



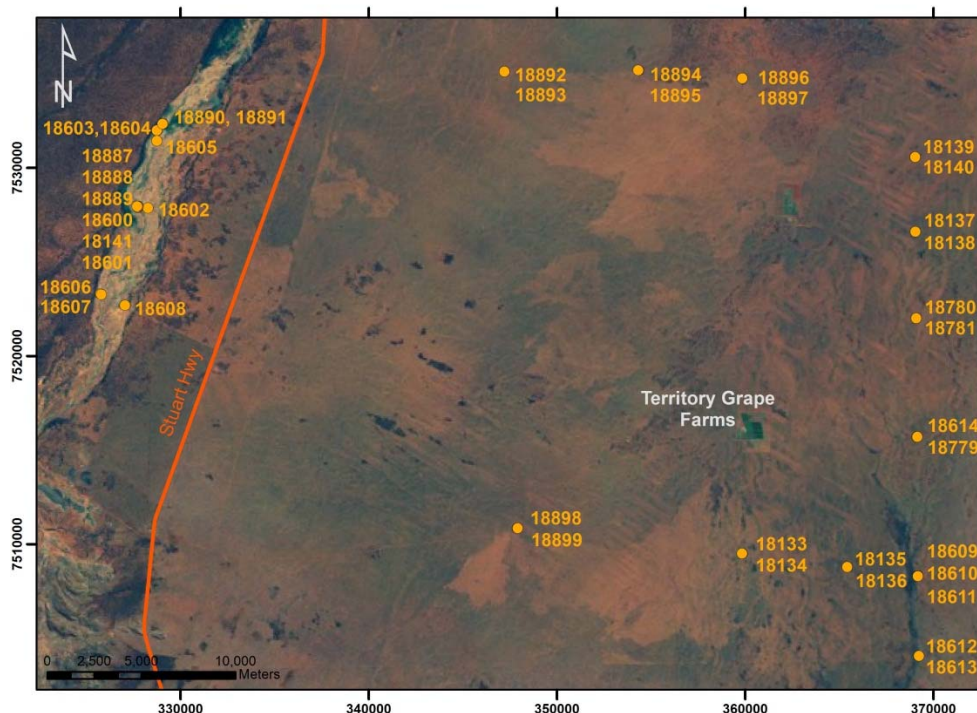
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	359838
Unique Well ID	18134	GPS Northing		7509487
Completion Date	24 November 2011	Location		Pine Hill Station, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-White-Swing Top	Depth Drilled		51.0 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 2 L/s.			
Project Comments: 18134 is a dual completion multi-level piezometer. It is located adjacent to 18133. Together, these bores provide a nest of five 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		-0.75	5.7	NA	0.0	5.7	NA	NA	NA
18134-2	50/PVC9	575.898	-0.7	33.2	50/1/PVC	-0.5	0.0	30.2	32.2	26.215
18134-1	50/PVC9	575.873	-0.675	49.8	50/1/PVC	-0.5	0.0	47.3	48.3	26.2

