



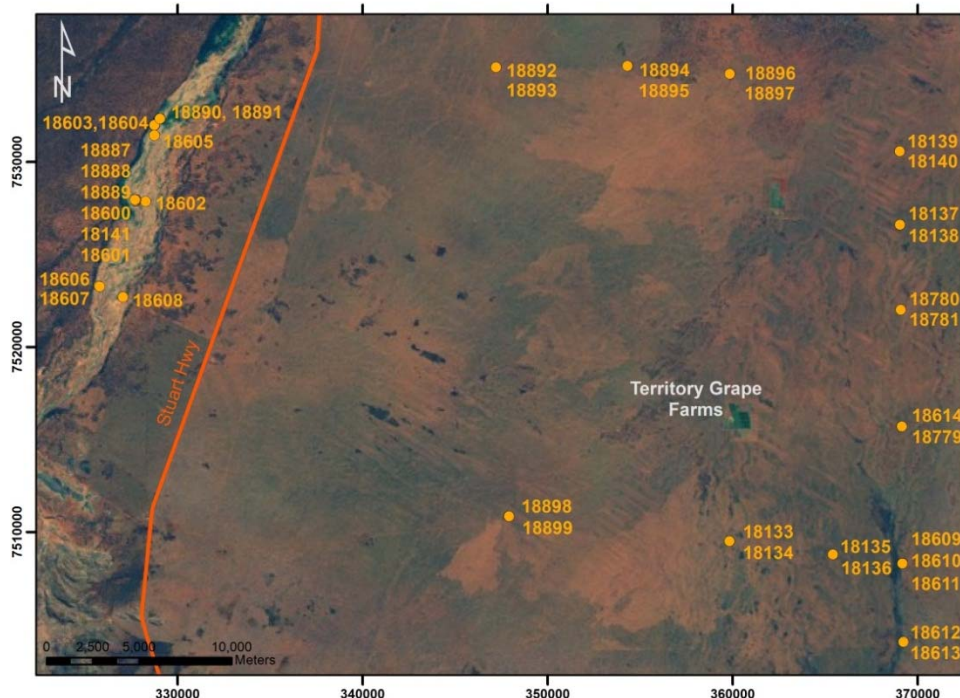
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type	Multi-Level Piezometer	GPS Easting	(MGA-94 Zone 53)	365424
Unique Well ID	18135	GPS Northing		7508779
Completion Date	25 November 2011	Location		Pine Hill Station, NT
Drilled By	NRETAS	Installed By		NRETAS
Monument Type	Round-White-Swing Top	Depth Drilled		78.0 m
Monument Diameter/Width	216 mm	Drilled Diameter/Method		200 mm (min), Rotary Air
Development Details	Airlift 3 L/s.			
Project Comments: 18135 is a triple completion multi-level piezometer. It is located adjacent to 18136. 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		-0.8	5.7	NA	0.0	5.7	NA	NA	NA
18135-3	50/PVC9	577.750	-0.755	48.8	50/1/PVC	-0.5	0.0	45.2	47.2	30.08
18135-2	50/PVC9	577.732	-0.74	58.3	50/1/PVC	-0.5	0.0	56	58	30.06
18135-1	50/PVC9	577.744	-0.73	69	50/1/PVC	-0.5	0.0	67.9	68.9	30.07

