



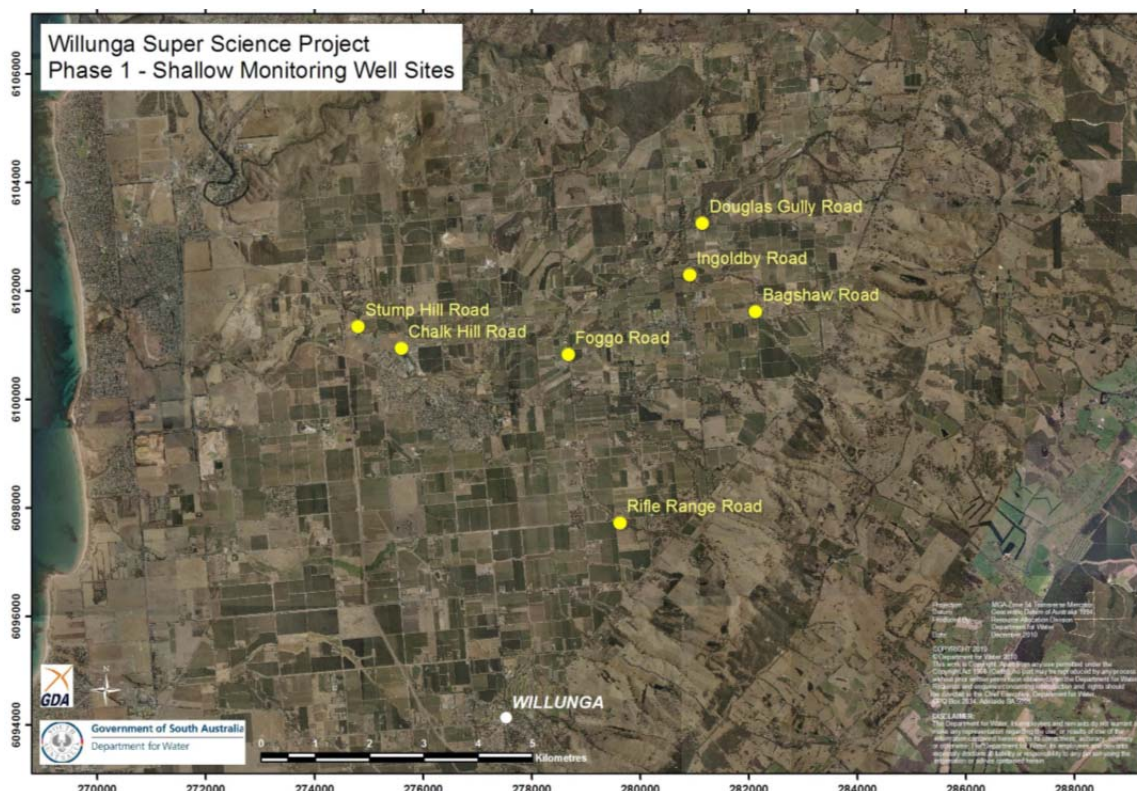
An Australian Government Initiative

Groundwater Education Investment Fund Project

Borehole Infrastructure Report

Borehole Type		Piezometer Monitoring Bore	Location	Willunga Super Science Site
Unique Well ID		WSS-DGR-1	Installed By	Geodrill
Completion Date		17/11/2010	Depth Installed	9.5 mBGL
Drilled By		Geodrill	Depth Drilled	9.5 mBGL
Monument Type		Lockable standpipe	Drilled Diameter/Method	125 mm, Auger
Monument Diameter/Width		80 mm	Screen Depth	7.5-9.5 mBGL
T.O.M. offset from G.L. (Top of Open Monument)		0.876 m	Screen Size/Aperture/Type	50 mm/0.4 mm/PVC18
PVC Casing to T.O.M offset		-0.6 cm	Level of Bentonite	6.0-7.0 mBGL
Ground Elevation (mAHD)		96.126	Casing Size/Type	50 mm/PVC18
GPS Easting	(MGA-94 Zone 54)	281148	SWL after Development	7.41 mTOC
GPS Northing		6103245	Development Details	Air lifted 2 hours

Project Comments: WSS-DGR-1 is a single piezometer monitoring bore, located in a reserve adjacent to Pedler Creek and south of Douglas Gully Road.