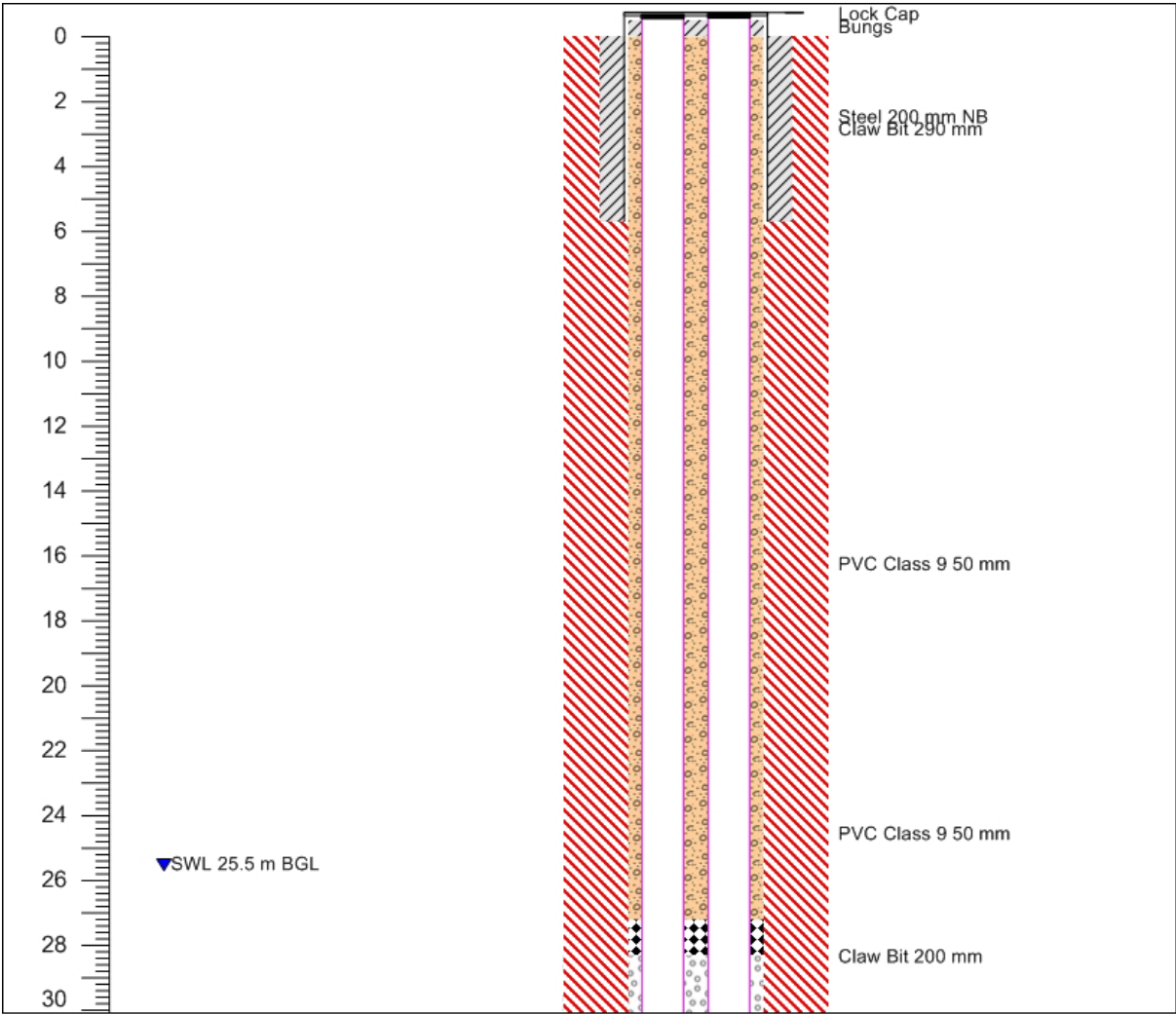


Map of Ti Tree Super Science Piezometer Locations, Pine Hill Station, NT.

