

**Senate Standing Committee on Environment and Communications**  
**Legislation Committee**  
Answers to questions on notice  
**Environment portfolio**

**Question No:** 159  
**Hearing:** Supplementary Budget Estimates  
**Outcome:** Outcome 4  
**Programme:** Science  
**Topic:** CSG BORE WELL INTEGRITY  
**Hansard Page:** N/A  
**Question Date:** 29 October 2014  
**Question Type:** Written

**Senator Waters asked:**

The SKM report is essentially a desktop literature review, acknowledges the considerable risks to land and water if CSG goes wrong, and concludes that a lot more research is needed about this industry, including;

- a. How often do bore wells fail?
- b. What are the consequences of bore integrity failure?
- c. What are the cumulative issues of multiple incidents of bore integrity failure?

These are pretty basic questions –When can we expect answers by?

**Answer:**

- a. There is little published information on failure rates of bores. Any information on this should ideally consider different types of bores, and different categories or definitions of 'failure'. A study of the Norwegian Continental Shelf found that 18 per cent of petroleum wells had either integrity issues and 7 per cent of them were decommissioned as a result of well integrity issues. It may be possible to consider this figure an upper limit because of the difficult operating environment of offshore drilling. A study of petroleum wells in Alberta, Canada found that surface leakage of gas occurred in 4.5 per cent of wells. The 2014 Background Review on bore integrity noted that many groundwater bores in Australia are ageing, with 24 per cent of bores aged between 20 and 30 years, 36 per cent between 30 and 50 years, and 8 per cent of bores more than 50 years old. The increasing age of assets means that failure of water bores (including integrity failure) may have occurred undetected or is imminent. By contrast, CSG wells are still relatively young. Other work on bore integrity is referenced in the Department's three reference lists for water-related coal seam gas and coal mining research <http://www.environment.gov.au/water/publications>. A fourth reference list will be published in early 2015.
- b. The consequences of bore integrity failure, for water resources, depend on a variety of factors including the bore location and depth, the surrounding groundwater resources, the purpose of the bore, its age and construction materials, the rigour of its monitoring and maintenance program, and the type of 'failure'. Detailed consequence assessments for water resources have not been identified in the literature; however a possible consequence of failure that is common to many bores is the connection of previously non-connected aquifers beneath the ground, which can affect groundwater levels and quality.
- c. In the context of coal seam gas extraction and coal mining, investigations of cumulative issues associated with multiple incidents of bore failure cannot be readily identified in the literature. The Department is now considering the need, feasibility and potential scope of future work.