

18 December 2013

## Media Release

### **Salt Water Games**

“AGL’s waste water disposal plan appears to be so badly designed that it may never provide any conclusive data” said Julie Lyford, Chair of Groundswell Gloucester.

AGL continues to claim that their Tiedman’s ‘irrigation trial’ at Gloucester shows that there are no problems with irrigating soil with salty water from their coal seam gas wells. However this statement cannot be supported by any information, a Groundswell Gloucester investigation has found.

The investigation identified eight fundamental flaws in the trial design.

Mrs Lyford highlighted that this investigative document states “The soil at the trial was greatly disturbed prior to irrigating, with saline subsoil being brought to the surface, and this will mask any recent testing for salinity. The results to date are only for the first 6 months and only from 2 small irrigations so the amount of added salt cannot be expected to reveal the extent of the real problem AGL may be causing.”

Groundswell Gloucester believes that current results cannot indicate any of the real problems that will occur by AGL adding 4 tonnes of salt to each hectare of soil for 10-20 years. Because the trial is very poorly designed and analysed, no treatment variations will be evident over time as the sampling is inadequate. Irrigating saline soil with salty water is a dangerous game. Groundswell Gloucester has also found that the runoff calculations for the trial area are incorrect and there is a danger of the Avon River being polluted by the salty irrigation water during a rain storm.

Further information on the eight major problems in the design and operation of the AGL trial is available in the attached summary. A detailed research paper is also available.

Ends

### **Further information:**

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## Problems with AGL Tiedman Irrigation Trial Design Summary

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AGL promote the Tiedman trial as a 'first in NSW' for using blended water produced during CSG extraction to irrigate crops. The AGL "Fact Sheet: Gloucester irrigation trial" describes how 70ML of produced water is blended with 100ML of fresh water and then applied to 12ha of fodder crops with a spray irrigator. Four different soil management treatments have been applied and two crop types are grown on these in 16 plots. A range of soil and water testing is undertaken at 6 month intervals.

The first problem in the design is that the soil data is averaged across all the 16 plots so there is no possibility of analysing for treatment differences. One reason for this is that there is only 1 sample site per plot (0.77ha in size) and this is absolutely insufficient to get an accurate measurement for any of the properties being tested. Only half of the plots are tested for soil moisture so this data is meaningless.

The second problem is that only one grade of water salinity is used across the whole area irrespective of the soil treatments or crop type. Therefore, it is not possible to look at any differences in the soil or plant reactions to the amount of salt being added through the irrigation water.

The third problem is that irrigation water is applied to all plots at the same time regardless of differences in soil moisture content. The 'trial' reports talk a lot about irrigating to maintain a soil moisture deficit but this is meaningless when the data is not analysed separately for the various treatments. When all plots are irrigated some will be already saturated and others will be dry. This will impact on runoff and plant growth.

The fourth problem is that the treatments are very intrusive because the slots are 200mm wide at 1500mm centres across the plot and 0, 300, 650 and 900mm deep. A mixture of organic matter, lime, gypsum and zeolite is then buried in these slots and spread across the surface. This means that there are large trenches of varying depths in the plots and these trenches will allow irrigation water and rainfall to move into the subsoil to varying amounts. This difference is not being measured in the design. In fact there is no information in the reports as to whether the sampling site is near a slot, in a slot or up to 600mm from a slot. Again this means that the data from various plots cannot be compared and is probably the reason why AGL is averaging the data across the whole area even though this makes the measurement meaningless.

The fifth problem is that all lucerne plots are harvested on a common dates and all triticale/sorghum plots are harvested on a common date. Therefore, any advantages of irrigating to maintain a given soil moisture content in order to maximise plant growth is lost. Any interactions between soil moisture, soil salinity and plant growth are also lost due to the poor design and unsatisfactory data analysis.

The sixth problem is that there are significant changes in soil characteristics and surface slope across the site and within plots. It is therefore entirely inappropriate to have only 1 soil sampling site per plot. There needs to be at least 5 and probably 7 sample sites per plot if any meaningful data is to be obtained.

The seventh problem is that the 'trial' is only designed to operate for 2 years while the Waukivory wells are tested. In the first 6 months it was only possible to irrigate with blended water on 2 occasions and therefore only a very small amount of salt has been added to the soil at this stage. In a fully operational gas field it will be necessary to dispose of saline water for 20 years which means that a 2 year demonstration is inappropriate and will lead to incorrect assumptions about environmental impact.

The eighth problem is that the calculations of runoff in the trial area are incorrect. This means that in a 1:100 year rainfall event there will be substantial pollution of the Avon River by processed water leaving the 'trial' site because the emergency catch dams and pumps will not be adequate to handle the volume.

This is not a trial in the sense that meaningful data will be obtained to assist in the development of a produced water management strategy in 2014. It is simply a process for disposing of the produced water from the Waukivory Pilot wells when they are fraced and tested over the next 2 years and the environmental safety of this process is flawed and cannot be tested.