



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

JOINT COMMITTEE ON PUBLIC WORKS

Reference: CSIRO minerals laboratory extensions, Waterford, Perth

THURSDAY, 22 SEPTEMBER 2005

PERTH

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**JOINT STATUTORY COMMITTEE ON
PUBLIC WORKS**

Thursday, 22 September 2005

Members: Mrs Moylan (*Chair*), Mr Brendan O'Connor (*Deputy Chair*), Senators Parry, Troeth and Wortley and Mr Forrest, Mr Jenkins, Mr Ripoll and Mr Wakelin

Members in attendance: Senators Parry and Troeth and Mrs Moylan and Mr Brendan O'Connor

Terms of reference for the inquiry:

To inquire into and report on:

CSIRO minerals laboratory extensions, Waterford, Perth.

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Committee met at 10.32 am

CHAIR (Mrs Moylan)—I declare open this public hearing into the proposed extension of the Commonwealth Scientific Industrial Research Organisation minerals laboratory at Waterford, Western Australia. This project was referred to the Joint Standing Committee on Public Works on 16 June 2005 for consideration and report to parliament. In accordance with subsection 17(3) of the Public Works Committee Act 1969, which concerns examination on a public work, the committee will have regard to the following:

- (3) In considering and reporting on a public work, the Committee shall have regard to -
 - (a) the stated purpose of the work and its suitability for that purpose;
 - (b) the necessity for, or the advisability of, carrying out the work;
 - (c) the most effective use that can be made, in the carrying out of the work, of the moneys to be expended on the work;
 - (d) where the work purports to be of a revenue-producing character, the amount of revenue that it may reasonably be expected to produce; and
 - (e) the present and prospective public value of the work.

We had the inspection this morning and a confidential briefing from CSIRO. We have inspected the site of the proposed works. We thank CSIRO for facilitating the committee's visit to the site. The committee will now hear evidence from the CSIRO, the Curtin University of Technology, the Department of Industry and Resources Chemistry Centre and the Parker centre.

[10.33 am]

FARROW, Dr John Benson, Waterford Site Manager and Program Manager, Alumina Production, Commonwealth Scientific and Industrial Research Organisation

FOLLINK, Dr Lambertus Gerrit Jan (Bart), Chief of Minerals Division, Commonwealth Scientific and Industrial Research Organisation

HAWKINS, Mr John Richard, Manager Planning and Facilities, Commonwealth Scientific and Industrial Research Organisation

MOODY, Mr Trevor Laurence, General Manager, Corporate Property, Commonwealth Scientific and Industrial Research Organisation

WHELAN, Mr Michael Stuart, Chief Financial Officer, Executive Director Corporate Operations Group, Commonwealth Scientific and Industrial Research Organisation

MICHELIDES, Mr Michael Gordon, Architect and Senior Associate, Woods Bagot Architects

Witnesses were then sworn or affirmed—

CHAIR—Welcome. The committee has received a statement of evidence and two supplementary submissions from CSIRO. These will be made available in a volume of submissions for the inquiry and they are also available on the committee's web site. I now invite you to make a short opening statement.

Mr Whelan—This proposal brought before the Parliamentary Standing Committee on Public Works is for the construction of extensions to the existing CSIRO Division of Minerals laboratory at Waterford in Perth, WA. The CSIRO requires appropriately designed and equipped research facilities that will provide safe, healthy and efficient working conditions for its skilled staff. These staff direct and undertake a wide range of research to meet national and industry priorities according to CSIRO strategic objectives and for approved programs. As the committee is aware, CSIRO is progressively upgrading many old, substandard and inefficient scientific research buildings as funds become available, and is constructing new facilities as required in order to meet changing research directions and priorities. The committee has in recent years examined proposals by CSIRO for Newcastle, St Lucia in Queensland and Black Mountain in the ACT. We are proud to say that on all these occasions the committee has reported favourably on our proposals.

CSIRO Minerals was established in 1995 from a merger between the Division of Mineral Products and the Division of Mineral and Process Engineering. Its headquarters are located on the CSIRO Clayton campus in Victoria and it is the largest public domain organisation in Australia conducting research into minerals processing and metal production across a broad range of mineral commodities such as alumina, base metals, gold, iron ore, magnesium and titanium. The division also conducts research at the Queensland Centre for Advanced

Technologies at Pullenvale in Queensland, at Lucas Heights in Sydney, at Urrbrae in South Australia and at Waterford in Western Australia.

