

RESUMED

[3.46 pm]

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COMMISSIONER: It is 3.47 and I welcome Dr Ted Tyne and Mr Greg Marshall from the Department of State Development. Thank you again for joining us gentleman. Counsel.

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MR JACOBI: Dr Ted Tyne has been the executive director of the mineral resources division with the Department of State Development since 2005. The mineral resources division oversees investment and case management regulation during the entire mineral value chain. Dr Tyne has worked in government and industry both within Australia and (indistinct) for 35 years in geoscience mapping and airborne and ground geophysics. He has led a number of major government programmes on geoscience collaborative research and regulation, including the exploration New South Wales initiative, while director at the Geological Survey of New South Wales and the ongoing plan for accelerating exploration in South Australia.

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Greg Marshall is the director of mining regulation within the mineral resources division. The mineral resources regulation directorate is responsible for regulating mining operations in South Australia, it undertakes environmental assessments of new mining proposals and ensures that approved environmental outcomes are being achieved over the full mine life, including mine closure. Having worked in the mining industry for many years, primarily in underground metalliferous mining, Mr Marshall has led mining regulation since 2001. And the commission calls Dr Ted Tyne and Mr Greg Marshall.

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COMMISSIONER: Counsel.

MR JACOBI: Perhaps I think we can start with you Dr Tyne and I am just interested, we have got some slides I think that will pick up where we are going in terms of – the commission is keen to understand the – at least the recent
5 history in trends associated with expenditures and activity with respect to exploration. Perhaps we can plot the first slide but if you can give us some information with respect to the recent historical trend with exploration activity.

DR TYNE: Thank you. Well over the past decade or so, there has been
10 around almost 350 million that has been spent by private companies exploring for uranium in South Australia, primarily in the Gawler Craton which is known to have extensive uranium associated with copper and gold and silver, iron oxide copper, gold mineral deposits. And also in the north east of the state, in an area called the Frome Basin, where sedimentary related uranium occurs and
15 this is the style of uranium that is mined at the Beverley, Four Mile and the associated mines and the Honeymoon mine. At the peak of the exploration activity which is in the past decade, which is highlighted in the bar chart on the left, the peak around 2007/8 was approximately a third of exploration licences in South Australia, nominated uranium as a target for – as a target commodity
20 for exploration and it was during that time that exploration expenditure reached for uranium exploration 118 million. However as annual expenditure has fallen significantly in recent years, the 4.7 million spent on uranium specific exploration in 2013 /14, and half of this amount in 14/15.

25 If we move to the next component: there is a graph that I've also included which shows the exploration expenditure by year over the last 10 years, and overlaid over that is the uranium spot price for the same period, and also the price that South Australian uranium producers have paid. The significant difference in that pricing scale is that uranium producers tend to enter into
30 longer term contracts for pricing, which as a process, smooths out some of the significant peaks and troughs.

The spot price clearly correlates very, very closely to the rise in exploration expenditure, and the fall in exploration expenditure. A critical part of the
35 understanding of that relationship is that for uranium, the spot price is one of the signals to the market for companies to be able to raise funding, particularly for high risk funding for exploration.

MR JACOBI: Can I just pick up on part of your answer, and just get your
40 focus upon the trend over the last perhaps five years, where the correlation isn't as close, and about whether there are any explanatory factors that explain really the tailing away in exploration activity?

DR TYNE: Yes, that's a good question, and part of the answer is, in fact,
45 looking at the graph you'd probably say, "Well, there is so little being spent on

uranium exploration. Now, why is that the case?" Post the GFC and there was certainly a decline in mineral exploration more broadly, and certainly a decline in uranium exploration. At this stage, particularly in the last three years, uranium explorers and mineral explorers more broadly in South Australia have been managing their cash reserves.

There are two issues: there is falling commodity price, and falling commodity price is a clear signal for the ability for companies to be able to raise funding. There's been an absolute dearth of the opportunity for companies to raise funding for exploration in the past three years, and so those figures really indicate that companies - it's not indicating that there's a lack of confidence to explore for uranium in South Australia, it's simply companies holding back and waiting for a turn to market conditions, where IPOs and raising of funds will become more viable.

MR JACOBI: Do you have expectations about whether that position is likely to change in both the short and the medium term?

DR TYNE: I think the previous witness today, Dr Guthrie gave some very insightful comments around the likely trends in global commodity markets. South Australia regularly visits jurisdictions in Canada and also major mining events and uranium events. At those events, some of the world leading explorers and miners such as Cameco and AREVA give regular updates on what they believe are the commodity price trends for the coming years, and I can pass on that the information provided at those conferences in this past year has suggested that the price is likely to go up to the \$70 per pound mark, within the next two to three years.

South Australia also visits China regularly, and we have a close working partnership with the Beijing Research Institute for Uranium Geology, which is part of the China National Nuclear Corporation. The views passed on to us in our discussions with the China National Nuclear Corporation indicate that China is also expecting the price signals to rise, and that China is clearly developing a number of very significant new nuclear power stations, and their demand expectations in the next three years will match those likely price rises.

MR JACOBI: Do you have views separate to those I think that were expressed by Dr Guthrie before, about the extent to which China might represent a potential market for South Australian uranium?

DR TYNE: Yes, yes, I head Dr Guthrie's evidence on that point. You know, Australia has a treaty with China around the sale of uranium. Certainly with any expansion in our uranium industry, China would be seen as a primary growth market, compared to the fairly static markets in North America and Scandinavia.

MR JACOBI: Again, to come back to the figures with respect to expenditure over the recent years, I think we heard some evidence from Heathgate at the extent to which they were spending on exploration. I'm just interested in the extent to which that exploration is, in fact, what we might term "brown fields" that is, establishing or approving the extent of existing known deposits, as opposed to new green fields exploration.

DR TYNE: These figures, the bar chart figures or exploration are captured from the ABS statistics, which are released every three months, on mineral exploration expenditure, mineral and petroleum exploration expenditure across Australia. They do capture and spill out uranium as part of those figures. It's coincidental that the discovery of the Four-Mile uranium deposit by Quasar and their partners - Quasar is wholly owned by Heathcote - occurred in 2005, and a significant part of the resource definition of drilling for that deposit, that is the proving up of that deposit is captured in these figures in that 2006/7, 2008 into 2009 numbers.

