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STANDING COMMITTEE ON THE ENVIRONMENT AND PLANNING

Inquiry into unconventional gas in Victoria

Torquay — 12 August 2015

Members

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Ms Harriet Shing — Deputy Chair

Ms Melina Bath

Mr Richard Dalla-Riva

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Witnesses

Mr Carl Bicknell (affirmed), general manager, strategy and planning, and

Mr Steven Reddington (affirmed), senior environmental planner, Barwon Water.

**Necessary corrections to be notified to
executive officer of committee**

The CHAIR — I recommence the inquiry into onshore gas and welcome to the table Carl Bicknell, the general manager, strategy and planning, from Barwon Water, and Steven Reddington, the senior environmental planner. In the first instance, thank you for your submission. In the second, if we can indicate at this hearing that material that you present here is protected by parliamentary privilege. If you say things outside, it may not be protected by parliamentary privilege. I ask both representatives to make a short presentation, and then we will ask some questions.

Mr BICKNELL — Thank you, Chair, for the opportunity to present to the inquiry on behalf of Barwon Water. I am Carl Bicknell, and I am the general manager of strategy and planning at the Barwon Region Water Corporation, which is more commonly known as Barwon Water. I would like to commence by providing some relevant background information on Barwon Water. Barwon Water is a statutory corporation established under the Water Act 1989. Barwon Water is Victoria's largest regional urban water corporation and provides water and sewerage services to approximately 290 000 people situated in the areas bounded by Little River, which is between Werribee and Lara, the Bellarine Peninsula in the east and along the coast south-west, as far as Apollo Bay, and then inland, covering Colac in the west and townships to the north including Cressy, Meredith and Anakie.

It is not Barwon Water's place to express a view as to whether unconventional gas is of net benefit to the state. Rather, Barwon Water seeks to identify areas of potential improvement to the regulatory framework that currently exists to protect drinking water sources so that those protections might extend to unconventional gas exploration and production, should that be permitted at some time in the future. Barwon Water is responsible and accountable under the Safe Drinking Water Act 2003 to ensure that drinking water supplied to consumers meets regulated quality standards. This act also requires that Barwon Water prepares and implements plans to manage the risks associated with supply of drinking water.

Barwon Water obtains its highest quality water, which needs the least amount of treatment, from its surface catchments, and the largest of Barwon Water's supply systems, which supplies nearly 90 per cent of the region's potable water needs, including Geelong, takes water primarily from the upper Barwon River and its tributaries in the Otway Ranges, and also some water from the West and East Moorabool rivers, located to the north of Geelong. This supply system provides drinking water to greater Geelong, the whole of the Bellarine Peninsula, coastal communities Torquay and Anglesea and inland townships, including Winchelsea, Moriac, Bannockburn, Inverleigh, Lethbridge, Meredith and Anakie. On the other hand, supplies for Colac come from the upper Gellibrand River, again in the Otway Ranges, and coastal townships of Lorne and Apollo Bay have their own surface water catchments.

Particularly relevant to this inquiry, an important supplementary source of water for the Geelong system, which was the first system I described, comes from two separate underground aquifers situated at Barwon Downs, approximately 15 kilometres south of Birregurra, and also at Anglesea, near the coast. Barwon Water has a licence issued by Southern Rural Water to take up to 80 000 megalitres, where 1 megalitre equals 1 million litres, over any 10-year period from the Barwon Downs borefield, and a bulk entitlement issued by the minister for water, which allows extraction of up to 35 000 megalitres over any 5-year period from the Anglesea borefield.

During the most recent and severe drought, from 2006 to 2010, when Geelong's water storages fell to as low as 14 per cent of capacity, these two groundwater sources provided a total of 55 000 megalitres of water to the Geelong supply system. To put this in perspective, over the same period Geelong's water usage totalled 91 000 megalitres. Water from these underground aquifers provided 60 per cent of the region's total drinking water needs, averaged across this period.

Both of Barwon Water's borefields draw water from what is described in the water science study report released by the inquiry recently, earlier in the week, as the lower aquifer. Our groundwater bore depths are typically 500 metres to 600 metres, and the aquifer layer that water is drawn from varies in depth beneath the natural ground surface from over 600 metres at its deepest to no depth at all where the aquifer outcrops in what is called the recharge area. The footprints of both underground aquifers are quite extensive and cover land areas that have no special designation in the Catchment and Land Protection Act or current planning schemes, as do surface water catchments. If I could refer you, Chair, to the map that has been circulated, you will see on the map some areas that are shaded in red.