CSIRO Minerals research at Waterford includes alumina production, base metals and gold, with particular focus on hydrometallurgy. The CSIRO Waterford facilities are located at the southern end of the planned WA technology precinct and adjoin the southern end of the Curtin University of Technology. Curtin university plans to develop a chemistry research and education centre on land adjoining the western boundary of the CSIRO site. The Curtin university development will include new facilities for the WA Chemistry Centre and Curtin School of Applied Chemistry. The combined Curtin university and CSIRO developments will create a minerals and chemistry precinct that will generate collaborative research and shared utilisation of research equipment and infrastructure.

The existing Koch and Becher buildings at CSIRO Waterford were developed in 1994 to accommodate up to 65 staff and students. The buildings currently accommodate 70 staff and 10 students, and this has resulted in overcrowding. The facilities lack permanent seminar and lunch amenities and a recognisable point of address. Development of the proposed CSIRO laboratory extensions will provide international standard accommodation that will enable the Division of Minerals to grow from the current 70 to 100 staff. It will also provide accommodation for up to 15 students undertaking minerals related postgraduate and undergraduate studies at the three universities in WA, and space for a further 15 minerals research collaborators.

The proposed 2,730 square metre extension to the Koch Building will comprise modern and efficient office accommodation to relieve overcrowding; improved reception; permanent seminar, lunch room and staff amenities; as well as additional storage to improve utilisation of existing highly serviced laboratories. A further 500 square metres of fit-out alterations in the existing building will provide safe, consolidated accommodation for highly serviced research instruments and laboratory accommodation. A further proposed 400 square metre extension to the Becher Building will provide additional bulk storage for research materials and equipment. This will include storage racks to optimise the utilisation of the building volume. The Koch and Becher buildings will be linked by a covered walkway at the first level to provide weatherproof, secure and barrier-free access.

The proposed works at Waterford have been referred to the Commonwealth Department of the Environment and Heritage, consistent with the requirements of the Environment Protection and Biodiversity Conservation Act. The project has also been submitted for development approval by the WA Planning Commission. This includes review and comment by the town of Victoria Park. The proposed developments aim to provide all of the facilities necessary for CSIRO Minerals to conduct leading-edge, scientific research. The design of the complex reflects CSIRO's aspiration to provide a public interface for clients and visitors to act as a catalyst and attractor for the promotion of CSIRO's work, and to provide a comfortable, efficient working environment which incorporates provision for medium- and long-term flexibility and adaptability.

The proposal will incorporate various initiatives to minimise impact on the environment, including passive and active energy conservation measures. The estimated cost for the proposed facilities is \$12 million at May 2005 prices. Construction is planned to commence in the first quarter of 2006 and is programmed for completion by late-2007. In developing this proposal, CSIRO and its consultants have contacted all interested groups, including CSIRO staff and

unions, and those local authorities having statutory responsibility over the locality and services. General support for the proposal has been received from staff, government and industry organisations.

The proposed design fully meets the CSIRO functional brief and conforms to the technical requirements of local authorities. It will be designed and constructed according to the Building Code of Australia, relevant Australian standards and appropriate laboratory codes. CSIRO believes that the completed facilities will provide an appropriate workplace that will stimulate and promote research and development activities, and further enhance opportunities for conducting national and international research consistent with its long-term objectives.

The new facility and resultant overall minerals, research and education centre will provide a powerful statement about CSIRO's commitment to research and development in the field of minerals, with particular emphasis on hydrometallurgy and sustainable minerals processing. CSIRO is satisfied that the proposed development is the most appropriate, timely and cost-effective way to provide safe and efficient accommodation for the staff of CSIRO Minerals, and to fulfil the division's and CSIRO's research and development needs. It therefore submits the proposal to the committee for examination and seeks its endorsement.

CHAIR—Thank you. I was just looking at page 8 of your submission and examining the extensive list of mineral commodities produced in Australia and their value, which totalled \$35.5 billion. Much of this, of course, comes out of Western Australia. Given the rapid growth of the Waterford facility, which has happened over a decade—as you have just outlined, Mr Whelan—how long does CSIRO anticipate that the proposed extension works will comfortably accommodate the staff and student population?

Mr Whelan—Ultimately, that is dependent on continued growth and coinvestment from industry, but our thinking at this point in time is that they will at least support us for the next decade. There is provision in the design of the site for further extension and additional capability as required by either CSIRO or industry partners. We are very conscious of the need for industry to co-locate and coinvest in the research. That is an important part of the future growth of the facility.