MR JACOBI: Right. So the correct interpretation of 78 is that that involves really to a substantial extent, the proving up of it, and things like that?

DR TYNE: Yes. So that involves both green fields and brown fields exploration by quite a wide range of companies, but also a component of resource definition drilling in brown fields areas.

MR JACOBI: I think that's moving away from exploration, I think we - and I was interested in the trends with respect to mining and production; I think we've got a slide that might pick this up.

DR TYNE: Yes. Yes, we've moved to the next slide; it shows the same map, and this also shows the year by year production from our uranium mines, by volume and by value. By volume is the darker yellow, and by value is the lighter yellow. There is not a direct correlation with the spot price changes; if you recall the likely prices about long term values, which have evened out the by value of this production.

So despite the fact that we've had very strong growth in exploration, and then a very strong fall back to very low levels, these mines, the Olympic Dam mine, Beverley and Honeymoon have been producing pretty consistently, and if you look on the right side of the graph around the volumes/tonnes, if you draw a line across, it's been pretty consistently producing between that 4000 to 5000 tonnes per year, which all go to export.

MR JACOBI: I'm right in understanding aren't I, that the substantial, or the very great substantial proportion of those volumes is from the Olympic Dam?

5 DR TYNE: Yes. So Olympic Dam has an authority for, I believe it's exports for about four and a half thousand tonnes per year, and Beverley mine has authority to export and produce up to one and a half thousand tonnes. So it's in that proportion. Honeymoon mine has had an authority to produce up to 400 tonnes, so it's much smaller by comparison.

10 MR JACOBI: Again, looking at that background, I assume that the figures for 14/15 are broadly similar, is that right?

DR TYNE: The figures for 14/15 have, I think, in terms of production have dropped slightly, simply because of some production issues at Olympic Dam, but they're fairly similar.

15 MR JACOBI: Again, from the Department's perspective, do you have expectations that those figures will change or shift significantly out of that 4000 to 5000 band over the medium term?

20 DR TYNE: Well, if the Olympic Dam expansion had proceeded, of course the volume production would've been really significantly increased. It's the state's expectation that that mining operation and that deposit will be expanded in terms of production. It is one of the largest deposits or is the largest deposit of uranium, or one of the largest deposits of minerals, anywhere in the world. So it has potential for further expansion over the next 100 years. There's also the opportunity for expanding production from the Four Mile operations that currently Four Mile East is producing and Four Mile West is yet to start producing. So on the basis of that, we'd expect some increase in production from Heathgate's operation.

30 MR JACOBI: To switch back to exploration, I think we've got some tenements that are showing in the graph on the right. I think we've got a close-up of some of those tenements.

35 DR TYNE: Yes, so if you just move to the next slide. So in 1914 - I'm sorry that I don't have later slides for this - the yellow tenements on the right-hand side show all of the tenements that had indicated that uranium is a target commodity. The little red dots are uranium occurrences across the state, and the left-hand side of the diagram is an expansion of that central part of the state where Olympic Dam and the Beverley uranium mine and the Honeymoon mine are operating. It also highlights a number of projects in a feasible study, such as the Crocker Well project southwest of Honeymoon, Junction Dam, and also the Sandfire project just south of Whyalla.

45 MR JACOBI: To what extent is the Commission to infer that there's in fact activity on those tenements?

DR TYNE: Reflecting on the exploration licence expenditure, many of the companies holding these tenements have been compliant with the requirements of expenditure commitment, but many of these operators are holding back on expenditure at this time and seeking authorisation from the Department to consider foregoing some of the expenditure until funding is available to raise funding for further exploration.

MR JACOBI: Now, in terms of the duration of the tenements, what sort of period of time are we looking at?

DR TYNE: Exploration tenements in South Australia are granted for a period of up to five years.

MR JACOBI: Is there a typical figure for the sort of tenements we're looking at?

DR TYNE: And usually within that five years many of the tenements will have a grant period of something like two years to three years. There is also the opportunity, should a company find something or demonstrate that there is potential, to apply for a subsequent exploration licence beyond the five years. So there'll be a number of these tenements that have a much longer period of holding beyond a five-year tenement life.

COMMISSIONER: Can you just explain, Dr Tyne, what is required to get an extension of five years? We've heard in some evidence that one of the reasons that we're not getting a good share of public information is because tenements are held for long periods.

DR TYNE: Yes. I heard some comment by Dr Guthrie in the previous evidence, a reference to that. In South Australia there's a number of key elements around compliance with conditions for holding licences. There's expenditure commitments. There's achievement of remediation of any ground disturbing activities, which is covered by a program for environmental protection and rehabilitation. At the end of a five-year period, if the holder has been compliant with those conditions and has demonstrated, you know, a program of active work and is not just seeking to hold the licence for the sake of it, then the Department will consider a subsequent licence.

In regard to the release of information, Western Australia amended their Mining Act several years ago to put in a five-year sunset clause for release of information. South Australia enacted a similar condition to our mining lease in 2011. Prior to that, holders of exploration tenements have had subsequent licences, had retained confidentiality of the information and data they collected. Our state now has a sunset clause process. So five years after

information is collected, it can be released publicly, and that's made available and that happens every month. There's a release of sunset-related data.

5 So in the case of Olympic Dam, the state executed this process to also ensure that a huge amount of information that had been collected over a long period of time on the Olympic Dam tenements could also be released. So our state is now operating in a very similar way to other jurisdictions.

10 MR JACOBI: We discussed with Dr Guthrie the need to assimilate or actually build upon that information. What's done with the information once it's handed over to DSD? Is that simply released in the raw form in which it's received, or to what extent is that information then further processed?