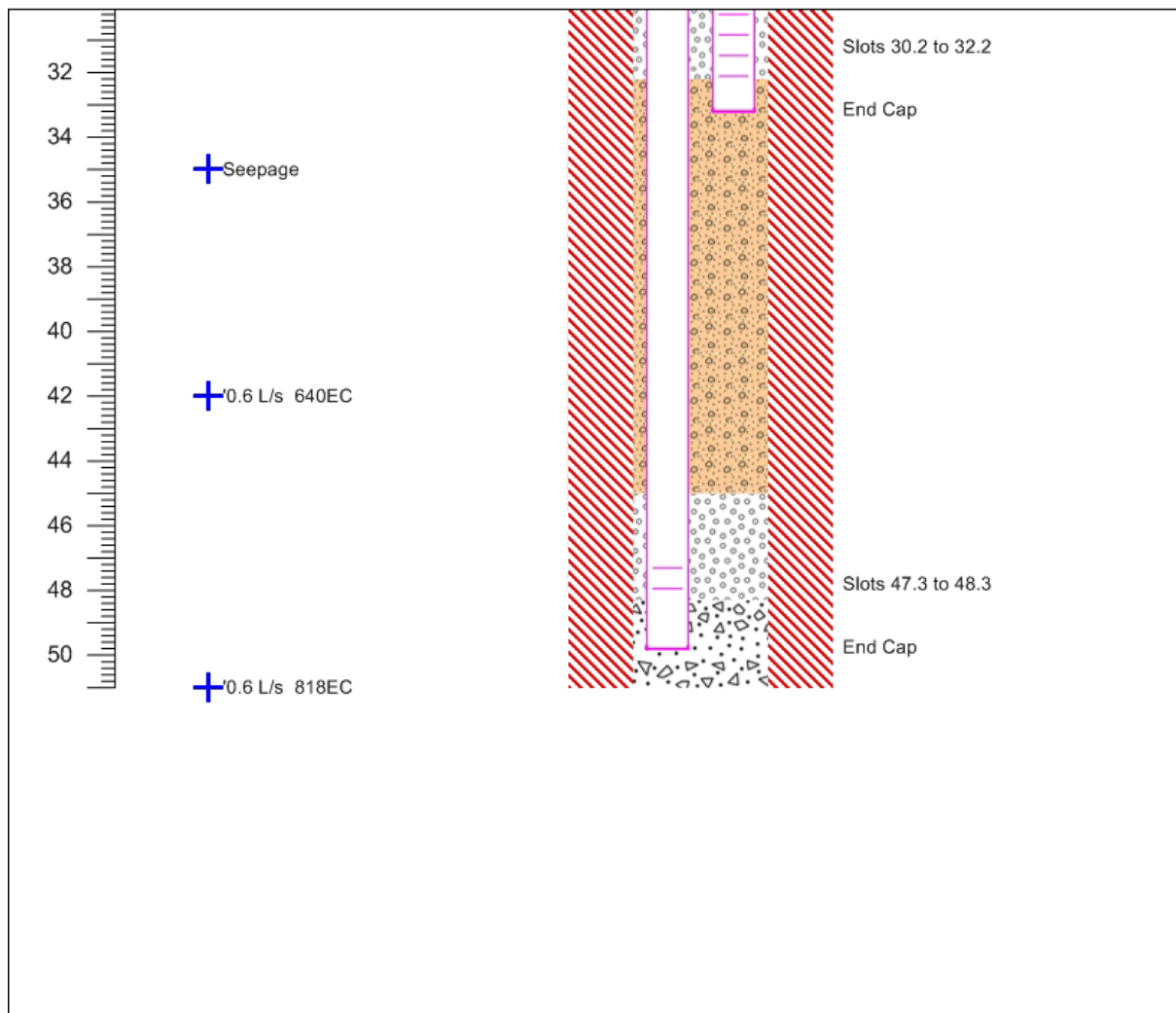
Note* Appendix includes Well Completion, Lithology and Geophysical Logs, Hydraulic Test and Chemical Analysis.

Infrastructure Report prepared by:	Contact Details:	Checked by:
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Well Completion Log



Page 1 of 2		Construction Legend	
Date Start 23/11/2011	Steel	Gravel Pack	Bentonite
Completed 24/11/2011	PVC	Lock Cap	Creek Sand
Contractor NRETAS	Slots	Bung	Fall Back
	Hole	End Cap	Soil
	Cement		