CHAIR—That leads to my second question: given the rate of growth, which is obvious, and given the amount of mineral extraction and export in Australia, and in particular in Western Australia, if you have an understanding now of the possible requirement for future expansion, would it not be more cost effective in the long term to enlarge the scope of this current proposal and construct now? Would you like to comment on that for the public record?

Mr Whelan—I will make some overarching comments and then I might get Mr Trevor Moody to provide some more detailed comments. There is always a trade-off in these situations about how we deploy capital and resources, and the utilisation of those resources. As a general rule, we try and avoid constructing excess capacity on the basis that our overarching master plan designs and building designs can allow us to add growth as required in the future. It is our judgment in this instance that this is an appropriate investment, given the growth that we can forecast, but we have made provision for further growth in the future. I might get Mr Moody to comment in more detail on that.

CHAIR—Have you specifically looked at the cost of constructing for your future growth? Ten years is not very far away if you are going to grow at even the same rate as you have grown in the past 10 years. Was there an analysis done of the cost benefit of constructing to a greater degree on the current site now, as against just doing it bit by bit?

Mr Moody—We believe we have made quite adequate provision, as Mr Whelan said, for the next 10 years. The current number on the site totals approximately 80 people. The buildings that we are proposing to construct as part of this development will take capacity up to 130 people, which is a significant increase in people over that time. With our capital investment plan we have found that research programs over five or 10 years can fluctuate enormously. From our viewpoint, it is not a wise investment to plan for more than 10 years in our developments. In our planning we have allowed for future expansion of facilities to the east of the existing buildings that you saw this morning. We would effectively have empty buildings for a number of years before they were filled. There is no return to capital investment at all with empty buildings. We have demands elsewhere around Australia with our fairly limited capital investment plan. So, from our viewpoint, in terms of cost benefit, we think it is appropriate to plan for that period of time, but to make allowance for longer-term expansion depending on the evolving needs of research.

CHAIR—I know my colleague Senator Parry wanted to ask further questions about the demountable buildings. Are you going to keep those buildings on site for the future?

Mr Moody—It is not our intention to keep those buildings.

CHAIR—All right. I will leave Senator Parry to pursue that a little further down the line.

Mr BRENDAN O'CONNOR—I was just looking at the CSIRO's efforts to consult with, I think, 14 departments—11 Commonwealth and three state—and other agencies. In your submission you say:

The following authorities and Departments have been contacted and/or consulted ...

'Contacted' could mean sending a pro forma letter and 'consulted' could mean a whole lot more. Could you expand on what exactly happened? I do not know why you had to contact that many but, given the number of departments, they may have been just sent a letter. What level of consultation did you have with the major parties involved in this proposal?

Mr Moody—Traditionally, we go to great effort in trying to capture all interested parties for any development that we are proposing. You are right that our initial contact in most cases is a pro forma letter, but the pro forma letter includes a description of the work, sketches and so on. We give people the initial opportunity to advise us that they want to be involved in the project. We also ask them to nominate someone from their department or organisation who may wish to have further information. In some cases, we receive responses along those lines. In this case, we have received only four responses to our letters which have nominated people that would like to be kept informed as to how the project is proceeding.

Mr BRENDAN O'CONNOR—Who are the four?

Mr Moody—There is also a separate process that we go through, but the parties that we received responses from were Professor Barney Glover from Curtin university; WJ Gibbons of the Department of Immigration and Multicultural and Indigenous Affairs, who indicated that they had no real interest in the project; Professor John Yovich from Murdoch University; and Dr Judy Edwards, who is the minister for environment and for science in WA. That was the first pass. We have also followed up in consultation with our collaborative partners in terms of those involved with the CRCs. They have been more direct consultations so that they know what we are trying to do. They apply to universities and those industries that we are going to collaborate with.

On a third front, we attempt to communicate with the local community to let them know. In that case, we provided a letter-drop to the community and gave them the opportunity to attend an evening function to learn a bit about the building. That did not attract much attention, but it was the best we could do in trying to involve the community and all of the people that we deal with.

Mr BRENDAN O'CONNOR—How wide did that letter-drop go?

Mr Moody—I am not sure of the number of people.

Mr BRENDAN O'CONNOR—Was it just the surrounding area?

Mr Hawkins—That is correct.

Mr BRENDAN O'CONNOR—Based on the effects that the construction would have upon the residents. Was that the nature of the letter?