15 DR TYNE: Yes. So you're referring to company exploration information, including company exploration surveys and that may include geophysical surveys and ground surveys and sampling. You're also aware from the evidence that was given by Professor Heinson and Dr Hill and Professor Giles there's also a significant body of geoscience work that's been collected, and we often refer to this as pre-competitive geoscience. So as part of the
20 government's body of management of information from companies, and adding value to the existing pre-competitive data, new records of information around mineral deposits and the understanding of mineral deposits which have been identified during an exploration program, will be integrated into the government's public databases to add value. In terms of - - -

25 MR JACOBI: Sorry, can I just stop you there? So if a company does particular drill samples, has some datasets that it's collected from those drill samples, what's done with that information? I assume it's handed over in presumably electronic form to the Department. What does the Department do
30 with it other than, I assume, put it on SARIG and make it available.

DR TYNE: Yes. Okay. So there's annual reporting by exploration
35 companies, and that includes provision of information and data. It's really important for the original reports, and the reports are in a template format, a consistent format from each explorer, and in fact our state has worked with the other states to ensure that there is a consistent exploration reporting concept or template across all states, which is a really valuable aspect for companies moving from state to state.

40 It's really important for those reports and the data to be retained as a record of that company's work and that does go into our SARIG databases, our historical databases. Some of the knowledge and new insights from the mineral deposits that are being explored are captured and go into the broader public information. When those confidential reports are released, either after relinquishment of a
45 tenement or after a five-year sunset clause process, the record of company

reports over a period of time are a really important body of knowledge that explorers really want to look at. Explorers are also looking to the government to integrate some of the best information knowledge around mineral deposits back into the state-wide databases.

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MR JACOBI: Can I just clarify? It is in fact mandatory to hand that information over after five years? Are there exceptions to that?

DR TYNE: There's mandatory annual reporting.

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MR JACOBI: Yes. I'm interested in - you've spoken of the five-year sunset arrangement.

DR TYNE: Yes. In terms of the five-year sunset clause, there are circumstances where the Department would be prepared to allow for confidential information to be retained, particularly if it relates to a developing mine, whether it's COMMERCIAL-IN CONFIDENCE information in those reports that have not yet been released to market.

COMMISSIONER: Is that a normal occurrence, that significant amounts of data are held back for commercial purposes?

DR TYNE: Post the five year clause, which only came in in 2011, we're seeing the majority of information post that five years, now being released. I'm not aware of any significant body of information that's being held back as confidential.

MR JACOBI: In the evidence of Dr Marsland-Smith from Heathgate, she spoke of the potential for there being overlaying tenements, in the sense that she spoke about the idea that the petroleum industry for example could have mining tenements associated with it, and she raised the idea of there perhaps being a separate concept of a uranium tenement, given that many companies wouldn't necessarily have an interest in uranium as part of a target for mining. Is that something the Department's thought about or considered doing, in order to encourage exploration for uranium?

DR TYNE: Yes, Dr Marsland-Smith's correct, in that petroleum licences can overlay mineral exploration licences; of course, they're looking for different commodities. In our state, the history of our Mining Act and the current provisions of the Mining Act provide for an exploration licence holder to be able to explore for all minerals; that's embedded in the legislation.

We do require applicants for exploration licences to identify the key target minerals that they're looking for, because that's also a trigger for guidance by the Department, around beset practice, on ground management of the

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environment, et cetera.

5 A number of other states, including New South Wales, my former state, actually has a Mining Act that allows for groups of minerals, so companies can say, "I want to take out a licence, but I only want a group of minerals that relates to base metals," or, "I only want a group of minerals around industrial minerals like gypsum." That Act has developed and provided the mechanism for overlapping tenements.

10 The Department has considered this; I think in consulting on the significant amendments that we did to the Act in 2011, there was some general discussion about that principle with the industry, and I think there was pretty much unanimous agreement by the - or unanimous response from the industry that they want it to stay the same, to allow for exploration for all minerals on a
15 tenement. That doesn't say that the government can't consider an amendment to the Act and change to the concept, like a group of minerals for exploration of tenements.

20 MR JACOBI: I'm just interested whether you have a view about whether there's an inefficiency associated in the idea that, for example, a company that might only be targeting a particular single commodity holds an exploration licence which essentially locks out anybody else looking for any other commodity on that particular tenement.

25 DR TYNE: In practice in South Australia, there have been many examples in the past where companies who are exploring for, for instance mineral sands, who may have tenements over areas prospecting for copper or uranium have the opportunity of bringing in a joint venture partner to explore for those commodities on the same tenement.

30 Now, that's a commercial arrangement; the Department requires, should there be a commercial agreement, the Department requires to see the agreement and give consent to that arrangement. In fact, during the period 2006/7, 7/8, there was a very substantial number of joint venture agreements along those lines,
35 right across the Gawler Craton and into the north-east, for exploration licence holders entering into commercial agreements for other parties to explore on their tenement.

40 MR JACOBI: Perhaps coming back to this question of assimilating data sets, I'm just interested about, we've heard some evidence about the sorts of tools or techniques that might be available for assimilation, and I'm just interested in your view about where you think that assimilation might now be able to go, given what's technically possible, and then your view about whether there might be any benefit in pursuing such a course.

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DR TYNE: I understand that you had a very significant body of passionate evidence from Professor Heinsen and Giles, and Dr Hill, around the modern processes around data integration and three dimensional analysis. Certainly in reviewing the evidence from Professor Heinsen, he talked about the potential for earth imaging using magneto telluric sub-surface imaging, and what is referred to as joint inversion; that is, taking a number of different data lines and seeking to reverse image what is under the ground, from that information.

I have to say that the Department views the geoscience skillset and the innovation within our universities in that space as a real value for our state. I think worthy of special mention in terms of recent initiatives around three dimensional modelling: our Department and our Geological Survey has been doing a very substantial body of assimilating data, working with Geoscience Australia, the Marnoo Geological Survey and using their massive computer systems in Canberra to drive through much of these data inversions, to put together really valuable three dimensional models that explorers can use for exploration.

A critical part of - - -

MR JACOBI: Can I ask - - -

DR TYNE: Yes, sure.

MR JACOBI: - - - just how much have we done now, and what are the plans to do more of that, and what sort of time frames are we looking at?

