

Cougar Energy Groundwater Contamination Incident

DERM is currently investigating a pollution incident at Cougar Energy's coal gasification plant at Kingaroy. A number of concerns or queries are likely to be raised by the community and a set of questions and answers have been developed as follows:

1. When did DERM first learn of the exceedance?

- The DERM was first notified by Cougar Energy during a meeting with DERM officers on 30 June 2010 of the following benzene analysis results of groundwater samples taken from an upper aquifer (monitoring bore 37) at their production facility:
 - 2 parts per billion (ppb) sampled on 11 May 2010; an recorded in
 - 2 ppb sampled on 27 May 2010;
 - 1ppb sampled on 2 June 2010;
 - zero ppb sampled on 9 June 2010; and
 - 1 ppb sampled on 16 June 2010.
- The Australian Drinking Water Guideline value for benzene is 0.001mg/L or 1ug/L which is generally equivalent to 1ppb.
- In the results provided to DERM on 30 June 2010, toluene was also recorded in borehole 38 at a level of 45ppb on 28 April 2010 which reduced to 4ppb within a week (4 May 2010) and to zero by 16 June 2010. The Australian drinking water guideline value for toluene is 800ug/L or 800ppb.
- On 13 July 2010, Cougar Energy notified DERM of 84ppb benzene result in bore number 38 sampled on 29 June 2010.

These sample results also showed bore 37 recorded a zero concentration of benzene on 23 and 29 June 2010.

- The above results indicated that they were finalised by the laboratory on 8 July 2010 but not reported to DERM until 13 July.
- On 14 July 2010, Cougar Energy advised DERM that benzene was measured at zero in bore numbers 37 and 38 when sampled on 7 July 2010. Cougar also advised DERM that toluene was measured at 4 ppb on 23 June 2010 and 6 ppb on 29 June 2010 in bore 38.

2. Why didn't we inform the community sooner?

- At the time of notification, 30 June 2010, Cougar advised that benzene levels were at zero in all bores sampled.
- That included the bore further away from bore 38 which would identify benzene in groundwater before it could potentially travel to other landholder bores. Benzene has not been recorded in that bore.
- The DERM officers involved at that stage relied on the following measures had been implemented at that time:
 - The groundwater sampling frequency had been increased from monthly to weekly;
 - The company had initiated rehabilitation of the wells;
 - The company had taken steps to assess their operation to improve any further gasification operations.
- *Nevertheless, the DERM Director General has indicated an internal investigation will be undertaken to find out why there had been a delay in reporting earlier results from Cougar*

Energy provided to the department on 30 June which indicated very low level exceedence of benzene.

3. OTHER UCG Projects

3a. Are the other UCG projects in the Chinchilla area causing the groundwater to become contaminated with benzene?

- Linc Energy has not reported any non-compliance events in relation to benzene contamination of groundwater.
- Carbon Energy has not reported any groundwater contamination incidents to DERM. However Carbon Energy is currently being investigated for a discharge to surface waters. This investigation is not in relation to groundwater contamination.

3.b Are their similar risks? Have other UCG companies provided any information as to the breach of EA conditions and leakages to groundwater?

- DERM has not been notified of breaches of groundwater conditions or leakage to groundwater from either Linc Energy or Carbon Energy
- DERM is not aware of similar risks to groundwater at either Linc Energy or Carbon Energy facilities however DERM will be:
 - Undertaking an immediate audit of those companies water quality data;
 - Undertaking independent water quality testing at those sites to confirm current data;
 - Requiring both of these Companies to undertake an Environmental Evaluation which will be used to inform the Scientific Expert Panel.

4. HEALTH & STOCK CONCERNS

4a. Have Kingaroy residents been exposed to these chemical compounds?

- Kingaroy's town drinking water is not affected as
 - The community's reticulated drinking water comes from Gordonbrook and Boondooma dams; and
 - We have established that the bore from which local water carriers draw their water to top up water tanks has been tested weekly and has not shown any levels of benzene or toluene.
- DERM officers are contacting farmers in the area around the Cougar Energy plant to provide them with advice and inform them of the measures being taken by DERM to remedy the contamination.
- DERM is consulting with Queensland Health on any potential risks to human health. Anyone with health related questions or concerns should call the health line 13HEALTH.

4b. What does Queensland Health say about the risks?

- The Chief Health Officer advises:
 - "Most people are exposed to a number of different sources of benzene in their daily life. Petrol usually contains benzene and it is also emitted in motor vehicle exhaust. Cigarette smoke is an important source of benzene intake not only for smokers, but also for people exposed to cigarette smoke by passive smoking.
 - It is undesirable for benzene to be detected in drinking water. If it is shown that someone has been exposed to benzene in their drinking water at the reported level (from 1-85 parts per billion) over a period of a few

months, this is likely to represent a very modest increase in their overall lifetime exposure depending on how much of their drinking water actually came from a contaminated source.

- There are no reliable medical tests that can be used to detect low level exposure in a person. Benzene does not accumulate in the body and following exposure most is eliminated within around two days. There is no medical treatment that can be used to remove it from the body more quickly.
- If it is suspected that a groundwater source has been contaminated with benzene, it should not be used for drinking until it has been shown to be free of contamination.
- If any person has concerns about their health, they should seek individual medical advice from their usual general practitioner."