Map of Willunga Super Science Project Shallow Monitoring Well Sites

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

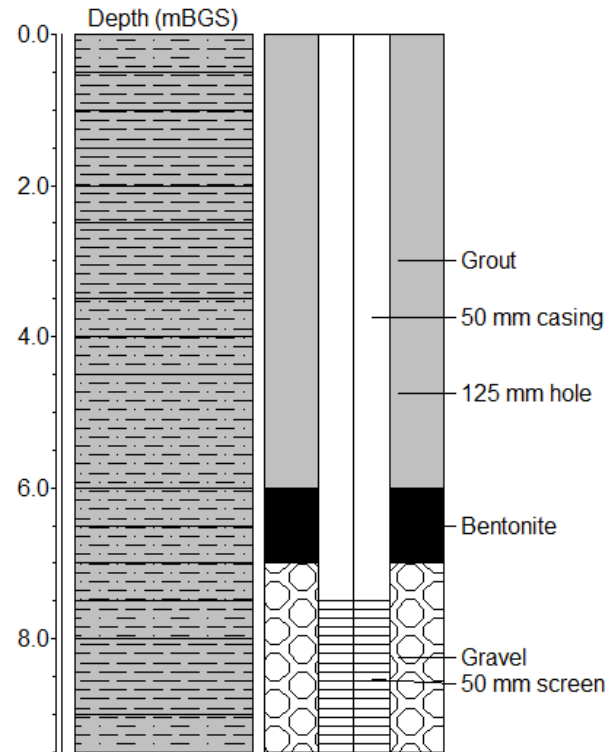
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Location and Well Installation of WSS-DGR-1 and WSS-DGR-2

Lithology and Well Completion Log

WSS-DGR-1



0.0-0.5: Silty Clay: Yellow orange silty clay containing sub angular and rounded medium sand to coarse gravel

0.5-1.0: Clay: Yellow orange stiff clay with <5% poorly sorted sub angular to sub rounded medium sand to fine gravel

1.0-1.5: Clay: Yellow orange medium stiff clay <5% poorly sorted sub angular to sub rounded medium sand to fine gravel

1.5-2.0: Clay: Yellow orange medium stiff clay <5% poorly sorted sub angular to sub rounded medium sand to fine gravel. Some calcareous components

2.0-2.5: Clay: Light Brown stiff clay with <5% moderately sorted sub angular to rounded medium sand

2.5-3.5: Clay: Light Brown stiff clay with <5% moderately sorted subangular to sub rounded medium sand

3.5-4.0: Sandy Clay: Light brown medium stiff sandy clay with <5% moderately sorted sub angular to rounded medium sand

4.0-4.5: Sandy Clay: Orange brown sandy medium stiff clay with <5% moderately sorted sub rounded medium sand

4.5-6.0: Sandy Clay: Orange brown sandy medium stiff clay with <10% moderately sorted sub rounded medium sand to fine gravel

6.0-6.5: Sandy Clay: Orange brown sandy medium stiff clay with <10% moderately sorted sub angular to rounded medium to coarse sand

6.5-7.0: Sandy Clay: Orange brown sandy medium stiff clay with <15% well sorted sub rounded to rounded medium sand to fine gravel

7.0-7.5: Sandy Clay: Orange brown sandy medium soft clay with <15% well sorted sub round to rounded medium to coarse sand

7.5-8.0: Silty Clay: Yellow orange silty clay with 5-10% of well sorted, sub rounded to rounded medium sand

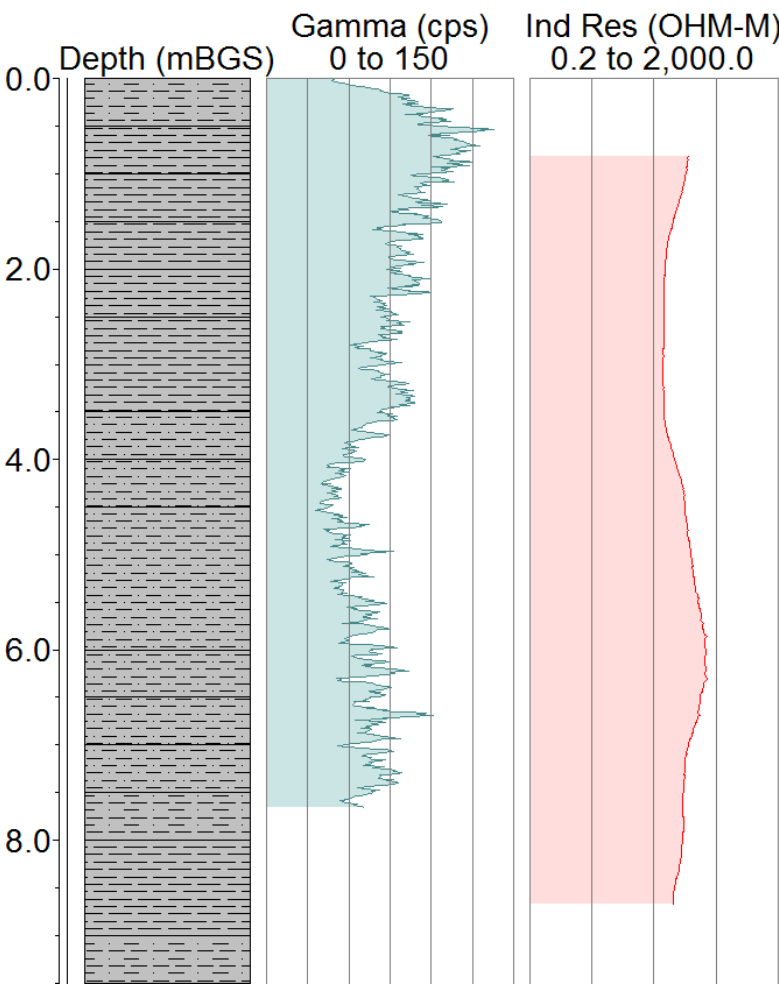
8.0-9.0: Clay: Yellow orange soft clay with 5-10% of well sorted, sub rounded to rounded medium sand