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Date Start 23/11/2011

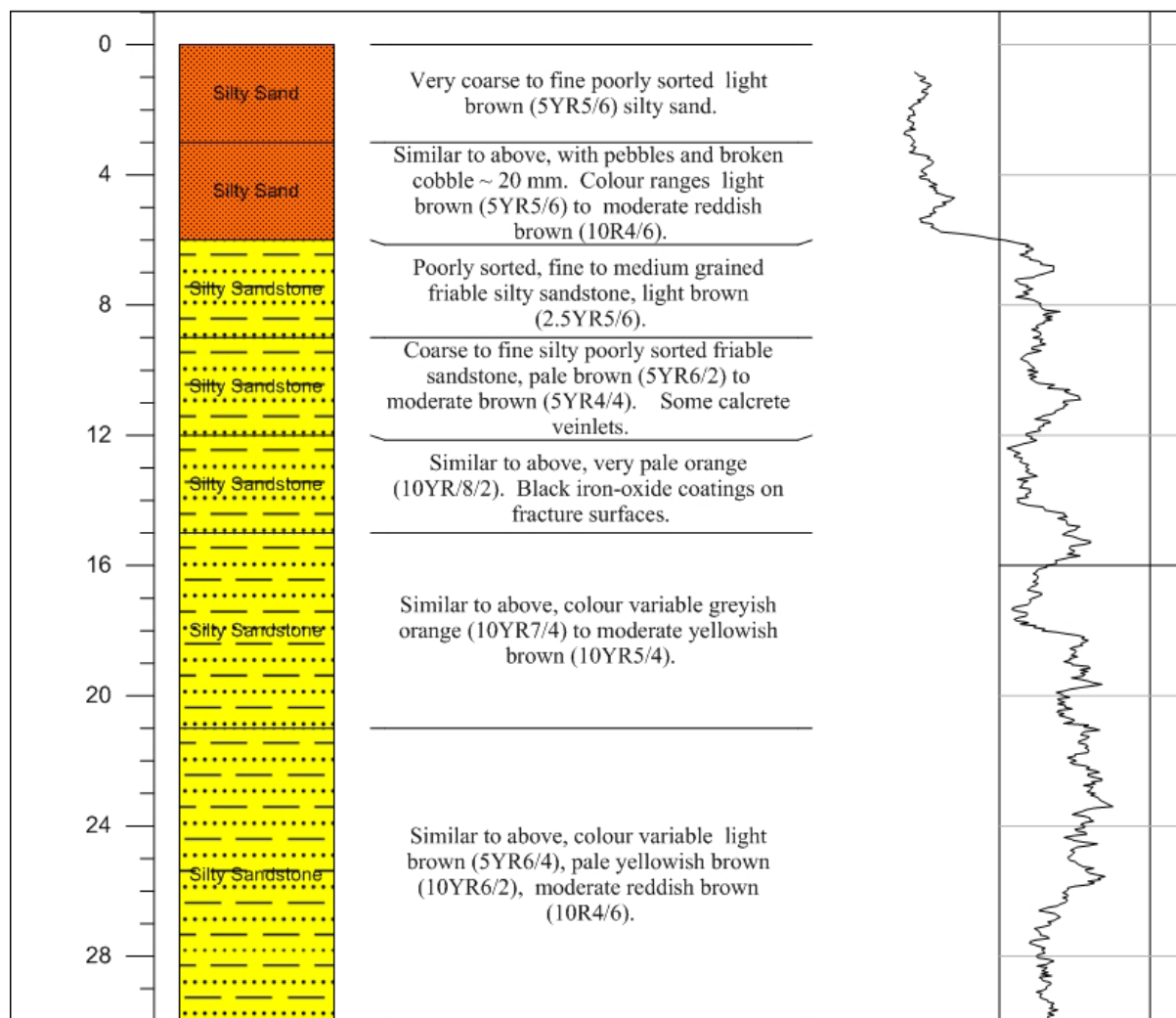
Completed 24/11/2011

Contractor NRETAS

Construction Legend

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

Lithology Log



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Air Lift Yield L/s

2

Date Start 23/11/2011 Electrical Conductivity μ Siemens/cm