DR TYNE: All of the body of work has been done on a massive collection of information, particularly spatial mapping data that's been collected since the early 1990s, and you may be aware that South Australia actually led the establishment of what was referred to as "government exploration initiatives" in the early 1990s, by undertaking regional aerial surveying of our state.

Now, much of that coverage is still being used for the production of these 3D models; most of the data is 20-25 years old, and has been collected in a quilt-map type arrangement. The whole technology of aerial surveying and what I refer to as really significant reduction of scale of these datasets is now being used elsewhere, outside of Australia.

It's a little bit analogous to medical imaging. The medical imaging that we had for newborn children and for other purposes 20 years ago showed the objects, but it showed a pretty poor resolution. Looking at medical imaging now, of newborn babies, there's an extraordinary level of resolution, absolutely extraordinary level of resolution, and it's that resolution that's used as part of the analysis and understanding of the well-being of the body.

5 So what I'm leading to say is, the new era of aerial surveying has really substantially improved upon the resolution, the signal processing capabilities. So where our state might go is to undertake a major new survey of these highly prospective regions, the Gawler Craton, to really substantially beef up the resolution and detail of these three dimensional models.

10 MR JACOBI: Have we done a cost-benefit analysis to figure out what the sorts of costs are associated with that, and what the likely benefits would be?

15 DR TYNE: I can perhaps draw more recently on the government's PACE initiative. I know you've had some discussions around that. Over the last decade, the government has invested progressively a total of \$50 million, and that's involved a range of on-ground surveys, significant co-investment in drilling with the industry, the collaborative drilling programs that I believe Dr Hill talked about in his evidence. The outcome of that \$50 million expenditure led directly to the discovery of a number of ore deposits, around about 12 deposits, including it contributed to the discovery of the Four Mile uranium mine. It also directly contributed to the discovery of the Carrapateena copper-gold ore body.

25 Now, these ore bodies are, in value - in value, metal resources are several billion dollars. So just on that one example, this investment by government in pre-competitive geoscience collaboration to bring forward discoveries has been very successful.

COMMISSIONER: We also heard of a reduction in PACE funding over the last few years. Is that accurate?

30 DR TYNE: Commissioner, the cycle of PACE funding allocations is coming to a close. Our current PACE Frontiers initiative will conclude this financial year. There is some modest ongoing funding, but not sufficient to continue to drive, you know, innovation and development of these models and new ideas, et cetera, that we've been talking about. Certainly from my position, I've been advising our minister, our department, about the importance of continuing this work, particularly at this point in the economic cycle. The original PACE submission, which was developed from a very extensive body of work which started around 2000, the resources taskforce work, which recommended that our state invest in this. It actually commenced in 2004. That was at the point when the commodities cycle was absolutely at the lowest possible point.

45 The expenditure for that not only stimulated exploration and gave a very clear signal to the market to allow junior companies to be able to raise funding, but it also was a clear trigger to attract explorers. When the market started to come back up, the commodity cycle started to come back up. South Australia was

seen to be on the front foot in investing in new pre-competitive and science, and it was even in the first year, 2005, Carrapateena deposit was discovered through PACE funding, and so was Four Mile uranium deposit.

5 COMMISSIONER: The aerial survey that you were talking about, has a cost benefit analysis of that, or a cost at least of the initial - - -

DR TYNE: Yes. A cost benefit analysis has already been done and provided to our government. So we're looking for a positive consideration of that,
10 recognise that - - -

COMMISSIONER: What sort of cost is involved?

DR TYNE: So, you know, we be looking at around \$12 million for that
15 survey, but, you know, I have to say I recognise the state's revenues and budgets are challenged and there's - - -

COMMISSIONER: I'm asking the question. I've not - - -

20 DR TYNE: Yes. So we're looking at something like that, a minimum \$12 million to do that whole new generation of work which would reposition our state in terms of attracting new explorers as the cycle comes back up.

MR JACOBI: Can I just come back to this question of PACE, and thinking
25 about that in the context of the fall in exploration expenditure that we've seen over the last four or five years, I'm just interested in your perspectives on whether PACE alone is something that's going to be sufficient to drive exploration activity. It seems that notwithstanding the existence of the PACE program, there have in fact been declines in values of expenditure over at least
30 the last four or five years.

DR TYNE: Yes. Look, there's no magic bullet by government or by industry to drive exploration. Last year I attended an outstanding presentation by
35 Geoffrey Blainey, one of Australia's great mining historians, and he finished his presentation by saying if we don't have new discoveries, then we don't have new mines. The pipeline of new discoveries is the critical element to bring investor confidence and prove the opportunities for companies to be able to raise funding. So the discovery of Carrapateena in 2005 created a huge amount of confidence in South Australia and it provided many of the
40 companies who hadn't discovered anything with the ability to be able to raise funding on the back of that discovery by Rudy Gomez.

MR JACOBI: You've seen the evidence of Dr Guthrie. I just want to come to a question that I raised with her and this concerns the participation of industry
45 in these long-term programs where there are particular challenges in those

organisations capturing internally the benefits associated with these matters. Do you have any perspectives on how that can be effectively done, given your experience in both New South Wales and South Australia?

5 DR TYNE: That's really a particularly good question. Reflecting on some of the prior evidence that's been given on PACE and UNCOVER, which is a very strategic plan, in our state we also have - you know, we host the headquarters of the Deep Exploration Cooperative Research Centre. It's the primary cooperative research centre in Australia that's undertaking research in
10 exploration. I think over the last decade or two, the models around cooperative research centres have changed from a confidential body of information that's been collected over a period of years only for the participants and not shared.

15 The current model for cooperative research centres and this centre is that, yes, there are core partners that are seen at the earlier stage, the new innovations around deep drilling technologies and direct field processing of information directly at the hole site, to a lot more public information being shared across the exploration sector. I think the model of the large companies only investing in collaborative research is changing quite considerably, and research
20 organisations, universities, CRCs, CSIRO, are recognising that they've got to build a much broader church of collaboration with industry to share the knowledge, but to also provide access to research sites.

25 MR JACOBI: Dr Guthrie also, I think, in answer to a question from me, raised the idea that particular portions of payments associated with licences be quarantined for these sorts of public good expenditure purposes. Do you think that's necessary as against the cooperative research centre model?