Ms SHING — Before you go on, could you just read out the name and title of that document so that it will be reflected for the transcript.

Mr BICKNELL — Yes. The title of the document is ‘Barwon Water — Aquifer Locations and Special Water Supply Catchments’. On that map you will see areas that are shaded in red, and those areas signify the extent of the underground reserves of water from which Barwon Water pumps at the Barwon Downs well field and the Anglesea well field. Also within those two red-shaded areas you will see a dotted blue or purple-coloured line which is much smaller in area, about one-fifth of the total area, and that is designated on the map as the approximate groundwater recharge area for both of those aquifers.

Also on the map you will see shaded in green the special water supply catchment areas. These special water supply catchment areas were designated primarily to protect surface water catchments. However, you will see that there is an area of special water supply catchment that extends into the Barwon Downs groundwater recharge area, and that was done specifically for the purpose of protecting the water quality in that recharge area, bearing in mind that the aquifer is actually replenished by natural water that falls as rain and percolates into the ground in that recharge area, where the underground aquifer reaches the surface. There is no equivalent area for the Anglesea aquifer because it was far more recently installed, and that was really only developed in response to the drought that commenced in 2006, although there is a small area there that is intended to cover the catchment area for Aireys Inlet and the Painkalac Reservoir. It is important, Chair, that I draw the distinction of the panel between these special water catchment areas and the broader underground aquifers.

Barwon Water considers it highly desirable that any applications for unconventional gas exploration or extraction be compulsorily referred to urban water corporations, like Barwon Water, during the planning and approvals phase, when work plans or operation plans are being developed, so that water corporations can take steps to assess the risks to their water sources and ensure that appropriate measures to mitigate those risks are included in any approved plans or drilling proposals.

Under the current regulatory framework it would appear that exploration activities — and I distinguish exploration activities from production activities — related to tight gas or shale gas, which are regulated by the Petroleum Act, are exempt from any planning permit requirements, and consequently there is no trigger for referral to an urban water corporation, even if, for example, the drilling passes through an underground aquifer used as a drinking water source for urban communities. The same applies to coal seam gas activities, which are regulated by the Mineral Resources (Sustainable Development) Act.

Additionally, there are circumstances where mineral exploration drilling can occur without a work plan at all; these activities are referred to as low-impact exploration under the mineral resources act. Only when a project proceeds to the extraction or production phase might a planning permit and referral to the urban water corporation be required, but then only under limited circumstances where the mining activity occurs within the designated special water supply catchment. Barwon Water understands that there are currently interdepartmental arrangements in place via a memorandum of understanding whereby the mineral resources sustainable development work plan proposal may be referred to the relevant resource manager, which in the case of Barwon Water’s underground resources is Southern Rural Water, when mining activities are likely to intercept groundwater — that is the condition of the referral.

There is no equivalent external referral arrangement for petroleum operation plans, although it is a requirement that they are submitted to the relevant government department for approval, and that department is the Department of Economic Development, Jobs, Transport and Resources. Projects that have an environmental effects statement are exempt from this requirement. Barwon Water is concerned that such arrangements may not allow an urban water corporation to adequately manage the risks of contamination to urban water supplies, as is required under the Safe Drinking Water Act, or to discharge its statutory duty to manage and protect the integrity of urban water supplies, both in terms of quality and yield.

I am going to conclude there, Chair, but I would also refer you to the second document, which is a diagram headed ‘Coal seam gas referral triggers’, and on the same page is a second diagram headed ‘Shale and tight gas referral triggers’. These diagrams provide our interpretation of the legislation insofar as it relates to the need for various permits and referrals. Thank you, Chair.

The CHAIR — Thank you for that submission, and I particularly thank you for the detail. I have two questions. The first is a more functional question on your second chart. This points to triggers for referral but

does not necessarily point to occasions where an administrator, department or minister may intervene with other powers under a particular act, and I am thinking particularly of the Water Act itself. A similar chart might help us with respect to those sorts of points. Having been the one responsible for administering that, I know there are reserve powers in that that could be used to intervene.

Mr BICKNELL — We could certainly look into that and provide further information on it.