818

Completed 24/11/2011 Standing Water Level m BGL

25.5

Contractor NRETAS

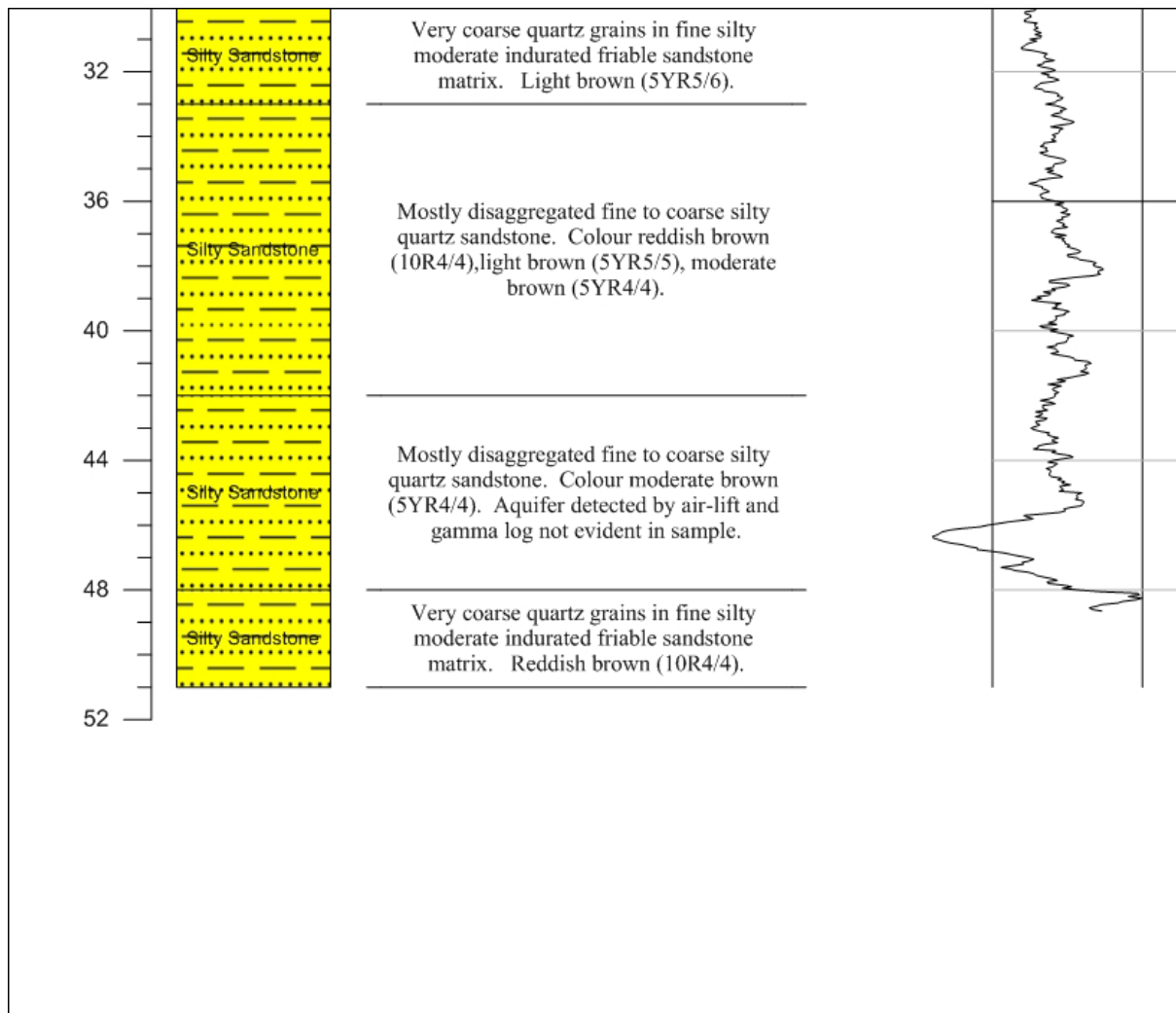
Status Piezometer

60

110

Gamma cps

Depth of casing at logging 5.7m



Page 2 of 2	Air Lift Yield L/s	2	
Date Start 23/11/2011	Electrical Conductivity μ Siemens/cm	818	
Completed 24/11/2011	Standing Water Level m BGL	25.5	
Contractor NRETAS	Status Piezometer		