30 DR TYNE: Well, look, that's an interesting model, in terms of payment of rental fees for exploration licences with a model of part return back into pre-competitive geoscience and the public good. I think there is a model of that type operating in New South Wales, a recent model, where exploration companies pay a levy on top of - it's a universal levy. They pay a levy based on the area of their tenement, and that levy goes into the geological survey for
35 production of pre-competitive geo sites for the whole state. So it's common, good model. I think the Productivity Commission, in recent times when they did a study on mineral exploration, also looked at that model and recommended that that might be a good model for other states to consider.

40 Having said that, the government receives revenues from our explorers and there is a record over the last 10 years that we have put 50 million dollars in to initiatives going back in to supporting exploration.

45 MR JACOBI: Now can I just come to - I just want to deal with an aspect of - we spoke with Dr Guthrie about outcomes focussed regulation and I am just

interested in your views and perspective on the extent to which you consider our regulatory structure reflects that particular approach as opposed to being what might otherwise be termed a prescriptive model?

5 DR TYNE: Well, I will shortly pass over to my colleague Greg Marshall but South Australia adopted some while ago, a regulatory approach that is risk based and focussed on outcomes, in preference to a prescriptive approach. Now our approach accords with the principles of best practice regulation which is outlined in the best practice guideline that was published by COAG in 2007.
10 This is the COAG best practice regulatory guideline, it's not – doesn't just cover the resources sector, it covers all regulatory areas and its central theme is around the risk based outcomes and we also call this performance based regulation. So although we have a Mining Act which has some historical elements, in our 2011 amendments we have absolutely sought to align the
15 Mining Act provisions with these principles around risk based outcomes based processes and further to identify the requirement under assessments processes for an environmental impact assessment, a social impact and economic impact. These are the triple bottom line elements to what is considered as an appropriate outcomes based regulatory performance regime. So - - -

20 MR JACOBI: Greg, perhaps if I can pick up some specific things and - - -

DR TYNE: Yes.

25 MR JACOBI: - - - either you or Mr Marshall could address them. We had a discussion with Dr Guthrie about the concept of good practice regulators, or I think what I termed a model regulator and I am just interested to understand your perspectives on the extent to which you are of the view that there is a need for very specific scheduling of time with respect to regulatory applications at
30 the outset of receiving an application?

MR MARSHALL: So the current Mining Act doesn't prescribe any times for assessments or times for any government decision making, so the way we have managed that is that to actually have a policy position on that and – or a target
35 for assessment of an application – when we receive an application through to making a decision and that target time was around about the six month timeframe.

40 MR JACOBI: Is that published?

MR MARSHALL: Yes, that's been published – that has been publicly announced by the Department. So that is a target. It's our observation that those jurisdictions that have actually set targets don't always stick to them because there is always the opportunity for discretion about those times and
45 also discretion around seeking further information from the applicant. So our

focus has been on developing an effective and efficient assessment process and resourcing that process and creating a regulatory framework and decision making framework that supports that and make it as effective and efficient as possible. And that framework is very much about being as (indistinct) refer to
5 and as Dr Guthrie promoted, was an outcomes based approach to regulation. So the assessment process is very much about focussing on decisions around – or an assessment around what outcomes have been proposed or by an application for a new mine. That outcome is – the outcome is the level of impact that proposed development may have on aspects of the environment.
10 Those aspects of the environment must be considered in an application under the Mining Act and are prescribed in the Act, in the definition of the environment and the assessment is very much about deciding is that level of impact appropriate and is it technically feasible to achieve that level of impact. And then the conditioning for that proposal is – or the decision and the
15 conditioning for the approval is – relates to those particular aspects.

COMMISSIONER: Mr Marshall, are the target times measured?

20 MR MARSHALL: Yes. Yes. So we have a system in the Department where we measure both the time, the application is within the Department for assessment and also the time the application is within the proponent for developing or providing information in relation to that assessment.

25 COMMISSIONER: And these periods are published?

MR MARSHALL: No, no they're not. Not yet. So the - - -

COMMISSIONER: Do I infer from not yet that it is your intention to do so?

30 MR MARSHALL: It is our intention to publish those times, so we recently published our first annual mining regulation report for the state. In relation to assessments, it lists all the assessments that were conducted by new proposals in the state which are in the – during the 2014 year. It is our intention to publish timeframes around assessments in the annual report which we intend to
35 publish in the early – in early 2016 for the 2015 year.

40 MR JACOBI: I'm just interested in the extent to which, with respect to a specific application, at the outset there is a definition of the data that you need from the applicant and the time schedule that you expect the application to take and there's an interchange with the applicant with respect to those matters, so that there is a clear understanding at the outset of the process about what data is required, what assessments need to be undertaken and how long you expect the process to take.

45 MR MARSHALL: So the requirements for the assessment process is set out

in – like the definition for what is required for the assessment is determined by the Mining Act, the mining regulations and what we call determinations which are provided for under the mining regulations, so under the Act, the minister has the authority to determine what information a proponent must provide for an assessment.

MR JACOBI: The reason I picked that up is that you have spoken of the idea of sometimes the ball goes back in to the court of the applicant and I am just interested in the extent to which there is a process, at the start of the process, where you say to the applicant look this is everything that we're going to need, you can read the Act, you can read the regulations, you can read our determination but we are also going to need this, this and this. Is there a discussion about that at the outset of the process, so that everybody's clear about what needs to be provided?

MR MARSHALL: Yes. So at the very outset of when a proponent first comes to – approaches the Department for - with an idea for a proposal for a new operation, there is quite detailed discussion with the proponent about what the Department expects for – to be included in their application and that includes advice and guidance on the regulatory requirements under the Act, on the determinations and the determinations for a particular class of mine. We would have discussions about – we would provide further guidance and advice as to the level of detail required under those requirements and we would also map out with them a schedule, and this is where we sort of deal with the timing of things, would be – we adopt a project management approach to these things, so an application is a project. So we would be sitting down with the proponent to develop a project schedule for the assessment of a new operation where the – where that project schedule incorporates the project – the applicant's project development timeframes and the development – and the application assessment timeframes for that particular project.