Mr Moody—It gave us the opportunity to advise what we were proposing to do but, if they wanted more details, the opportunity was there to come to a briefing session where we had drawings to show them. We have done that on a number of occasions.

Mr BRENDAN O'CONNOR—Canning City Council is the local authority?

Mr Moody—No. Canning City Council will need to be consulted but, in this case, we are dealing with the town of Victoria Park.

Mr BRENDAN O'CONNOR—And they would at least ask you to advertise your proposed construction under the planing laws anyway, wouldn't they?

Mr Moody—They have not asked us to advertise as such, but we have certainly gone to the town of Victoria Park and sought development approval, which then goes through the Western Australian Planning Commission and the like.

Mr BRENDAN O'CONNOR—Of the four responses, were there any adverse responses?

Mr Moody—No, not at all. They were all very good.

Mr BRENDAN O'CONNOR—On the face of it, the changes would seem to be of benefit to a number of people, including the staff. What is the general view of the staff towards this project?

Dr Farrow—The staff are eagerly awaiting the development. They are very positive. They see a lot of benefit in the proposed development, and that has been done through a staff general-site approach whereby they have been consistently informed of the plans throughout the development phase, and the Public Service union have also been informed and are very supportive.

Mr BRENDAN O'CONNOR—Does the staff also get paid under a certified agreement? Is it an enterprise agreement?

Mr Whelan—Yes. CSIRO has an enterprise agreement.

Mr BRENDAN O'CONNOR—There would be provisions in that to have to consult employees and unions.

Mr Whelan—That is correct.

Mr BRENDAN O'CONNOR—Is the CPSU the only union that has responded to that agreement?

Mr Whelan—No, it is not, but I think it is the only union with coverage of staff at this site. At other CSIRO sites, we have coverage of other unions that are respondents to the enterprise agreement.

Mr BRENDAN O'CONNOR—It may well be in the submission itself—and you can point to it if you can—but how are the workstations determined? How many square metres are the workstations under the changes in the new proposal? Is there a net gain in area? It sounds like there would be. Given that you are bringing on new staff, is that going to reduce or in the end increase the number of square metres per employee?

Mr Whelan—I will get John Hawkins to provide more detail, but I think one of the things we observed this morning at the site visit was that the existing office accommodation and workstations—if we describe the current benches as that—are pretty minimalist. We are hoping to improve the standard of those facilities for people who do work in offices, but I will get John Hawkins to provide more detail on that.

Mr Hawkins—The office accommodation will comprise a mix of enclosed offices and works to open-plan workstation areas. We have designed those to a fairly common standard that we are utilising in our facilities, which includes approximately seven square metres per head for the open-plan workstations and generally somewhere of the order of 11 square metres to 12 square metres per enclosed office. In some instances, some of the more senior and managerial staff who have public contact will be required to have larger offices so that they can meet and deal with visitors that come on the site.

Mr BRENDAN O'CONNOR—In all your dealings with the employees and their representatives, was there any area of disagreement or proposals put by employees that were not acceptable to the CSIRO? Do you recall any of that? They might have asked for a child-care facility. They could ask for anything.

Mr Whelan—With respect to child care, I think the basis of the proposal is that CSIRO will seek to gain access for CSIRO staff to existing child-care facilities provided by Curtin university on the site. But, to the best of my knowledge, no.

Dr Farrow—Certainly child care did come up, but through the discussions with Curtin university, we believe that the staff are now very content that there are extra places planned in the Curtin expansion of child-care facilities. The open-plan office area was also an area which people wanted more information about. They wanted to understand what was being proposed. They were particularly concerned about how much space was being allocated in the office area. I think that most of the staff realised that it was actually an expansion of the space. At the moment we have three staff in a 16 square metre enclosed office, which is about five square metres or thereabouts. They certainly have an open mind and are quite content with the mixture of enclosed offices and open-plan offices. I think they are the only two areas where we have had, if you like, staff asking for further clarification of what is being proposed.

Mr BRENDAN O'CONNOR—The actual staffing level at the moment is 70. There is a proposal for it to build and you are anticipating that it will reach a figure of 100. Is that right?

Mr Whelan—That would be 100 CSIRO staff, but the facilities will also make provision for an additional 15 students and 15 collaborative researchers as well. So in total there will be a capacity for 130 personnel.

Mr BRENDAN O'CONNOR—Are you confident that this proposal will meet the requirements of the capacity of 130 staff?

Mr Whelan—It has been planned to do so.

