

## **Apex Energy - Coal Seam Gas Water Management in the Illawarra Questioned and Answered – 7/6/11**

Apex Energy NL ('Apex') holds Petroleum Exploration Licences in the Illawarra Region and in September 2009 received approval to drill 15 coal seam gas (CSG) exploration boreholes. The project details and approval have been publicly available on the NSW Department of Planning and Infrastructure website since its approval ([http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=1325](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=1325)).

The CSG industry is currently experiencing high levels of public concern. In particular, a group called Stop CSG Illawarra ('SCI') is currently circulating a petition that is highly inflammatory, and mostly inaccurate. Apex has continued to provide information on its web site, and has specifically offered to provide accurate information to the SCI group.

Apex is aware that many of the public concerns have come from watching the movie Gasland, and are related to the fracking process that is sometimes used to encourage gas flow. Apex has stated many times that it does not intend to frack any of the wells in its project for technical reasons. In addition, the distortions, exaggerations and inaccuracies contained within Gasland film are well-known and well-documented and bear very little relevance to Australia's gas industry ([www.appea.com.au/images/stories/mb\\_files/Factfile\\_Gasland\\_final.pdf](http://www.appea.com.au/images/stories/mb_files/Factfile_Gasland_final.pdf)).

This letter is to address the inaccurate claims made by the SCI petition. As most of the claims relate to ground water concerns, Apex has contacted a hydrogeologist and geochemist, with 35 years of local and international experience, Dr Steve Short, Director of Ecoengineers Pty Ltd ([www.ecoengineers.com.au](http://www.ecoengineers.com.au)).

Following is the petition claims *in italics*, along with APEX's and Dr Short's comments relating to the claims. The answers are mostly specific to Apex's areas.

*CLAIM: CSG always involves contaminated water, as extraction gas draws water out of the coal seam that is highly saline and can contain toxic radioactive compounds, endocrine disruptors and heavy metals.*

Dr Short: This is untrue. The water in the Southern Coalfield coal seams and draining out of other strata into underground coal mine workings ranges from mildly brackish to moderately brackish. They are all weakly saline. None are even moderately to strongly saline. None are drinkable by humans but some would still be suitable for stock watering or irrigation. In some there are sometimes very low concentrations of naturally occurring radioactive elements and heavy metals. These levels do not pose any health risk either to coal miners or even the general public should they be brought to the surface for any reason. Such waters do have the potential to be toxic to native plants and/or aquatic species in swamps and waterways. This is why, if generated at the surface by CSG extractions they are carefully stored in such a way that they are not released into the natural environment but are tankered away for treatment and safe disposal by a licensed waste management company. There are no known endocrine disruptors occurring naturally in Southern Coalfield coal seam waters or ground waters. Indeed if there was a history of analyses which did detect the presence of endocrine disruptors in such waters this would have immediately raised the potential risk to the Region's numerous coal miners as they are exposed to such waters each and

every day. The fact that no such test results exist and such a health risk has never been identified clearly demonstrates the claim about endocrine disrupters is totally untrue. Indeed there are low levels of such disrupter compounds in most household and commercial detergents and industrial cleaning agents.

*CLAIM: When using hydraulic fracturing (fracking), it pollutes large quantities of fresh water with sand and chemicals that are pumped underground.*

Apex: This statement is misleading and false. Apex has stated that for technical reasons it does not intend to carry out the fracking technique. For that reason the issue will not be addressed here.

*CLAIM: CSG is proven to lower the fresh water table, yet exploration licenses have been issued in vital NSW water catchment areas.*

Dr Short: The Sydney and Illawarra Region's drinking water is provided by the various Sydney catchments administered by Sydney Catchment Authority. Most of the water in the various dams (e.g. Lake Warragamba, Woronora, Cataract etc.) is sourced from direct runoff off the landscape. A smaller fraction, about 10% is water that has passed through shallow groundwater systems in Hawkesbury Sandstone. None of the drinking water supply is sourced from deep aquifers. There are no deep aquifers on the Woronora Plateau, the area where the Apex Energy Illawarra CSG Exploration Project is located. There are no licensed water bores in the Hawkesbury Sandstone or deeper formations in the area such as might be used by farmers, orchardists etc. This confirms there are no significant potable or non-potable aquifers in the Apex area. Even if there were a shallow Hawkesbury Sandstone water table in some areas, the Apex Exploration Project would not affect it as the exploration boreholes are all to be fully cased through the Hawkesbury Sandstone and beyond.

There have been over 2000 holes and wells drilled in the Illawarra region. Over 150 boreholes have been drilled in the Sydney Catchment areas of the local Woronora plateau. Most of these have been drilled by the Sydney Catchment Authority itself for exploratory reasons. There is already a significant record of safe drilling in the Sydney Catchment areas.

*CLAIM: BTEX (benzene, toluene, ethylbenzene and xylenes) chemicals can occur naturally in coal seams and extraction water from such seams release these hazardous compounds.*

Dr Short: There are no BTEX chemicals in the waters that occur naturally in coal seams or any other strata in the Southern Coalfield. There is a long history of literally thousands of comprehensive water analyses of coal seam waters and waters draining out of shales and other strata e.g. sandstones in connection with the widespread underground coal mining in the area. Indeed if there was a history of analyses which did detect the presence of BTEX chemicals in such waters this would have long ago raised the potential risk to the Region's numerous coal miners as an issue. The fact that such test results do not exist and such BTEX health risk have not been identified shows the claim is totally untrue.

Apex: Let's use some common sense. The Illawarra CSG coals are the same coals that have been mined in the 60+ coal mining sites in the area. If these coals contained hazardous chemicals, then we would know about it.

*CLAIM: CSG mining involves leaky wells, processing plants and pipelines that are a fire hazard and cause air pollution.*

Apex: These are vague allegations that would also apply to every household in Australia that has a gas stove. When you turn on the gas stove, heater or any gas appliance in your house, it is processing plants and pipelines that have delivered it to you. Also, properly designed wells do not leak.

*CLAIM: CSG Produces greenhouse gas emissions – particularly from large scale methane leakage – such that CSG mining has a global warming impact that is as bad if not worse than coal, over a twenty year period.*

If Apex finds gas, it is intended for local power generation. A May 2011 report by Vivid Economics says Australian coal fired power generators are among the most emissions intensive in the world and emit about 14% more carbon per kilowatt hour than those in China. [www.ge.com/au/docs/1306482407069\\_Media\\_release - Vivid Economics Report Launch - 26 May 2011.pdf](http://www.ge.com/au/docs/1306482407069_Media_release_-_Vivid_Economics_Report_Launch_-_26_May_2011.pdf) ). It is well known, and well documented that power generated from gas is cleaner than from coal.

*CLAIM: CSG risks a range of direct and indirect health impacts such as heart, lung, kidney & neurological problems and cancer.*

Dr Short: There is absolutely no evidence that this is true.