Mr REDDINGTON — It probably is worth us commenting just on the approvals required under the Water Act. There is a requirement for anyone who is doing something that might involve extraction of water or injection of substances into the earth to obtain a licence under the Water Act, but in the event that they are not doing either of those things — if they are just passing straight through without taking anything — then such an approval is not required.

The CHAIR — Are there powers, though, that would enable them to intervene, separate from approvals?

Mr BICKNELL — I think they would require a licence from Southern Rural Water, in the case of the southern part of the state, which also covers Gippsland, and Southern Rural Water would be acting as the minister's delegate.

The CHAIR — And the separate, parallel one is the memorandum of understanding. Do you have a copy of that?

Mr BICKNELL — Yes, it is publicly available. I do have a copy — I have only one copy with me — but it is available on the web.

The CHAIR — Okay, that is fine. But my more substantive question was: given that one of your main purviews is to supply Geelong and hinterland with water, do you see any risk to Geelong or the urban communities in terms of urban water supply with gas retrieval or production in these particular zones?

Mr BICKNELL — There is some risk.

The CHAIR — Can you quantify that?

Mr BICKNELL — The principal risk that we would be alert to would be where a gas exploration company chose to drill through one of our aquifers. Bear in mind that the most likely gas reserves would be quite deep if we are talking about tight gas and shale gas. That would require drilling to depths that would pass right through our aquifer. There is always a risk when doing drilling through any aquifers that either the water in the aquifer may be contaminated by a flow of a contaminated substance out of that well into the aquifer or alternatively the drilling well may provide a conduit for low-quality water from one aquifer layer to flow into another aquifer layer and reduce the quality of water in that second aquifer layer. For example, there might be water of high salinity that might flow into a confined aquifer that has low-salinity water and increase the salinity of that aquifer.

The other risk — and I think it is a lower risk — would be to do generally with lowering of watertables through extraction of water as part of the gas production process. That may have impacts on the surface, particularly in the recharge area of the groundwater, where there can be interaction between the underground water and surface features like vegetation. If the groundwater is drawn down several meters, that might not matter as far as being able to extract water is concerned, but it may have an impact where there are particularly sensitive sites to the groundwater level.

Ms SHING — Thank you, gentlemen, for your presentation and outline of the various regulatory considerations that you have taken us through. I would just like to take you to page 2 of the submission, which you have signed off on, Carl, and the reference to the permit requirements for a range of high-risk land use and development and exemptions for low-risk development. I would like to hear some more from you in relation to how high risk is distinguished from low risk and the way in which considerations such as topography, geography, remoteness or proximity to residential land, fertile agricultural land et cetera might feature in that — whether that is exploration, in a practical sense rather than a regulatory one, or in fact going ahead with an extraction process?

Mr REDDINGTON — In our submission we referred to where a permit is required for a broader range of activities. That comment was not restricted to mineral exploration or petroleum exploration; we were talking about the full range of things, which can include dwellings, farming, industry, hospitality et cetera.

Ms SHING — So it is potential interference then more broadly. Is that a way to characterise it?

Mr REDDINGTON — Yes, so anything that might pose a risk to water quality or yield. I guess some examples of high-risk activities are things that might create particular wastes that might be discharged into the environment and end up in the waterways from which we harvest water. For example, I think that the committee would probably be well aware of the contentious 1:40 dwelling density guidelines, and the different EPA requirements for onsite wastewater disposal. That is one of the high-risk activities that we do look at quite closely, but some other examples could be dairy effluent or the wastewater disposal from different hospitality premises.

Ms SHING — Just as a supplementary to that, given what you have indicated, Carl, about the potential for cross-contamination between different layers in the aquifer, is it possible, given what you have just indicated about high versus low risk and what those considerations are, that cross-contamination and the movement of salinity issues from one part to another might then pose a high-risk to an area, even in the situation of an exploration versus an extraction?

Mr REDDINGTON — I think that the risks are there regardless of whether it is exploration or extraction. Once a borehole has been put down into the ground, it needs to be carefully managed. It first of all needs to be constructed according to the relevant standards, and supervised well, and then if it is subsequently abandoned, it needs to be properly decommissioned to ensure that those problems do not prevail.

Ms BATH — With respect to your map, and also to the locations and special water supply catchments and with you coming today — and I noticed the previous shire councils have identified that there are a number of exploration licences on hold here potentially — could you indicate whether you have any knowledge about where there could be some potential tight or coal seam gas on this map?