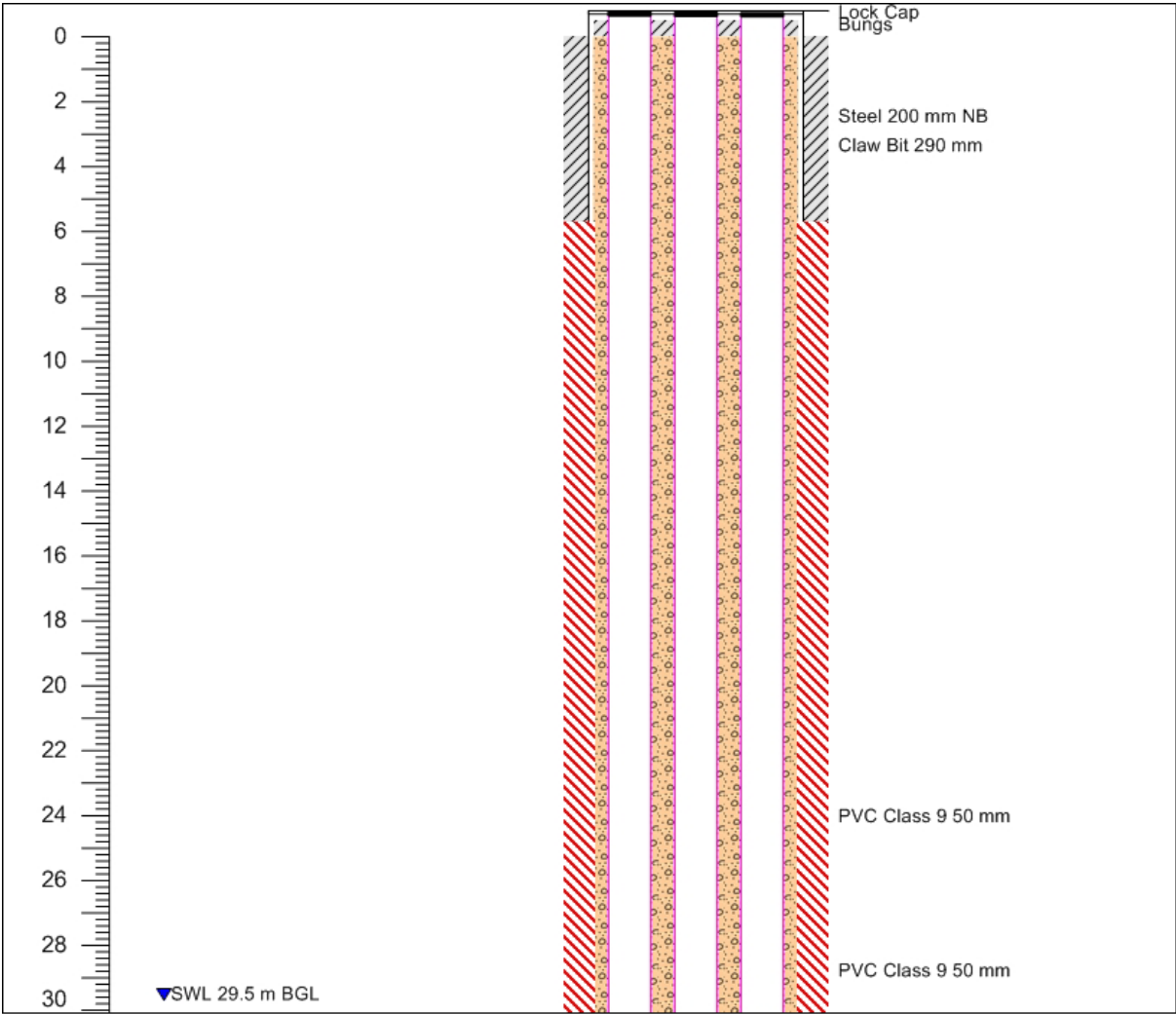


Map of Ti Tree Super Science Piezometer Locations, Pine Hill Station, NT.