DR TYNE: I think one of the clear examples of where there is a referral back to the applicant, follows after a public consultation process. Our Act has a public consultation process built in and so what one of the elements of that is that all of the submissions that we receive, publicly, refer back to the applicant to respond to. It's often the case that through a risk based assessment that a company may not have identified all the risks and that some of these risks only come out during the consultation stage. So it's really important that that's referred back and a key part of this whole process is the process of transparency. So as part of the application, we tell the company that their application will go online, as part of the public consultation, and we advise applicants or community members who want to put a submission in during the public consultation that their submission will also, at the moment may be, may be put online, but most of the time it is. Then the response of the company, when it goes back to the company, to all of those public submissions will also

be put online.

5 So there are key points in the legislative process, where it's important to - it's referred back to the company and it does depend on how long the company takes to respond to those submissions.

10 MR JACOBI: I think because it's raised in the submission of Dr Guthrie, I'm just wondering the extent to which a minister has got to make a decision; does that form part of the project management, part of the process as well? Part of the issues she raised was with respect to delays in the exercise of ministerial discretions.

15 MR MARSHALL: Yes, so under the Mining Act, the time frame or the time component that would be included in that time frame is the decision by the minister or his delegate to actually - under the Mining Act, the decision is to grant a mining lease. So with respect to uranium mines, the other part of the time frames, and in managing the project of decision making for a particular uranium mine is that relationship with the approvals under the EPBC Act.

20 So for all the uranium mining assessments, at least since the early 2000s, there's been quite a collaborative effort between the state government and/or our agency, and the Department of Environment to try and line up the assessment and decision making processes, so that the decision to grant a lease and the decision under the EPBC Act are occurring around about the same
25 time.

30 MR JACOBI: I think the Commission understands that there's an assessments bilateral between South Australia and the Commonwealth. I'm just interested to understand the status of negotiations for an approval bilateral.

35 MR MARSHALL: So that's with the Commonwealth currently, so they've been through the process of developing or negotiating with the states on an approvals bilateral; the Commonwealth went on a public consultation, that public consultation ended around February this year and I guess the Federal Government approval is in the Federal Parliament and is waiting for passage through the Senate, where I believe there's some negotiations going on around the form of that bilateral.

40 MR JACOBI: Do you have any expectation about the timing that might be entered into?

MR MARSHALL: No, none.

45 COMMISSIONER: And the extent of what it proposes?

MR MARSHALL: Currently the assessments bilateral credits the state's assessment process under the Mining Act, and two other bits of legislation: the Development Act and the Petroleum and Geothermal Act, but it credits the states' assessment mining it for uranium mines. It still relies on a federal minister to make a decision for the action; the approval bilateral would revert that decision for approval back to the states.

MR JACOBI: I just want to move onto the topic of financial assurances, and I think we raised this topic for the first time when dealing with the (indistinct) issue, and I'm just interested first of all to come to the issue of financial assurances associated with exploration. I was just wondering if you might give us some background about the nature of the obligation to enter into assurances, and then some information about how those assurance amounts are calculated.

MR MARSHALL: The legislative provision for assurances are provided for in the Mining Act under section 62 of the Act, which gives the minister authority to require a tenement holder to answer into a rehabilitation bond, to ensure rehabilitation occurs. And of course, those bonds can be applied to any tenement, including exploration licence and production mining tenements.

For exploration, the bonds are applied on a risk based basis, depending on the level of disturbance that the exploration activity might create, and where that activity might occur. So if the exploration is occurring in a conservation park or a national park, the bonds would be normally applied. And for uranium mines, authorised under the Mining Act, bonds are always applied, and the amount of the bond required is the full amount of what has been estimated to be the rehabilitation liability for the approved operations.

MR JACOBI: Can I just deal with exploration first, separately, and I'm just interested in the precise way in which those amounts are calculated for the purposes of a prospective exploration activity.

MR MARSHALL: The amounts are calculated by determining or estimating the quantity of the works required to undertake the rehabilitation of whatever disturbance has been created by the operation.

MR JACOBI: Does that assume a failure at the point of peak activity; that is, at the point in which the most activity needs to be done, or - - -

MR MARSHALL: Yes, yes. So at the peak of where most of the disturbance has been created, so an assessment of the works required to rehabilitate that disturbance is undertaken.

MR JACOBI: Who does that?

MR MARSHALL: That's done internal, into the Department.

MR JACOBI: And is a risk factor applied to that figure?

5 MR MARSHALL: Normally a contingency would be applied to those numbers, depending on the confidence around the estimations, particularly on the scope of work and the amount of earthworks required, which is predominantly where the cost lies.

10 MR JACOBI: So is the bond that must be put up in every case that maximum amount, or is there a factor that's applied to it to take account of the fact for example that the person doing the exploration has done it reliably in the past, or - - -

15 MR MARSHALL: It's normally the full amount. We don't normally take into account the performance of the company undertaking the works.

COMMISSIONER: So based on your evidence, the Department will have a view about the total rehabilitation cost of all of the activities underway among all of the exploration activities?

MR MARSHALL: For exploration, not all, because bonds for exploration are required on a risk based basis, so depending on the level of disturbance and where that exploration is occurring.

25 MR JACOBI: So (indistinct) won't have bonds at all?

MR MARSHALL: That's right.

30 DR TYNE: Much of exploration is low impact, and may just involve aerial surveying, it may not involve significant ground disturbing activity. So for example, the kinds of exploration activities that may require bonds are:

35 *(1) Close based resource definition drilling, and there's a substantial disturbance to the ground, and a cost for ground movement and re-seeding of the site.*

(2) Large scale and intensive use of declared equipment, that is, digging equipment digging holes, so the volume of earth to be removed and the cost per tonne of earth, we've got clear tables of costs for doing this.

