

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry, Innovation and Science Portfolio
2016 - 2017 Additional Estimates
2 March 2017

AGENCY: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Water Treatment Infrastructure

REFERENCE: Question on Notice (Hansard, 2 March 2017, page 68-69)

QUESTION No.: AI-15

Senator LUDLAM: Does your work look at water treatment infrastructure?

Dr Mayfield: I would have to take that on notice. I know there is water related research going on, but I will have to check on the actual facts there.

Senator LUDLAM: Emissions—like, environmental fugitive emissions—are the focus of the rest of my comments. If you are trying to look at life-cycle emissions of the whole infrastructure and the whole supply chain, I would have thought water treatment infrastructure would be part of the work.

Dr Mayfield: It would be part of it in looking at the emissions from a wellhead.

Senator LUDLAM: And water treatment infrastructure.

Dr Mayfield: Yes.

Senator LUDLAM: If you do not have all of this at the table, feel free to take any of these on notice. What about decommissioned wells or old wells?

Dr Mayfield: That would also be part of the scope. I do not believe that there are many wells at this point in time that have been decommissioned but, certainly over time, you would want to monitor that.

Senator LUDLAM: What is the sample size of phase 2? How much are you able to directly observe before you start your process of extrapolation?

Dr Mayfield: I probably would have to take the question on notice. I am not sure that I understand the question.

Senator LUDLAM: The infrastructure in Queensland at least, and elsewhere on the east coast, is extensive. It is a big industry; it was growing very rapidly for a period of time until it started to hit the wall. How many of these installations can you directly observe before your PhDs start extrapolating the total estimated impact?

Dr Mayfield: I do not know the specific answer to that question but I do know that the original study looked at 43 wells to date and there is ongoing work.

Senator LUDLAM: That is phase 1, yes?

Dr Mayfield: Yes.

Senator LUDLAM: Any idea what that is as a percentage of the total number of active or decommissioned wells?

Dr Mayfield: No, I do not know.

Senator LUDLAM: How many decimal places is that going to run to?

Dr Mayfield: I do not know that as a percentage but, again, I can take that on notice.

ANSWER

The answers below refer to the CSIRO methane emissions study funded by the Department of the Environment and Energy (“the DEE project”) as this was the topic of discussion when the question was asked.

The DEE project did not study methane emissions from water treatment infrastructure. However, phase 1 of the DEE project measured emissions from other water infrastructure at the well head. Other studies that CSIRO has been involved in through GISERA have measured methane fluxes from water treatment ponds associated with CSG production at two gas compression plants and associated water treatment facilities (see *Characterisation of Regional Fluxes of Methane in the Surat Basin, Queensland, Phase 2: A pilot study of methodology to detect and quantify methane sources*, May 2015, available at <http://gisera.org.au/>).

The DEE project did not look at emissions from decommissioned or old wells, or shale/tight gas hydraulic fracturing.

Phase 2 of the DEE project included detailed measurements at nine well completions and one well workover (the process of performing major maintenance or remedial treatments on a well). Measurements were made opportunistically on wells that were being completed or worked over at the time. These wells and their completion procedures were typical of others in these production fields.

The first phase of the DEE project reported in *Field Measurements of Fugitive Emissions from Equipment and Well Casings in Australian Coal Seam Gas Production Facilities* (June 2014, available at <http://www.environment.gov.au/>) examined 43 wells in the field. At the time, it was estimated that there were 5,000 CSG wells across Australia so that the sample size represented approximately 1 per cent of these. As stated in the DEE report, these wells were chosen by researchers to be representative of these types of wells drilled in the Surat Basin.