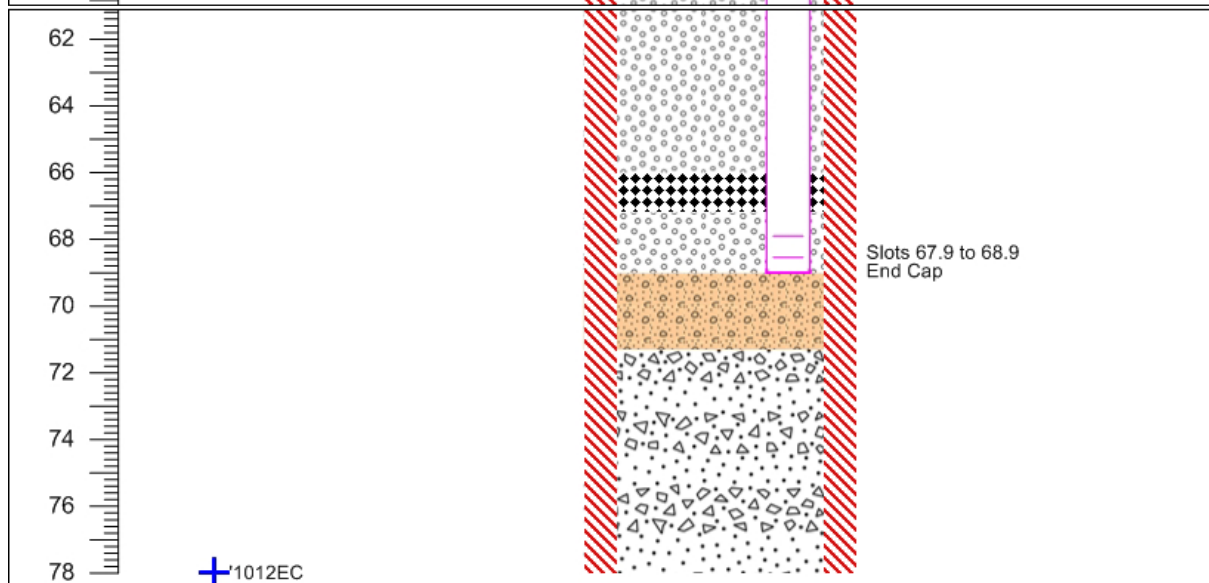
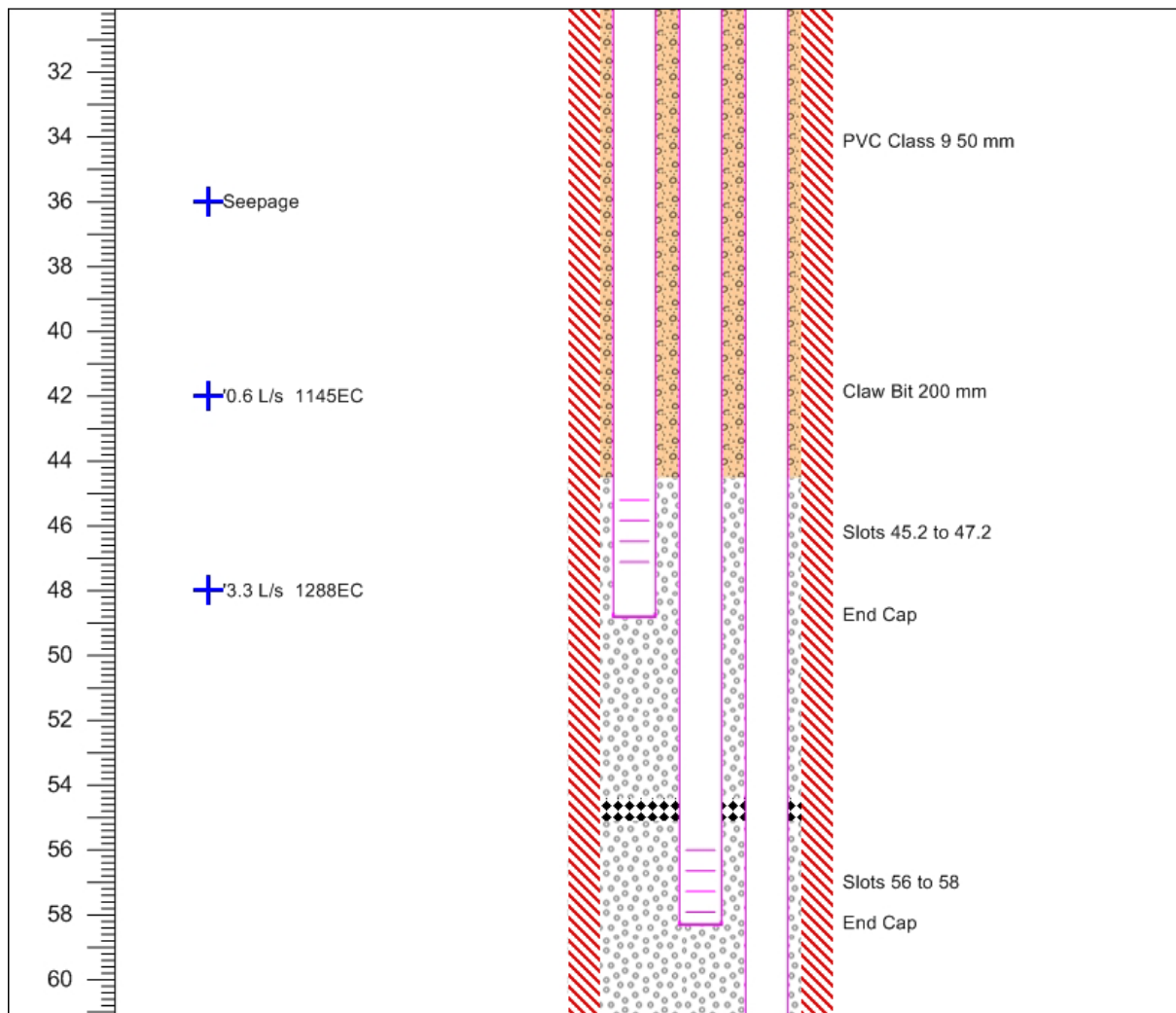
Note* Appendix includes Well Completion, Lithology and Geophysical Logs, Hydraulic Test and Chemical Analysis.