60

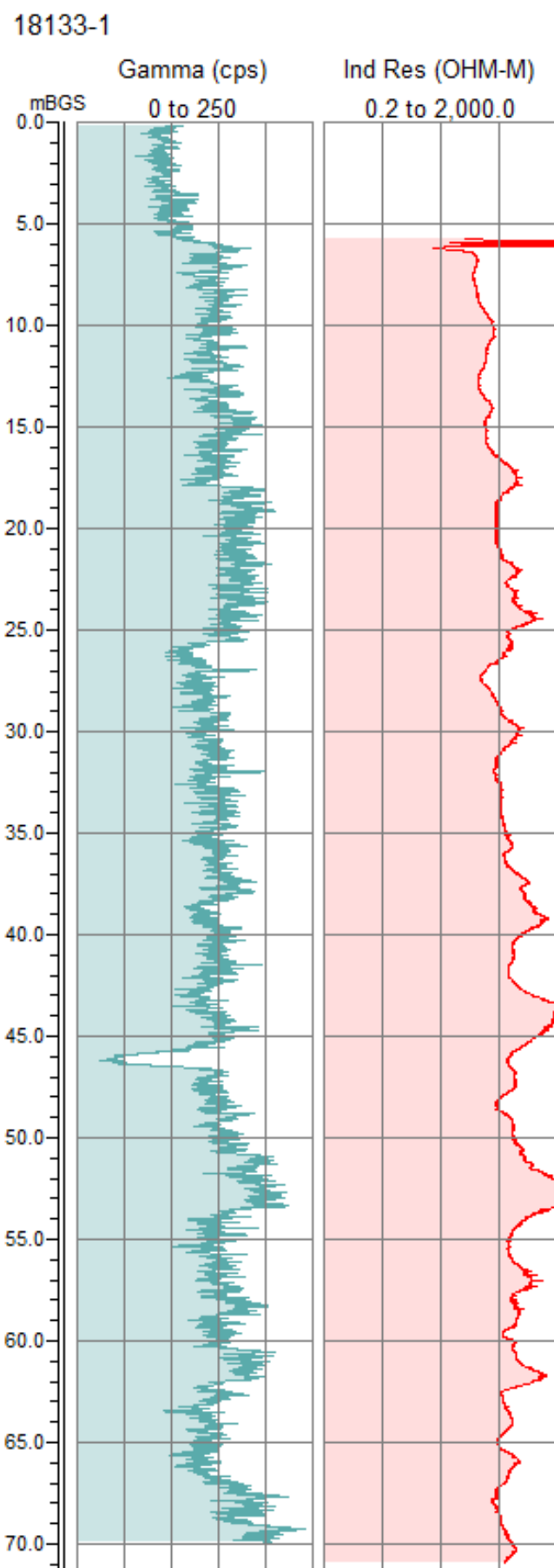
110

Gamma cps

Depth of casing at logging 5.7m

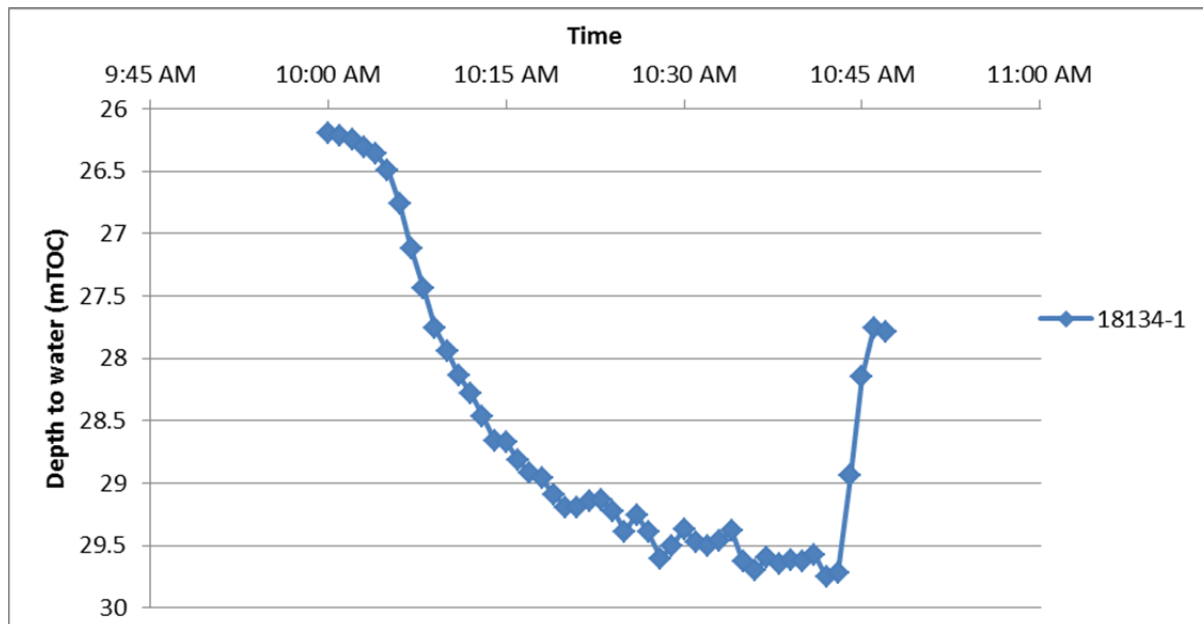
Geophysical Logs

The portable Mount Sopris logging system was used to collect geophysical data from bore 18133-1, adjacent to 18134. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

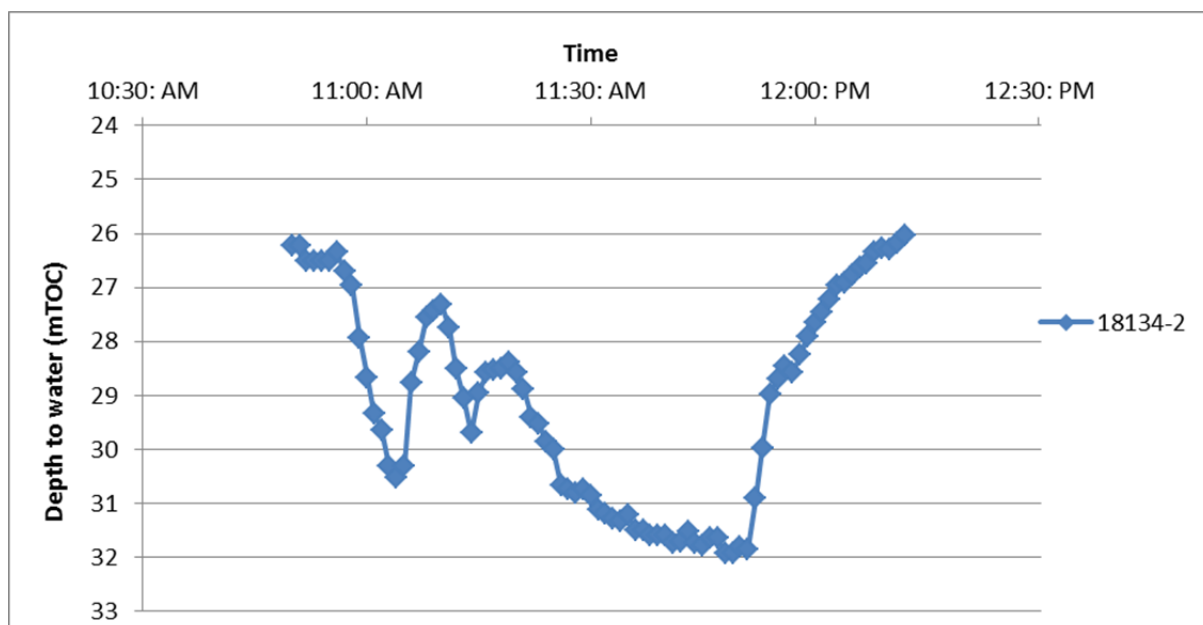


Pumping Test

A pumping test was performed on piezometer 18134-1 on 3/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 35 mTOC and using a flow rate of 8.5 L/min. The results of the test are presented below. The recovery from 29.7-27.7 m is likely from water in the tubing draining back into the well. The pump and logger were removed before full recovery was observed. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18134-2 on 3/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 33 mTOC and using a flow rate of 3.5 L/min. The results of the test are presented below. The pump shorted out twice during the test, hence the initial drawdown and recoveries. The initial recovery from 31.8-28.5 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	pH	EC	Temp	Alkalinity	Ca ²⁺	K ⁺	Mg ²⁺	Na ⁺	Si	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻
		TOC		μS/cm	°C	mg/L CaCo ³	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
18134-2	3/02/2012	26.2	7.07	823	30	289	33.4	21.8	20.2	79.8	28.8	51	30.2	41.75
18134-1	3/02/2012	26.2	7.01	1051	29.9	224	42.5	24.4	23.7	99.5	33.9	114	71.1	66.51