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**Date:** 27 October 2009

**To:** Siobhan Barry – AGL Energy Ltd

**Copy:** \*\*

**From:** John Ross

**Job no:** \*\*

**Subject:** PB Progress Report #3 – Groundwater Investigation and Monitoring Program at Broke

This is the third progress report prepared by PB on the groundwater investigation and monitoring program at Broke. It has been prepared primarily to provide information to BCCG members on the progress of the groundwater investigation program. Progress is described under the following headings (as at 27<sup>th</sup> October 2009):

- Installation of AGL water monitoring bores
- Baseline groundwater sampling
- Datalogger installations and operation/maintenance
- Falling head tests
- Pumping test of HB02 gas exploration test well

## 1. Installation of AGL water monitoring bores

This work program is now complete and there are no outstanding actions.

## 2. Baseline groundwater sampling

All the "dry" event water quality samples were obtained in September and submitted to the respective laboratories. There are now three sampling events that provide sufficient data to characterise the natural quality of the different aquifer systems at the Broke test site. The suitability of the investigation methodology and the baseline data set was confirmed in the peer reviewer's report to the BCCG dated 17 September 2009. Latest water quality data was forwarded to the peer reviewer on 2 October 2009.

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### 3. Datalogger installation and operation/maintenance

All dataloggers were downloaded and checked in September prior to the start of the pumping test on HB02. Dataloggers for the AGL monitoring bores were downloaded at the end of the pumping test (on 20<sup>th</sup> October) to confirm water level trends in the upper alluvial and rock aquifer water levels.

### 4. Falling head tests

This work program is now complete and there are no outstanding actions.

### 5. Pumping test of HB02 gas exploration well

The pumping test on gas well HB02 commenced on the afternoon of 7<sup>th</sup> October 2009 and continued until the afternoon of 19<sup>th</sup> October 2009. The pumping test was continuous except for a few minor stops to check the in-line water quality probe and to change the location of the probe. The following is a summary of the extraction program:

- Pumping rate varied from 0.14 to 0.21 L/s but was mostly around 0.17 L/s for 11 of the 12 days. For the last 24 hours of the test, the pumping rate was deliberately increased to 0.21 L/s to create additional drawdown.
- Some 180,000 litres were pumped during the test and there were 12 truck movements to dispose of this brackish groundwater from the test.
- Dataloggers measured drawdown in HB02, nine AGL monitoring bores and two XStrata piezometers.
- Manual dips of the AGL bores, and an initial manual dip and sonologger readings from HB02 were used to check water level trends.
- Salinity, temperature and pH of the pumped water were continuously monitored.
- There was constant liaison with AGL and the peer reviewer on the extraction program and site results. In view of uncertain drawdown trends in HB02 the test was extended from 7 to 12 days.
- Water quality samples from HB02 during the test have been submitted to the respective laboratories for analysis
- Pump is to be removed and all dataloggers retrieved in early November. The recovery round of water quality sampling will be undertaken at this time.



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