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Well Completion Log



Page 1 of 3		Construction Legend	
Date Start 24/11/2011	Steel	Gravel Pack	Bentonite
Completed 11/25/2011	PVC	Lock Cap	Creek Sand
Contractor NRETAS	Slots	Bung	Fall Back
	Hole	End Cap	Soil
	Cement		



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Date Start 24/11/2011

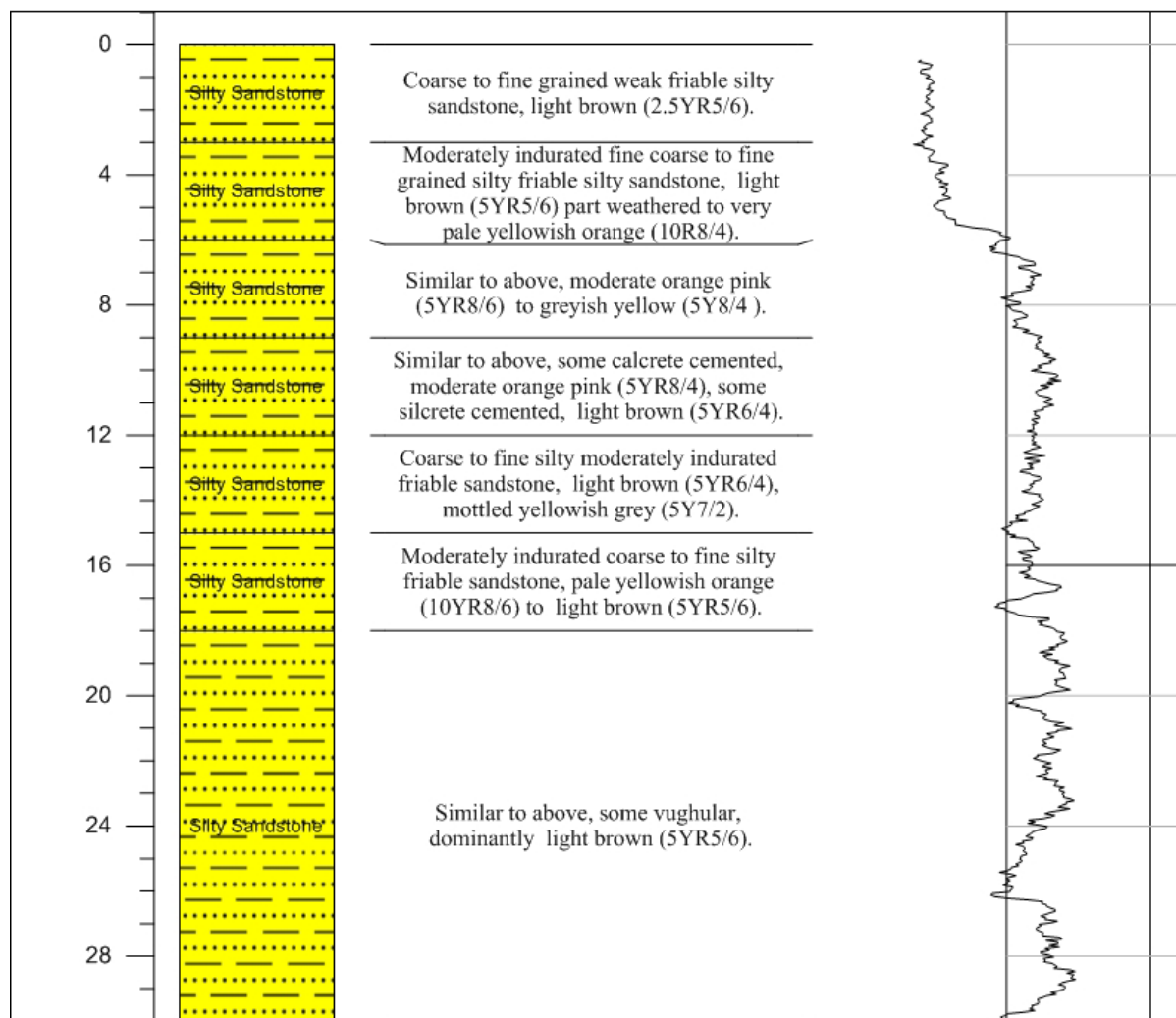
Completed 11/25/2011

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

3

Date Start 24/11/2011 Electrical Conductivity μ Siemens/cm

1288

Completed 11/25/2011

Standing Water Level m BGL

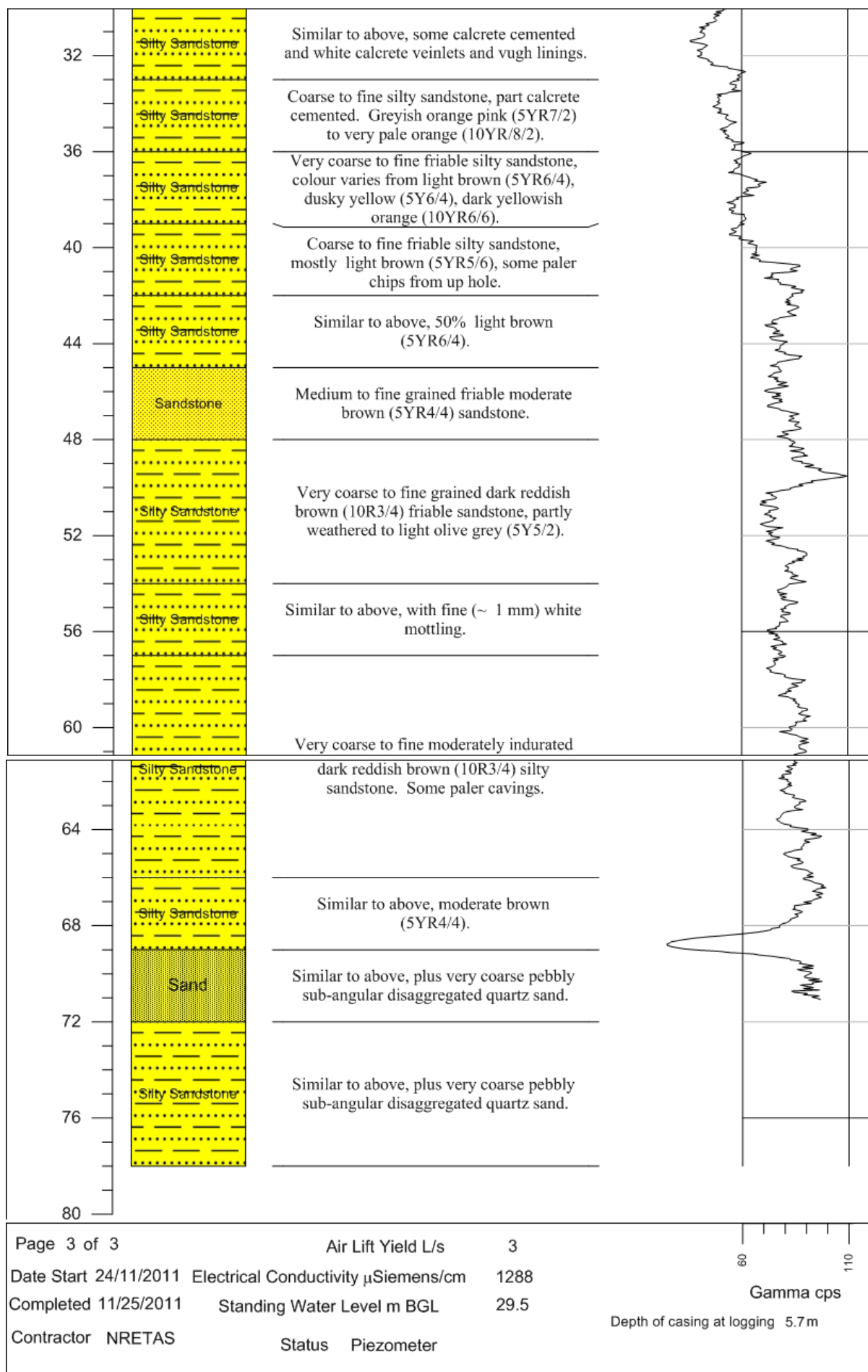
29.5

Contractor NRETAS

Status Piezometer

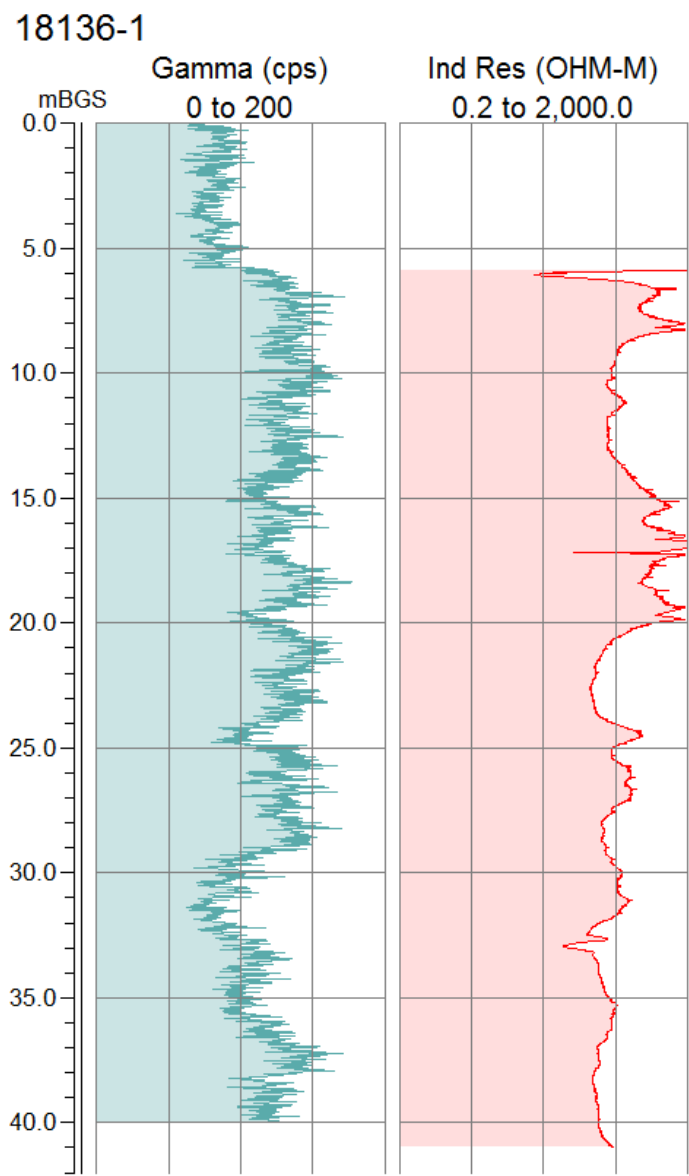
Gamma cps

