

Senate Standing Committee on Economics
ANSWERS TO QUESTIONS ON NOTICE
Innovation, Industry, Science and Research Portfolio
Budget Estimates Hearing 2009-10
01 June 2009

AGENCY/DEPARTMENT: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Longwall Mining

REFERENCE: Question on Notice (Hansard 1 June 2009, E36)

QUESTION No.: BI-47

Senator HEFFERNAN—Finally, in regard to the longwall mining, is the CSIRO interested in the water interception of the various aquifers, some of which are saline and some of which are not, and the contamination of one? Also, regarding the coal seam gas extraction, which will alter the pressures in the aquifers and get the water flowing in different directions to what the farmers expect the water to flow, have you done any work on what will happen if you start taking the pressure out of the aquifer through gas extraction, which of course is gas and water?

Dr Clark—The interaction in terms of the groundwater in terms of the mining activity? I will just ask my colleague.

Senator IAN MACDONALD—Thank you, Madam Chair. I just wanted to go back to your opening statement.

Senator Carr—Hang on. We are just trying to get an answer to the last question.

CHAIR—Sorry, that was my fault.

Dr Clark—Senator, can we provide that information on notice to you in terms of the detail?

Senator HEFFERNAN—So you have done the work?

Dr Clark—We do have some work active in the groundwater area, but I do not have the detail and I would prefer to provide you with accurate information.

Senator HEFFERNAN—Does the CSIRO recognise the danger in coal seam extraction, that you actually alter the flow of the aquifer in the process?

CHAIR—I think Dr Clark has said she will take it on notice.

ANSWER

CSIRO has carried out research into the physical aspects of the impact of mining on underground aquifers, focused on the mining impacts on ground water systems, such as mining-induced overburden fractures, permeability changes, pore pressure changes in aquifers of the overburden, and the spatial extent of these changes.. This work has been undertaken in partnership with the Australian Coal Association Research Program (ACARP).

This research indicates that mining effects on ground water are mine-site specific and depend on variables such as overburden geological, geotechnical and hydrogeological conditions, characteristics of aquifers and aquitards involved, and mining layout and depth. There does not seem to be general and uniform rules describing quantitative impacts of longwall mining on aquifers. Hence, effects of mining on aquifers must be assessed on a case by case basis using site specific conditions.

CSIRO has developed an integrated approach to assessing mining impacts on ground water by using site hydrogeological characterisation, site ground water monitoring during mining, and

numerical modelling to assess mining effects on ground water. This new integrated approach has been applied to underground coal mine ground water flow assessment with a significant early success of an accurate prediction of ground water inflow from the surrounding aquifers into a longwall mine.

CSIRO has not carried out any work in the area of ground water contamination due to coal mining.