4c. What about if my cattle have drunk the water?

- We are not aware of cattle having consumed any groundwater with positive test results for benzene.
- The current advice from DEEDI is that the Australian Drinking Water Guidelines should be adopted for stock watering.
 - The Australian Drinking Water Guideline value for benzene is 0.001mg/L or 1ug/L which is generally equivalent to 1ppb.
 - DEEDI's Biosecurity Queensland Biosecurity Queensland will undertake testing of animals in the area from tomorrow.

5. REGULATORY FAILURE ?

5b. What will it take for the government to take community interest seriously and shut down this project?

- The Queensland Government has adopted a cautious approach to underground gasification of coal:
 - Firstly, it has decided to limit underground gasification to three trials; and
 - Secondly, it has appointed an Expert Panel to provide advice on the appropriateness of allowing commercial underground gasification to occur in Queensland.
 - The Department of Employment, Economic Development and Innovation, chairs an Interdepartmental working group that is developing policy for this industry.
 - The expert panel will report to Government on the pilot projects throughout the trial period and on completion of all of the pilot studies.
- Also, all UCG projects must be assessed environmental impact statement which requires public input in the assessment process.

5c. Can the government provide assurance that there are no other reports which outline exceedances?

- The overall progress of these trials and early environmental issues is clearly one of the reasons we have announced Environmental Evaluations for the sites and the request for an interim report from the Scientific Expert Panel as to whether trials should continue.

- DERM has recently received exceedance reports from Linc Energy in relation to total dissolved solids, chloride and sodium levels in groundwater in samples taken from their monitoring wells.
 - However, Linc Energy has reported that these levels are within the natural range groundwater quality and the risk to the environment is minimal.
 - An evaluation of this issue is underway.
- Carbon Energy failed to report a discharge of contaminated water from their plant to a nearby creek in November.

5. d Was their an EIS required for Cougar project?

- A full EIS was not required as it was a small scale pilot project, consistent with the fact that it has a development tenure (MDL) rather than production tenure.
- Cougar was required to obtain an environmental authority before they could commence operations and there was a substantial environmental assessment process prior to its issue by DERM.
- This project was being undertaken under an explicit trial closely supervised by the independent scientific expert panel.

5. e What conditions were imposed in terms of constraints and how are these different to the conditions for the CSG industry.

- The conditions of the environmental authority are designed to prevent or minimise environmental harm and in relation to groundwater the release of contaminants to groundwater is expressly prohibited.

- The Government views any such incident seriously and it is for this reason that statutory action has been taken requiring Cougar Energy to cease any further trial burns on the site until the government is satisfied otherwise

5f. How can benzene and toluene contaminants from UCG plants be allowed to contaminate the groundwater whereas the Government is going to ban such chemicals used for fracking in the **CSG industry.**

- UCG and CSG are different technologies.
 - Underground Coal Gasification is a new technology approved for limited trial in Queensland at three sites, under the supervision of a scientific expert panel.
 - The process involves underground combustion and the production of a synthetic gas. **It should not be confused with the process to produce coal seam gas**, where water is pumped from coal seams to release the naturally occurring methane in the coal seam.
 - With the UCG technology benzene and toluene compounds are present in the synthetic gas as products of the combustion
 - In some cases in the US BTEX compounds were used in a particular technique to stimulate or frac coal to assist in extracting gas from the coal. BTEX chemicals are **not** used by the CSG industry in Queensland for fracking and the Government has indicated that they will be banned.

5g. If the Government can't manage or say where the contaminants have travelled in the groundwater in this

case how can it regulate the CSG industry which has similar issues?

- This incident demonstrates the Government's approach -
 - We will not hesitate to issue orders to cease production in order to protect landholders and the environment;
 - We will be transparent with landowners and take no risks;

We will use the best scientific expertise to inform our regulatory decisions in relation to the industry.

5h. What is the extent of the groundwater contamination?

- While we only have positive test results at the plant site and one landholder bore on one occasion, we want to ensure urgent confidence in the groundwater in the area.
- This is why the Government is undertaking an extensive monitoring program to determine the extent but it not likely to be more than 1 to 2 kilometre radius from the plant if there is a problem.

5i. How does the Government know that the potentially impacted area is limited to a 2 kilometre radius?

- Groundwater normally travels at a slow rate within an aquifer and it has been conservatively estimated that any contamination would not have travelled further than 2 kilometres from the site unless there was some abnormal circumstances such as serious fracturing within the aquifer formation.

5j. If my water supply is contaminated who is going to provide me with an alternate water supply source?

- Rural property owners within a two kilometre radius of the UCG plant, and two kilometres of Plantation bore, are being advised not to use water from their bores for human consumption or stock watering until tests available in the next few days confirm there is no further contamination.
- If an affected landholder is unable to use their water supply source due to this incident the Government will order Cougar to make good the supply to the landholder.

5k. What compensation is payable if I suffer a loss?

- It would be the company who would be responsible for any compensation and in the event agreement cannot be reached it would be a civil matter for the Courts

5l. Why are there not regulations requiring Cougar to notify or alert neighbouring landholders.

- Cougar is required under the conditions of their environmental authority to notify DERM of any emergencies and incidents that would result in a breach of their approval conditions.
- Depending on the severity of the breach and the extent of environmental harm being caused DERM has a responsibility to notify any affected communities.

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