Mr REDDINGTON — I can only refer to the scientific inquiry results that were published earlier this week that indicated that there were probably very few or no commercially viable reserves of gas in our area.

Mr BICKNELL — The prospectivity report that came out as part of the water science studies looked at our region and also further west beyond our region. In terms of prospectivity in the vicinity of Barwon Water's water resources, the only comment that I noted in there was that there is more coal at Anglesea. However, the gas content of that is very low, and therefore it is not commercially viable to extract that in the form of coal seam gas.

Ms BATH — Without putting words into your mouth, in some respect is there limited prospectivity in this area based on what you have learned earlier on in the week?

Mr REDDINGTON — We believe that is the case. It possibly may be subject to variation in the future, but based on that report, then, yes, that is the case.

Mr LEANE — Thanks so much for your evidence today. We identified in our hearings at Sale that we really need to speak to people like yourselves with your expertise, and it has been very beneficial. Forgive me, I will probably go over old ground that you have already covered, but I am trying to get my head around this. In your submission you are saying that there is potential for activity to go ahead under the Petroleum Act and the minerals act that divorces the urban water authority in the process. Your recommendation is that that needs to be tightened up, and then the water authorities need to have the authority to, as you say in your submission, ensure that risk management processes are adhered to or there be the possibility to actually reject the permit if you decide that those risks are impossible to manage.

Mr BICKNELL — I agree with most of what you said, except possibly with the power to out-and-out reject a permit. I do not think that water corporations necessarily need that power. Our concern is that the opportunity to be brought into the picture and be able to comment on operational plans and proposals is not there for unconventional gas, but it is there for developments on the surface that might impact on water supplies. We think that there could be an improvement made to the regulatory situation by extending the sorts of protections

that are there to protect surface water catchments and to involve urban water corporations during that planning application phase — to extend that to include drilling activities related to unconventional gas.

Mr DALLA-RIVA — You are saying there needs to be more involvement by the water authorities in terms of the exploration processes potentially in Victoria. Do similar regulatory processes occur in other areas where there is active exploration, in other words in New South Wales and in Queensland?

Mr BICKNELL — I do not know the answer to that.

Mr REDDINGTON — We are not across that.

Mr BICKNELL — No, sorry.

Mr DALLA-RIVA — So this is something that you have suggested because — why?

Mr BICKNELL — Because we have observed that there is a discrepancy in the way urban water corporations have risk activities referred to them for surface water as opposed to drilling for unconventional gas, and we believe that it would be an improvement to bring those two more into alignment. Also our communities and customers that we provide water to have an expectation that we will manage our water resources in a way that protects the availability and the quality of those resources, and would expect us to exercise our functions at the early planning stages, not after the event when it comes to drilling.

Mr DALLA-RIVA — Just extending from that, one of the things is that we have heard evidence both here and in Gippsland and also in Melbourne about the impact on groundwater. We have heard evidence about some of the early stages of coal seam gas exploration in the northern states, and some of the risks and what has occurred there. Are you saying that if there were more regulatory oversight by the water authorities, that it could mitigate some of that risk and the concerns that have been raised by many organisations and individuals?

Mr BICKNELL — I think that there are other agencies involved as well, so it does not all fall on water authorities. Our emphasis has been on protecting the underground water aquifers, and we believe that there are specific improvements that could be made there. We are speaking hypothetically because there has not been an example yet where unconventional gas has been produced in an urban water supply area — not in Victoria. It is in that space that I think that the risks could be better identified and therefore potentially mitigated by involving a relevant urban water corporation during the planning phase.

Mr DALLA-RIVA — Just extending that final question, Chair: if, for example, there was a regulatory framework in which there was capacity for the water authority — given the concerns about water contamination — and the authority that provided an oversight to say ‘no’, could that give a surety for concerns about the impact of the exploration of coal seam gas; yes or no?

Mr BICKNELL — I am just not fully clear of your question, sorry.

Mr DALLA-RIVA — If there was a regulatory process in place, given the concerns that have been raised in terms of water contamination, and the water authority relevant to that exploration area could have total veto on the area, based on the view that it would be too detrimental to the region, do you think that would be a good process to put in place, if exploration of coal seam gas were to proceed?