Senator PARRY—I will start with the terrapins or demountables. Are you going to sell them or relocate them on the site? What is the plan?

Mr Moody—Our intention would be to dispose of them. Normally that would be through sale. CSIRO has no need for those facilities. We would make them available through a normal tendering procedure.

Senator PARRY—Were they built in 1994 as a temporary measure?

Dr Farrow—Yes, they were. The two that you saw—the seminar area and the staff lunchroom area—were there on site in 1994, at that time nominally for two years. It turned out to be a bit longer. We also have a third transportable there now to provide accommodation for the overflow of staff from the office areas. That has been there for about 12 months.

Senator PARRY—I do not expect you to discuss it in this public hearing, but there would be no impact on revenue raising from the sale of those?

Mr Whelan—We would expect minimal revenue from those. They are not a critical part of financing this proposal.

Senator PARRY—I would not have expected so. Just on traffic management, has there been a traffic impact statement completed? I could not find one in the submission.

Mr Hawkins—There is not a formal statement. We have had a report done by a traffic consultant. As I explained this morning on the site, because of the new road going into Curtin, which will be further to the west of our site, there should be a significant reduction in the amount of traffic, particularly traffic using Conlon Street.

Senator PARRY—What about other access points? Is it going to create a heavier load at other points?

Mr Hawkins—It will certainly consolidate the bulk of the traffic to the new southern entrance that I referred to. There certainly has been a very detailed traffic study done by consultants working to Curtin university on the development of that road. That has also taken into account the impact on Manning Road and the issue of entering and exiting Manning Road and so on.

Senator PARRY—Do you have access to that study?

Mr Hawkins—We do, but on a ‘for information’ basis.

Senator PARRY—Does the study then indicate that there will be no serious impact on the traffic flows around facility or on the perimeter of the facility?

Mr Hawkins—Certainly around the minerals area, as I said, it will significantly benefit rather than increase traffic. It will also have the flow-on benefit to the immediate neighbours in terms of reduced traffic load.

Senator PARRY—There is an issue in item 101 and 103 of your submission that I want to discuss. I did not pick it up on the tour this morning, but obviously there must be a low point to pump the excess. Certainly, there are holding tanks for the sewage. Also, there is mention of potential flooding. What has happened in relation to the issue in the submission concerning the potential flooding? Are there going to be any mitigating works undertaken to prevent this?

Mr Hawkins—The design of the site in the original development did make provision for the prospect of significant overland flow, particularly in extreme storm events. There are a number of areas that have been deliberately developed, both on site and adjoining the site, that act as settlement places, if you like, for stormwater. In addition to that, the existing Brand Drive and subsequent roads that will be developed will act as drainage paths as well to cut off the upstream overland flow. So what we would envisage is that the amount entering the site will be limited to the immediate area. Also, the levels of the buildings on the site are being developed to the extent that they will be between 800 and a metre above the low point on the site.

Senator PARRY—So where we stood this morning, where the new southern extension is going to be—is that the low point of the site?

Mr Hawkins—It is in that vicinity. It is in that area and also out to the east of the existing building, which is on this side of the model.

Senator PARRY—So you are satisfied there will be no impact from heavy downpours. You are satisfied that the site will cope with that?

Mr Hawkins—There will potentially be a short-term impact, in the sense that there will be a lot of water on the ground, but it is envisaged that eventually that will soak in. Perth has a very sandy soil and the general expectation is that the water will soak in and run away.

Mr Moody—I might just add that all of our facilities are designed so that the hundred-year event is taken away through overland flow paths around the buildings and away from entrances, hence the provision of a significant difference between the lower level of the site in our development compared with the floor level of the building.

Senator PARRY—I have a final question, on the geotechnical conditions. In paragraph 69 of your submission it says:

The ground beneath the surface is expected to predominantly comprise sand.

I think that is fairly evident throughout the whole area. It also says:

No specialist foundation or road construction treatment is expected.

What evidence are these studies based on? You indicated that there was some drilling. Was that extensive or just a couple of samples?

Mr Moody—We have conducted boreholes on the site. They have only recently been completed—as you would have realised on the site—but they have confirmed our expectations that we are founding our building on predominantly sand material. It is a medium to dense fill sand—I think that is what the geotechnical engineers would advise us—with what they call a cemented sand layer at depths of 1.8 metres and variable through the site. We will be founding our building in the dense sand, which does not require any special treatment—concrete pads for columns and strip footings for the balance of the work with a raft slab concrete floor.