Depth of casing at logging 5.7m



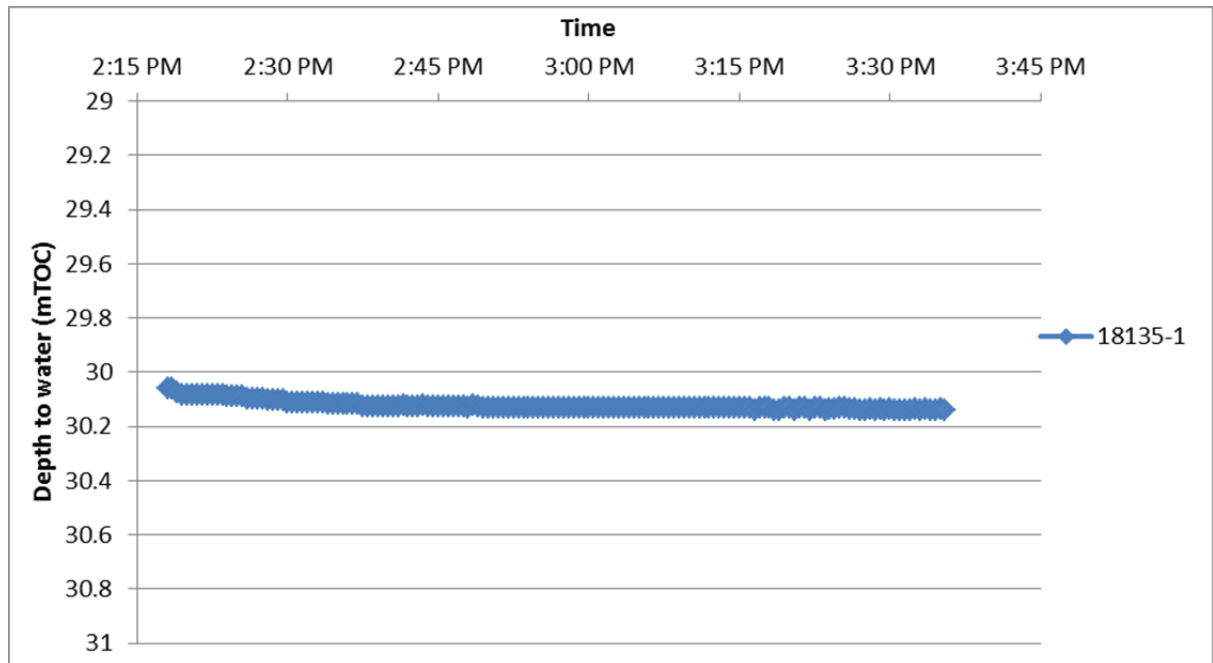
Geophysical Logs

The portable Mount Sopris logging system was used to collect geophysical data from bore 18136-1, adjacent to 18135. The steel casing on 18135 is bent, and it was not possible to run the tool into the deeper of the two boreholes. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

