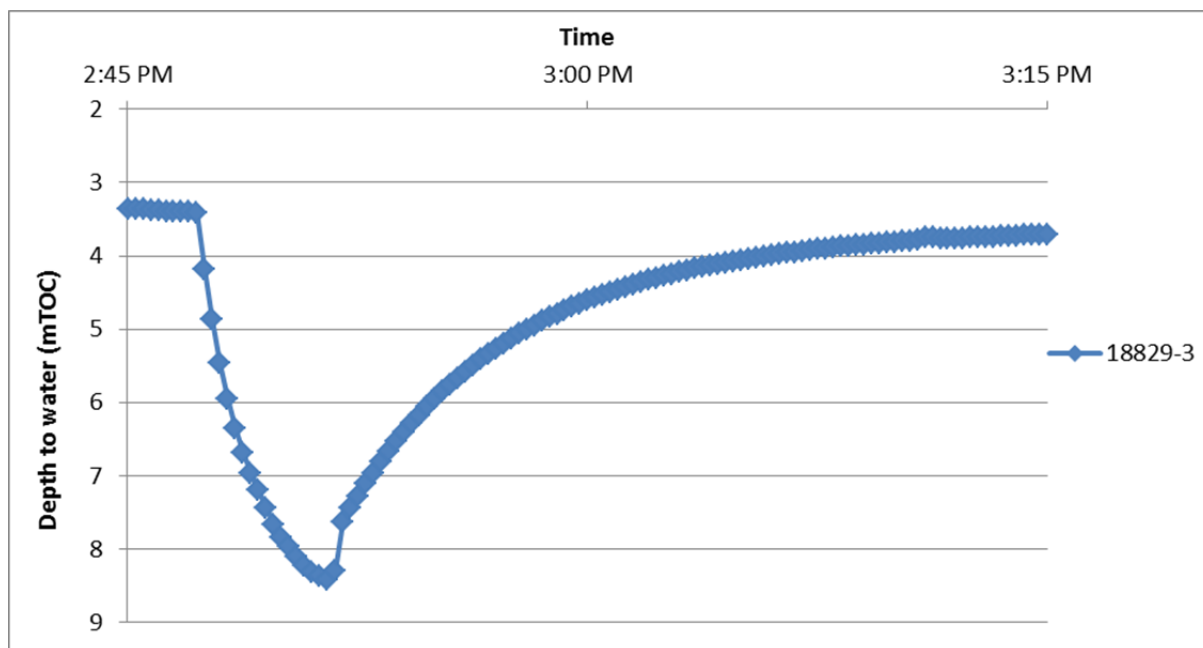
A pumping test was performed on piezometer 18829-1 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 6 mTOC and using a flow rate of 4.69 L/min. The results of the test are presented below. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18829-2 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 9.5 mTOC and using a flow rate of 5.68 L/min. The results of the test are presented below. This bore was low yielding, hence the rapid drawdown to the pump depth. The initial recovery from 8.98-8.54 m is likely from water in the tubing draining back into the well. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18829-3 on 27/06/2012 by attaching a level logger to a submersible Whale pump, lowering the pump to a depth of 9.5 mTOC and using a flow rate of 5.68 L/min. The results of the test are presented below. Some of the initial recovery from 8.38-7.63 m is likely from water in the tubing draining back into the well. 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 $\mu\text{S}/\text{cm}$	Temp $^{\circ}\text{C}$	Alkalinity $\text{mg}/\text{L CaCO}_3$	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
18829-1	1/07/2012	3.23	7.8	105,500	26.5	1000	693	4090	4350	26400	<10	42251	120	25238
18829-2	27/06/2012	3.26	-		-		1410	4190	417	23900	<10	40955	41	7098
18829-3	27/06/2012	3.13	8.3	99,500	26.6	2600	735	3790	3580	24200	<10	39848	85	21490