40 *(3) Development of intensive track networks, the cost of remediating those tracks by returning the topsoil back on and re-seeding and scarifying the tracks.*

45 *(4) Establishment of a major campsite, so the cost of removing a campsite and returning that back to natural vegetation.*

So the Department has a body of estimated tables which are acceptable to the industry, around the likely cost of: if there's this volume of earth that needs to be moved to put the drill site back or the excavation back to - - -

5

COMMISSIONER: Okay.

DR TYNE: Yes.

10 COMMISSIONER: I understand that, but the figure that we've seen for the total bond cost - - -

DR TYNE: For exploration is quite small.

15 COMMISSIONER: Quite small.

DR TYNE: Yes, that's right.

20 COMMISSIONER: And that struck me as odd, even though I expect from some of the graphs there, that we're not doing a lot of exploration at the moment. Why is it that small? One and a quarter million, is it?

25 DR TYNE: Yes, one and a quarter million. The reason it's so small is that (1) the Department seeks to hold bonds on activities, particularly in sensitive areas such as national parks. It's in the interests of an explorer who is bonded to remediate the site as quickly as possible and return it and the bond will be returned. So we don't hold it for the five-year period. So at this point in time, our risk assessment is - there's only quite a modest number of sites that require bonds.

30

MR JACOBI: Is that because the bond is only taken at the point at which the ground disturbance is done and then there's drawn down upon as the rehabilitation works are done? Is that how it works in practice? Or is the amount paid at the point at which the licence is issued?

35

DR TYNE: No. It's paid at the point at which the company seeks approval to do this ground-disturbing work.

40 MR JACOBI: And then seeks the release once it's verified that it's done - - -

DR TYNE: Yes, once it's remediated the site. Yes, that's right.

COMMISSIONER: Do you have an idea of activity where bonds are held? Would it be 10 per cent?

45

DR TYNE: I don't have that figure.

COMMISSIONER: It's a big ask.

5 DR TYNE: I'm happy to provide that separately to the Commission.

COMMISSIONER: That would give us a sense of whether it's 5 per cent
or - - -

10 DR TYNE: And also to give you some itemised numbers so that you can see
how many bonds actually sit within that - - -

COMMISSIONER: That would be very useful.

15 MR JACOBI: Can I just come to this, and I don't want to come to the specific
case, but in a submission the Commission has received there were a suggestion
that the amount of bonds associated with an exploration activity not associated
with radioactive minerals was inadequate, and I'm just interested to understand
20 how an amount could be inadequate in circumstances where the amount that's
required to be paid should reflect the full cost of rehabilitation activity.

DR TYNE: That's a little hard to answer without having the specifics of it.
Yes. I'm happy to provide some further information if you can give me some
25 clearer guidance on what you're looking for. The other control for just
ensuring - I mean the outcome we're looking for is ensuring rehabilitation is
occurring. A bond is one mechanism. The other mechanism is the explorers
are required to submit annual compliance reports, which talk to the activity and
their compliance with the requirements of their program environmental
30 protection and rehabilitation. So it's through that compliance reporting that the
regulators can actually see whether they're compliant with their rehabilitation
obligation.

COMMISSIONER: That assumes though that a regulator goes and reviews
the annual report.

35 DR TYNE: Yes. So the review is done and the - - -

COMMISSIONER: So the annual review is a report by the company?

40 DR TYNE: That's right, yes.

COMMISSIONER: Which goes to a regulator?

45 DR TYNE: That's right.

COMMISSIONER: To the Department.

DR TYNE: That's right.

5 COMMISSIONER: (indistinct) the Department.

DR TYNE: Yes. It's a regulatory requirement we have for companies to demonstrate their compliance with their regulatory obligations.

10 COMMISSIONER: So it's part of the overall package of compliance of terms and conditions of the licence.

MR JACOBI: Can we (indistinct) from exploration and come to rehabilitation, but at the point of mine closure, and I'm just interested to
15 understand what the process is again and the specific means of calculating the amounts of financial assurance that are set aside ensure that there's rehabilitation following a mine closure.

DR TYNE: For mines?

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MR JACOBI: Yes.

DR TYNE: Okay. So we're onto mines. So the requirements for a mine to close are set out in the program for environment protection and rehabilitation
25 for that particular mine. So there's an expectation that that program will included what - well, mine closure outcomes must be achieved and how that mine proposes to achieve those rehabilitation outcomes. That includes encapsulation of waste, management of waste, and protection of surface water, groundwater. The works or the strategies described in that program form the
30 basis for estimating the scope of works that can be costed out and a cost estimate developed for them.

You'll find that all the detail is in the PEPR, so there's some degree in which further detail must be developed in estimating the, or defining the works that
35 are required for mine site rehabilitation. That's done at the time when we do a bond review, or establishing the quantum what a bond should be. So the process we would normally go through in assessing - I'll come back to who does these in a minute. So the scope of rehabilitation and non-closure works required for achieving mine closure are determined and estimated and
40 quantified.

The quantities of material or quantities of what is required to do those works is estimated and the activities or processes for conducting each of those works is defined, and the unit costs for conducting each of those processes estimated or
45 derived, and the way in which we've estimated or derived unit cost is either

getting that from industry experience, or we've engaged quantity surveyors to provide that unit cost information that can go into a spreadsheet-based calculator that we've established for conducting those cost estimations. And all that feeds into estimating the rehabilitation costs for the different areas of a mining operation, including the mine, tailings facilities, waste rock dumps. There could be in-situ recovery well fields, processing plants, the infrastructure associated with those mines. If there was haul roads, it covers haul roads; accommodation and office buildings.

And we would also have factors in there to account for the project management cost that the government would have to bear if it fell to government to rehabilitate and supervision costs, and contingency factors are applied to those cost estimates as well. So that's how we would estimate what we call the mine rehabilitation liability, and that forms the basis for informing the level of the bond, and the policy position we've established in South Australia that the level of rehabilitation bond should be the equivalent of the rehabilitation cost estimated for the maximum rehabilitation of that mining operation.

COMMISSIONER: I saw a figure of \$8 million, which again strikes me as fairly small. Have I got the right figure?

DR TYNE: Is this for Honeymoon?

COMMISSIONER: This is page 12.

MR MARSHALL: I think the total holdings of bonds are well over a 100 million at the moment across a current, active, major mine.