9.0-9.5: Silty Clay: Yellowish orange silty soft clay with 5-10% of well sorted, sub rounded to rounded medium sand

Geophysical Logs

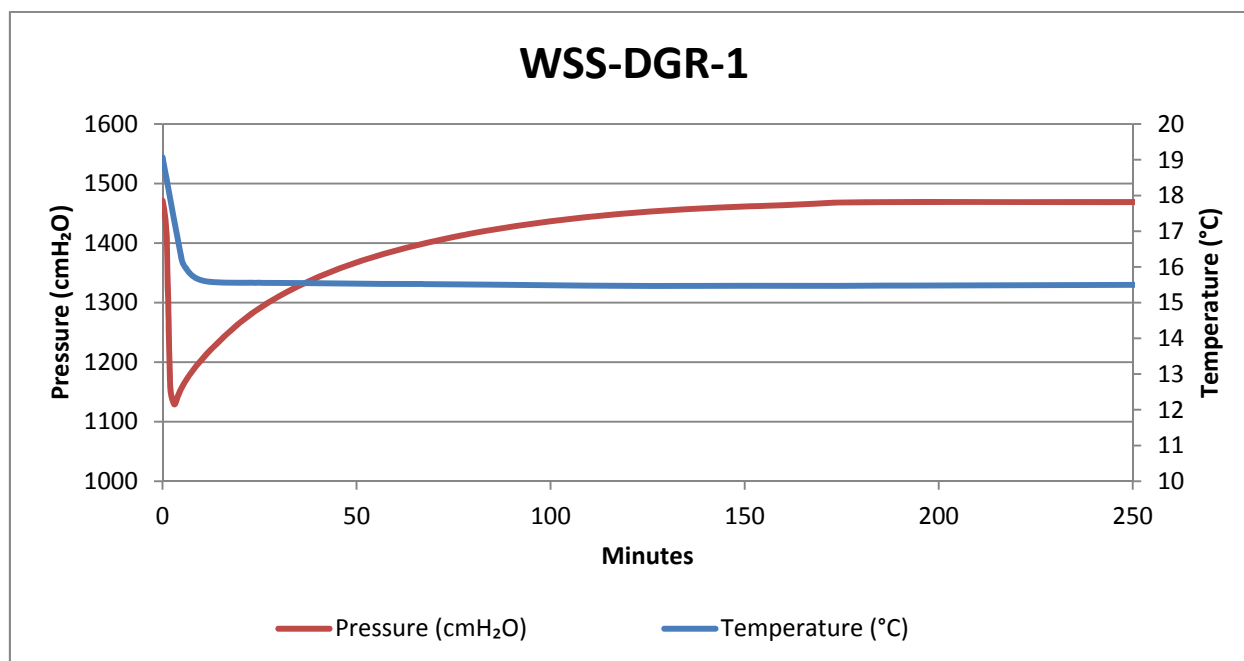
The portable Mount Sopris logging system was used to collect geophysical data from bore WSS-DGR-1, the deepest peizometer. The 2PGS probe was used to collect natural gamma measurements, and the 2PIA probe was used to measure conductivity/induced resistivity.

WSS-DGR-1



Slug Test

A slug test was performed on WSS-DGR-1 by placing a level logger at a depth of 9.8 mTOC and using a pump (9 mTOC) to remove the standing water column above the pump. The results of the test are presented below. The report author may be contacted for the full data set.



Chemical Analysis

The results of major ion chemistry on WSS-DGR-1 are presented below, along with chemical parameters measured in the field.

Well ID	Date Sampled	SWL	Field Parameters				Laboratory Analyses @ CSIRO ASU									
			pH	EC	Temp	Alkalinity	E.C.	Total Alkalinity	F ⁻	Cl ⁻	Br ⁻	NO ₃ ⁻	SO ₄ ⁼	Ca	K	
		mTOC		μS/cm	°C	meq/L	μS/cm	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
WSS-DGR-1	13/12/2011	5.09	6.34	4301	18.9	5.4	4603	5.7	0.2	1500	4.5	0.2	170	130	5.59	
							Mg	Na	S	Al	As	B	Cd	Co	Cr	
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
							86.5	661	42.6	<0.05	<0.05	0.18	<0.05	<0.05	<0.05	
							Cu	Fe	Mn	Mo	Ni	P	Pb	Sb	Se	
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
							<0.05	0.591	0.16	<0.05	<0.05	<0.1	<0.05	<0.1	<0.05	
							Si	Sr	Zn							
							mg/L	mg/L	mg/L							
							22.5	1.18	<0.05							