Mr BICKNELL — I am not suggesting that an urban water corporation should have power to fully veto unconventional gas exploration in an area. What I am suggesting to the committee is that by involving urban water corporations in specific proposals, then any risks associated with a specific proposal would be better addressed and perhaps more likely to be identified with a view to ensuring that protections are in place for the water supply.

Ms DUNN — Thank you, gentlemen, for your submission. I certainly understand the role that you want to play in terms of evaluating risk and playing a part in coming up with conditions around mitigating risk, but what I am interested in and my question is in relation to should the worst case scenario happen and there has been a contamination of the water supply. I am wondering if you as an organisation have turned your mind at all to the potential cost to you as an organisation around contamination of your water supply and the cost of recovering from any contamination of water supply. The other side of that is in terms of helping mitigate that risk and a role to be played in terms of ensuring those protections are in place in the first place.

Mr BICKNELL — In terms of being able to put right damage that might be done, it is difficult to quantify because it depends naturally on exactly what might have happened or what might have gone wrong. I would prefer to ensure that things did not go wrong in the first place, which would come down to ensuring that any drillers engaged had the relevant experience and expertise and were using low-risk techniques. As a water corporation we would, under those circumstances, engage external expert advice and feed that into the process for approving a works plan application. So our emphasis would be on ensuring that risks were mitigated insofar as reasonably practical. If an underground water resource did become contaminated to the point where it could not be used, then the cost of that would have to be considered in terms of what alternative sources there were and how often that source was used and how much water was derived from that source et cetera, and it is really not possible to put a figure on that without having more detailed circumstances.

Ms DUNN — In terms of mitigating risk and bringing in expertise, and you mentioned the drilling as an example, there would certainly be a cost associated with that. Would that be a cost you would see being borne by the applicant, the proponent, or applied across your customer base?

Mr BICKNELL — Under the current regulatory arrangements that cost would be borne by our customer base. It would be a cost of us doing business, and there would be no mechanism to pass that on.

Mr RAMSAY — Thank you for your evidence this afternoon. I strongly agree that the protection of the Anglesea and Barwon Downs aquifers is paramount, particularly in the area that I both farm and live in, and I am well aware of the importance of those two aquifers. My question is: the current government has provided exploration licences — I think 17 in history. I note that your organisation wants to be part of a referral process for a planning process for potentially new exploration. I note also that you are somewhat governed by the CALP act, and we have the CMA, we have a minerals licence act and we have a petroleum licence act. So there are a lot of agencies that want to be involved, and Southern Rural Water is the overarching government bureaucracy in relation to this.

Under the previous regime and the granting of the coal seam gas exploration licences previously, was there provision for or discussion around on storage — so, water used from exploration being contained in a reservoir — and does Barwon Water have a viewpoint about that possibility? Also, when you talk about risks and safeguards, was this not discussed in all those inter agencies before in relation to potential risk and averse risk action? This is not new in relation to your agency's and others' involvement. I am just wondering why has there not been work done in relation to potential contamination or risk, particularly with quarrying. One of the biggest hurdles that I have come across is in applying for and getting a licence for a new quarry. There are significant hurdles to do that, for all the reasons we are talking about in this case. My question is: what work has been done previously to allay that?

Mr BICKNELL — I am not aware of any specific involvement of Barwon Water in those proposals that you mentioned. They would rely on the Environment Protection Act if it is an industry development that requires a works approval under that act, so that would be left to the EPA. If the activity requires a water extraction licence or take and use licence, then it would be Southern Rural Water that is involved in that. Barwon Water's concern is where there could be activity that has potential direct impact on our underground water resources, and we are not aware that there has been any such activity so far.

Mr YOUNG — I just draw you back to this map. You have the red areas that are the approximate aquifer locations. Does that mean — and forgive my ignorance — that outside those areas there is no aquifer, or there is just not one that is drawn upon?

Mr BICKNELL — There is not one on land that is used for urban water supply purposes. So there are other aquifers that are used for possibly stock and domestic purposes that would cover a much larger area and be a shallower aquifer. Our aquifer is fairly deep, as I have mentioned, sort of 400, 500, 600 metres deep. The Anglesea aquifer does extend out under the water, but I have not shown that on the map.

The CHAIR — I thank both of you for the evidence. There may be further contact from the secretariat in the next period.

Witnesses withdrew.