COMMISSIONER: Okay. And that's physically held by the Department?

MR MARSHALL: Yes, physically held as either cash or a bank guarantee. The vast majority of it is as a bank guarantee.

COMMISSIONER: Yes. Okay. I understand. And the situation with Olympic Dam?

DR TYNE: I'll just come back to Honeymoon. So that estimate that you refer to there is for its current state of being, care and maintenance, where the site - all the fluids and the inventory of material has been cleared out. So once that site came out of care and maintenance we would be reviewing that level of bond for an operational situation.

COMMISSIONER: Beverley is around 20 million.

DR TYNE: Mm.

COMMISSIONER: So Olympic Dam?

5 DR TYNE: So Olympic Dam, the mining operation and regulation of
Olympic Dam is authorised under a special act of particular time, the Roxby
Downs Indenture Ratification Act 1982. The current Roxby Downs Indenture
Act, does not contain a requirement for a bond, or a financial assurance of any
10 kind to cover potential liability for closure and rehabilitation. In the case of
Olympic Dam, the Mining Act does not have any powers to require a bond on
the special mining lease that sits within that indenture. So if I just come back
to the controls that the regulatory controls that government has and the federal
government has on this operation. As part of the regulatory oversight and the
environmental controls and monitoring by the state and the Commonwealth,
15 the operator is required to submit annual environmental protection and
management programmes. And as part of that programme, there is an annual
mine closure and rehabilitation plan submitted and this information is available
on the BHP website.

COMMISSIONER: Costed?

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DR TYNE: I'm not sure if it's costed? Greg? I'm not sure if the closure plan
is costed. The closure plan is a concept for closure.

COMMISSIONER: Mm'hm.

25

DR TYNE: Separate to the annual reporting the company undertakes, I
understand, an audit of mine closure and rehabilitation plan every quarter.
There are also environmental reviews held directly by the Commonwealth and
the state with BHP on their operations. So any emerging – any emerging
30 environmental control issue, dust, noise, bird deaths et cetera are addressed as
part of that quarterly monthly process and any incidents, the company is
required to provide direct advice if there is a significant environmental
incident, or any environmental incident. Can I pass to you Greg around the
reporting around uranium incidents? The process around the (indistinct)

35

COMMISSIONER: What I would rather get to is the logic behind one of the
biggest mines in the state with the biggest tailing dams and with the biggest
rehabilitation requirements being treated differently than any other mine? That
may not be something that - - -

40

DR TYNE: Well, there is more to – there are some positive elements to the
story here. So I mentioned that this is covered under the Roxy Downs
Indenture Act - - -

45 COMMISSIONER: Mm'hm.

DR TYNE: - - - it's a 1982 Act.

COMMISSIONER: Yes.

5

DR TYNE: When the company came forward to propose the expansion of Olympic Dam, as part of that process, an amended indenture was prepared and a clause was inserted in that amended indenture which requires the company to have in place a financial assurance arrangements to ensure the state was held immune from financial liability associated with required closure and rehabilitation. Now BHP was granted - - -

COMMISSIONER: That is certainly positive but it doesn't happen until the expansion?

15

DR TYNE: Yes. So they were granted approvals, development approval 2011, the key point is until the company issues a notification to the minister, that they were now planning to undertake the expansion that amended indenture does not come in to play. So the government and the federal government, through the collaborative discussion between the state and the Commonwealth in preparation for this amended indenture ensure that there are provisions that holds the company to account around financial insurance.

COMMISSIONER: Should they not expand the dam outcome then?

25

DR TYNE: I believe there's been an extension. The minister granted an extension for the end date for the notification of the extension to October 2016, I believe. I'm not aware of any application by the company to further extend that. I'm actually not aware if the company has the opportunity for a further application for an extension.

COMMISSIONER: I'm not so much concerned about that, but about the issue that whilst a company - - -

35 DR TYNE: But at this time, there is no - - -

COMMISSIONER: At this time.

DR TYNE: There is no bond or financial insurance.

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COMMISSIONER: Should the company not proceed, then the situation remains as it is.

MR MARSHALL: That's correct, yes.

45

MR JACOBI: Can I just pick up that? To what extent, if the nature of the activity changes - that is, we understand that there were trials to heap leach Olympic Dam. Assuming that those trials were successful and they were minded to undertake their processing activities in that way, is there provision then for bonds to be - given that the activity may have changed in some significant way?

MR MARSHALL: I think any change in plan, including what the company is looking at for changing the processing option, would most likely result in a new environmental assessment, so impact assessment, in addition to what already occurred for the assessment of the expansion. I guess the question is whether that change in plan would open up re-negotiations between the state government and the BHP on the indenture. I think that's the question.

MR JACOBI: And can I just come to the final question of the total amounts of the bonds that are held. I'm just interested in the extent to which - I think you were going to address the question about who made those assessments to the extent to which they're verified, altered or assessed by a third party. The Commission has heard, in the course of the Commission's process, there has been some controversy in other jurisdictions about the adequacy of amounts that have been held for other types of minds, and I'm just interested in the extent to which these amounts are amounts that are assessed or altered by a third party.

MR MARSHALL: So I referred to us getting advice from independent quantity surveyors on unit rates so - - -

MR JACOBI: Is that always done?

MR MARSHALL: It's done insofar that we've got those numbers into our own calculators. So that's allowed us as the state government to verify numbers that the companies are coming forward with. So there are occasions when we ask the company to go away and come back with a number and we'll verify that and check that they've accounted for the - we check their quantities and their estimates on the works that need to be done, and we'll check what unit cost rates have been applied to that, and in us checking that, we'll draw on the information that we've got independently from quantity surveyors and verify it through that process. With the Honeymoon bond, for example, we asked the company to go away and get an independent assessment by a quantity surveyor and then the basis for decision making around the bond was based on that.

COMMISSIONER: Gentlemen, I realise this takes valuable time out of your day. I thank you for the presentation of your information and your appearance here today. We'll adjourn until Thursday.

**MATTER ADJOURNED AT 5.08 PM UNTIL
THURSDAY, 12 NOVEMBER 2015**