## Borehole Infrastructure Report

**Borehole Type:** Multi-Level Piezometer  
**Unique Well ID:** 18133  
**Completion Date:** 23 November 2011  
**Location:** Pine Hill Station, NT  
**Drilled By:** NRETAS  
**Installed By:** NRETAS  
**Monument Type:** Round-White-Swing Top  
**Depth Drilled:** 78.0 m  
**Drilled Diameter/Method:** 200 mm (min), Rotary Air  
**Development Details:** Airlift 8 L/s.

**Project Comments:** 18133 is a triple completion multi-level piezometer. It is located adjacent to 18134. Together, these bores provide a nest of five piezometers sampling different depths in the unconfined aquifer.

<table>
<thead>
<tr>
<th>Bore ID</th>
<th>Casing Size (mm)/Type</th>
<th>TOC (mAHD)</th>
<th>Casing Depth (mBGL)</th>
<th>Screen Size (mm)/Aperture (mm)/Type</th>
<th>Cement (mBGL)</th>
<th>Screen Depth (mBGL)</th>
<th>SWL (mTOC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18133-3</td>
<td>50/PVC9</td>
<td>575.809</td>
<td>-0.585</td>
<td>50/1/PVC</td>
<td>-0.5</td>
<td>52.1</td>
<td>53.1</td>
</tr>
<tr>
<td>18133-2</td>
<td>50/PVC9</td>
<td>575.767</td>
<td>-0.555</td>
<td>50/1/PVC</td>
<td>-0.5</td>
<td>61.4</td>
<td>62.4</td>
</tr>
<tr>
<td>18133-1</td>
<td>50/PVC9</td>
<td>575.741</td>
<td>-0.525</td>
<td>50/1/PVC</td>
<td>-0.5</td>
<td>70.6</td>
<td>71.6</td>
</tr>
</tbody>
</table>

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:**

stephanie.villeneuve@flinders.edu.au  
Office: 08 8201 2724

**Checked by:**  
Prof Peter Cook
Lithology Log

- Moderately reddish orange brown (10R5/6) silty sand and gravel with pebbles of quartz and dark reddish brown (10R3/4) ferruginous quartz sandstone.
- Pale yellow orange brown (10YR8/6) fine silty sandstone.
- Medium grained silty poorly sorted silty lightly cemented quartz sandstone, light brown (5YR5/6) and dark reddish brown (10R3/4).
- Medium grained silty poorly sorted friable silty sandstone, dark reddish brown (10R3/4), over coarse silty poorly sorted friable sandstone, light brown (5YR6/4).
- Medium to fine grained poorly sorted quartz sandstone, moderate yellowish brown (10YR5/3) to dark yellowish orange (10YR6/6).
- Coarse silty poorly sorted sandstone, light brown (5YR5/6) with some very pale orange (10YR8/2) motting. Some calcere cemented sandstone, greyish orange (10YR7/4).
- Medium grained poorly sorted silty lightly cemented sandstone, 10YR5/2 CHECK
- Coarse to fine silty poorly sorted friable lightly cemented sandstone, light brown (5YR6/4).
- Similar to above, vughular.
- Similar to above, light brown (light brown 5YR6/4) and 5YR5/5.

Page 1 of 3

Air Lift Yield L/s 8
Date Start 21/11/2011 Electrical Conductivity μSiemens/cm 897
Completed 23/11/2011 Standing Water Level m BGL 25.5
Contractor NRETAS Status Piezometer
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. 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 18133-1 on 5/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 30 mTOC and using a flow rate of 7.8 L/min. The results of the test are presented below. Very little drawdown was observed. The report author may be contacted for the full data set.

A pumping test was performed on piezometer 18133-2 on 5/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 30 mTOC and using a flow rate of 7.5 L/min. The results of the test are presented below. Very little drawdown was observed, and no recovery was observed. The report author may be contacted for the full data set.
A pumping test was performed on piezometer 18133-3 on 3/02/2012 by attaching a level logger to a submersible Grundfos MP1 pump, lowering the pump to a depth of 30 mTOC and using a flow rate of 7.5 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.

<table>
<thead>
<tr>
<th>Well ID</th>
<th>Date Sampled</th>
<th>SWL</th>
<th>Field Parameters</th>
<th>Laboratory Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>m</td>
</tr>
<tr>
<td>18133-3</td>
<td>3/02/2012</td>
<td>26.2</td>
<td>6.95</td>
<td>1086</td>
</tr>
<tr>
<td>18133-2</td>
<td>3/02/2012</td>
<td>26.1</td>
<td>6.94</td>
<td>1308</td>
</tr>
<tr>
<td>18133-1</td>
<td>3/02/2012</td>
<td>26.07</td>
<td>6.87</td>
<td>1265</td>
</tr>
</tbody>
</table>