Senator TROETH—I would like to ask you about the design concept. You say:

New building additions and alterations ... will merge with the existing building form and fabric to create a cohesive architectural image.

I think we got a good idea of that on our visit this morning but, just for the public record, could you tell us specifically how that will be achieved?

Mr Whelan—I might get Michael, the architect, to comment on that.

Mr Michelides—The design concept is that for the existing three-level Koch Building we will be using the same architectural language that currently exists. That is basically a concrete frame

with a steel substructure, and the external cladding will be painted fibre cement panels over a face brickwork base.

For the new southern wing, we will use a slightly different but compatible architectural language, whereby we will use the curvilinear plan form. There will be more glazing to the southern wing but the glazing will be protected from solar loads by various means, depending on the orientation of the building. For the expansion of the Becher Building, again exactly the same architectural language will be used, whereby we will be using exactly the same materials: cladding panels and face brickwork to the base. This is so that the appearance of the extension of that building will be identical to what we saw this morning.

Senator TROETH—I think you also mentioned a walkway from one building to another, for periods of heavy rainfall—is that going to be at ground level or elevated?

Mr Michelides—The walkway will be elevated; it will be at first floor level. It will be high enough to allow truck access under it, and it will be an enclosed walkway to provide access during inclement weather.

Senator TROETH—I also want to ask you about the airconditioning. In your submission, at paragraph 100, you mention the gas fired heating hot water plant. Could you tell us about the purpose of that in relation to the airconditioning system?

Mr Hawkins—The gas fired hot water heating essentially provides the heating side of the airconditioning system. That is generated in the Becher Building, in a central plant room, and is distributed both within the Becher Building and across to the Koch Building. That can flow through the air handling units that, in effect, push the air out at the required temperature and distribute it within the room.

Senator TROETH—Are you happy that there would be no breeding environment then for *Legionella*?

Mr Hawkins—We have certainly taken that into consideration. The design of the system will be such that it is up to the current standards and is fully and properly maintained. We have adopted a very rigid maintenance regime in CSIRO because of that very real risk that has been identified.

Senator TROETH—You also mention, I think in that same paragraph, the specific room pressure requirements at your facility. Could you elaborate on the nature of those?

Mr Hawkins—In certain rooms, and particularly laboratories, the general flow of air is into the space from the adjoining spaces, so there is a pressure gradient from one area to another. The purpose of that is to ensure that any fumes and so on—though they would be fairly minimal—do not find their way back into the areas where people are trying to do office work. Basically, that air is extracted out of the laboratory space and discharged to the atmosphere. As a result of all that, you establish different pressure levels between the rooms.

Senator TROETH—How is it extracted out of the rooms?

Mr Hawkins—It is generally extracted using a fume cupboard, if there is one in the laboratory space. In other cases, it may be done using an extraction fan or an extraction system, depending on the room.

Senator TROETH—I also noticed that, among your list of consultations, there was no listing for the Australian Greenhouse Office and I wondered if you had consulted the AGO in respect of this proposal.

Mr Moody—We have written to the Department of the Environment and Heritage, which incorporates the Greenhouse Office—at least, I think it still does. We are actually developing energy systems in consultation with the Greenhouse Office and we are working with them in the design of laboratories generally, across Australia, to ensure that they are meeting their guidelines and helping them to develop new guidelines as they apply to complex facilities such as laboratories. So it has really been an ongoing consultation process in the case of the Australian Greenhouse Office.

Senator TROETH—So if there were any issues in your submission to the Department of the Environment and Heritage, you would expect that they would be picked up by the AGO?

Mr Moody—That is what we would have anticipated.

Senator TROETH—And they have not been?

Mr Moody—No. There has been nothing along those lines.

Senator TROETH—You have also said in your submission in paragraph 73:

It is understood that there are no heritage related issues associated with the site and buildings.

I expect that is because of the recent age of the buildings, so there are obviously no considerations there.

Mr Whelan—Absolutely.

CHAIR—I go back to my first question, which was about the current and future planning for the site and for current and future needs. At 6.2 in your submission there is reference to site master planning. Given the very close connection between CSIRO, Curtin university and the CCWA, for the public record, could you explain to us the development of this master plan and how you have incorporated the requirements of this connection between the other two agencies.