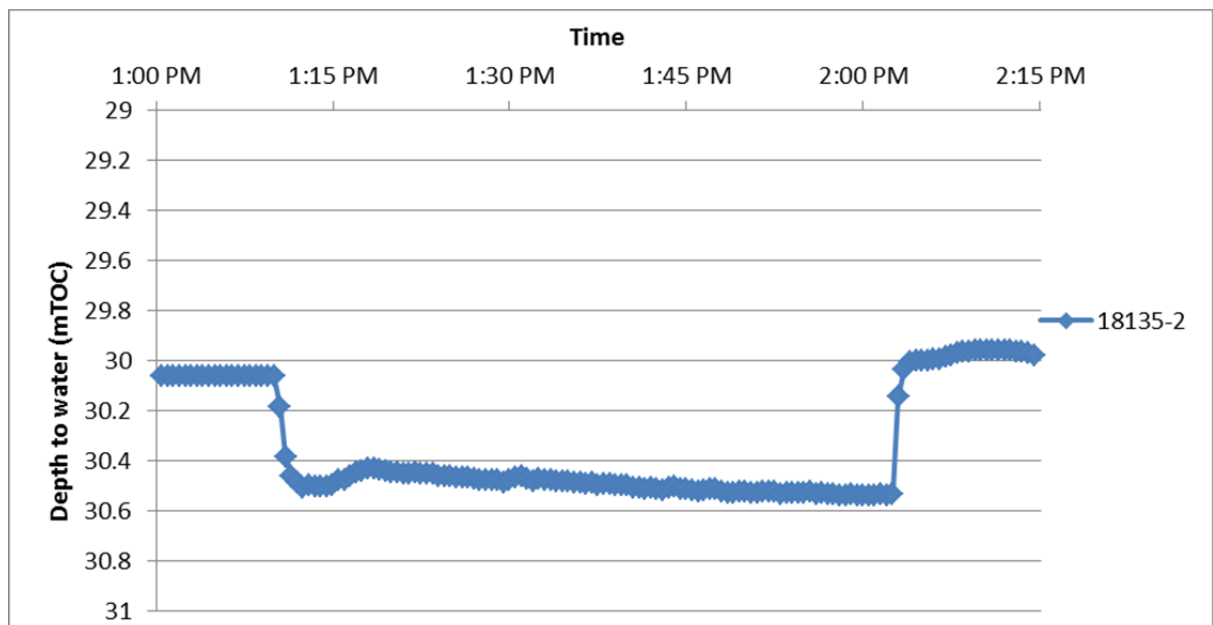


Pumping Test

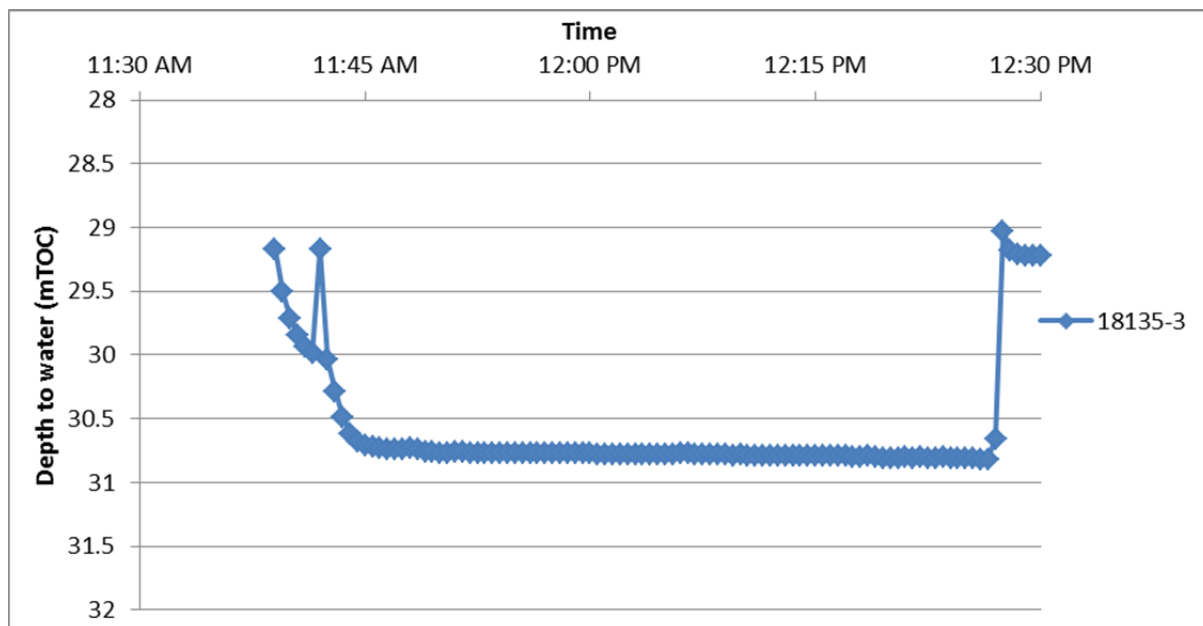
A pumping test was performed on piezometer 18135-1 on 4/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 40 mTOC and using a flow rate of 5.6 L/min. The results of the test are presented below. The pump was removed without recording recovery. The report author may be contacted for the full data set.



A pumping test was performed on piezometer 18135-2 on 4/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 40 mTOC and using a flow rate of 5 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 18135-3 on 4/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 40 mTOC and using a flow rate of 5 L/min. The results of the test are presented below. The pump stopped and was restarted at ~11:42am. 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
18135-3	4/02/2012	30.08	7.03	1565	30.2	260	59.3	20.9	27.2	164	34.3	221	150	127.18
18135-2	4/02/2012	30.06	6.93	1494	30.3	222	57.2	21.2	28.2	171	33.6	206	66.7	147.13
18135-1	4/02/2012	30.07	6.93	1400	30.3	204	55.6	20.2	25.5	152	35	196	60.1	122.63