Mr Hawkins—The master plan has been developed to allow growth in the future to the east in the context of the Becher and the Koch buildings and also to the west, towards the proposed Chemistry Centre of WA and the Curtin School of Applied Chemistry. The timing of that will obviously depend on the demand and the need for the space in the future. In terms of the physical link, we believe Curtin university will be developing a covered linkway that will head from their facility toward the southern wing that will be developed by CSIRO on the southern end of the Koch Building. There will also be an extensive paved and landscaped area between the two facilities. That will encourage initially a fairly easy interaction between the two

buildings. In terms of the ultimate Curtin university plans, it is understood that they have quite a bit of land available both to the north of the proposed buildings and to the south. There is of course further land to the west of the new southern entrance road. So, over time, that will all be developed to provide further collaborator accommodation as well.

CHAIR—Given that the Commonwealth has a substantial investment in the construction on this site, both in the existing facility and in the proposed new facility, which just for the building itself is of the value of \$12 million, could you explain to the committee and for the public record the arrangements in terms of the land on which these constructions sit? If there are commercial-in-confidence issues, you might advise the committee of that in confidence at a later date in writing. It is important for us to understand the security of tenure over the site, given the quite substantial level of Commonwealth investment.

Mr Moody—The current arrangement with the Koch Building, firstly, is that we entered into a lease agreement with the state government for 15 years from 1994 to 2009. We have the option with our current agreement to extend, with two 15-year options beyond 2009. Current negotiations with the state government—and to some extent this will be commercial-in-confidence—to convert our current leasehold arrangements to freehold arrangements are well advanced.

CHAIR—As I said, this is a public hearing. You might like to provide more detail on that to the committee in confidence.

Mr Moody—We are happy to provide that.

Senator PARRY—I want to follow on where Senator Troeth left off about the airconditioning. Just so we are clear from an OH&S perspective, and also in terms of the public, do any of these chemicals cause any issues as far as needing a closed loop system goes—rather than just vacuum cupboards or extraction cupboards? I want to get it clear in my mind. Rather than a pressure based system, are there any closed systems? It is a two-part question. The first part is: are there any chemicals that require this? The second is: what mechanical means, apart from just pressure, are used?

Mr Hawkins—I will ask Dr Farrow to address the chemical side of it. In terms of the ventilation arrangements within the building, as a general rule, if there are any chemicals or processes that involve discharges or fumes that are going to affect operators, in certain circumstances they will be undertaken in closed chambers, if necessary, with glove-type access. It is a matter of really doing a risk assessment as part of the normal OHSE practices to identify what level of safety and ventilation will be required. As those things are required, we can connect those into the ventilation system—the exhaust system—and discharge that material as necessary.

Dr Farrow—No chemical is allowed on site unless we have a material safety data sheet in advance of that material arriving. That will tell us the expected behaviour of usage of that chemical. There are some chemicals which we need to use within a fume-proof type arrangement where you have an airflow away from the operator through the vent and exhaust into the

atmosphere. We obviously do not exhaust anything into the atmosphere which is of an inappropriate nature.

Senator PARRY—What do you do with it, then?

Dr Farrow—These are reagents. For example, it might be an acid which will have a small amount of fuming. It is the dilution factor which occurs through that venting. Then the reagent itself is dealt with appropriately thereafter. If we need to dispose of that, we have appropriate methods for disposal of reagents. However, having said all that, we do not have any reagents on site, and I do not anticipate that we will have any reagents on site which require a highly confined nature for their use. That is not the nature of the work we are involved in.

Senator PARRY—The Koch Building has the majority of the laboratory work. Does the design of the new southern extension, if you look at the plans on the side wall where it has the narrow gap, allow any ventilation exits from the Koch Building into that narrow gap? If there are, does that present a problem?

Mr Hawkins—There are air intakes coming into that zone that supply the building with fresh air. Certainly there is no exhaust in that zone.

Senator PARRY—So you are satisfied that the design allows adequately for good air in and that the expulsion of bad air is going in the right direction.

Mr Hawkins—Yes.

CHAIR—I have a question in relation to the proposed completion time. You are planning to commence construction in 2006, which is not all that far away, and to complete in 2007. I did not pick up the date in 2006 on which you anticipate starting.

Mr Moody—Much depends on the approval of this committee before we can proceed with design and documentation. Our plans are to go to tender early in 2006. The earliest we would go would be February 2006, when the construction industry is back at work, so to speak, with a view of starting construction some two to 2½ months after we go to tender. That would put a commencement date at around April 2006. We anticipate approximately 15 months for construction, which means completion approximately mid-2007.

CHAIR—In pursuing some confidential costing information this morning we talked about this in some detail where you stated that you are confident—and I think it should be on the public record—that you will be able to meet those targets within a reasonable framework.

Mr Moody—We believe so.

CHAIR—The reason I ask is that, apart from the need for this committee to report to parliament—which we will do quite speedily—you also need a number of other approvals, including from the Department of the Environment and Heritage, the Western Australian Planning Commission and the town of Victoria Park. For the public record, could you explain how far you have gone down the track with these approval processes and when do you think

they will be concluded? At the moment, does there appear to be any likelihood of difficulties which might set back your construction plans?

Mr Moody—In answer to your last question, we do not anticipate there will be any difficulties. We have now received advice from the Department of the Environment and Heritage that it is not considered a controlled action, so there is no further approval process required from the Department of the Environment and Heritage under the EPBC Act. Secondly, we have taken the design to the council of the town of Victoria Park to achieve design approval. Ultimately, the process goes through the Western Australian Planning Commission. As far as the town of Victoria Park goes, we have their endorsement at this stage. We have not received a formal letter of endorsement and, in a similar way, unless there is one in the mail today, we have not received a letter from the Western Australian Planning Commission. But the indications are that there are no barriers to the approval process.

CHAIR—The final issue for me concerns health and safety. I think some of the health issues regarding the management of air quality have been answered. In terms of safety in the building, could you explain—again for the public record—what you have done to ensure that the building meets the fire safety standards and, given the kinds of activities carried on in these buildings, what are the evacuation plans in terms of ingress and egress for the different sections of the buildings?

Mr Hawkins—I will start with the Koch Building. The extensions of the Koch Building include two additional fire-escape stairs on the perimeter of the building, and they are similar to the ones that are—

CHAIR—Can someone indicate for us where those are?

Mr Hawkins—Certainly.

CHAIR—Perhaps while you talk, someone else can indicate.

Mr Hawkins—Mr Michelides will point to the two locations on the northern and southern sides. One of those stairs is replacing an internal stair that currently exists and the other is an additional stair. The associated circulation ways that feed into those stairs have also now been rationalised so that it is a much more straightforward circulation path around the building, particularly at the upper levels. They of course discharge at ground level to the outside, so it is not a matter of having to pass through any other space to get away from the building once you have reached ground level. That has certainly improved that. The Becher Building, in its original design, was appropriately designed for escape, so there has not been a need to develop that any further.

CHAIR—So there is no need to provide additional escape or ingress-egress points, given the expansion of that building?

Mr Hawkins—That is correct. The expansion is at the other end of the building on the western end of the process bay area.

CHAIR—Mr Michelides, can you point to where people would be able to move out of that building?

Mr Michelides—From the new part?

CHAIR—Yes.

Mr Michelides—There are escape doors on the western side of the extension to the Becher Building. There is also an escape route on the northern side.

CHAIR—And the other end is already adequately—

Mr Michelides—The existing building is already adequately catered for.

CHAIR—And the new building?

Mr Hawkins—The new building also has points of escape at ground level on the northern side, out through doors via the information service point. A series of exits at regular distances on the southern side have also been included, so it would be very easy to get out of the building in an emergency.

CHAIR—I presume that this is dictated by the West Australian fire authority.

Mr Hawkins—That is correct.

CHAIR—Obviously there is some consultation.

Mr Hawkins—That is correct, yes.

CHAIR—The other question on access to the building is with regard to people with a disability. Is this building being built to accommodate the needs of people with a disability?

Mr Hawkins—Yes, it most certainly is. We have been very careful with the grades and approaches to the building. There is full and proper provision of toilet facilities and other amenities for people with disabilities.

CHAIR—And access to the upper laboratories?

Mr Hawkins—Yes, that is via lifts. There is a lift in both the Koch and the Becher buildings. The bridge between the two will also assist in upper level communication at the appropriate grade between the two buildings.

CHAIR—Are access doorways into rooms and laboratories capable of taking wheelchair-bound people with a disability?

Mr Hawkins—They are. We have had an audit done. There are one or two instances where we will need either to adjust them or to adopt a management plan to address that, but, from that point of view, essentially it is in good shape.

Mr BRENDAN O'CONNOR—There are clearly some changes to parking. How will the growth in staffing levels affect parking arrangements?

Mr Moody—As a general policy, we provide parking for 80 per cent of CSIRO staff on our sites, more often than not because there is no close public transport. In this case, we are providing for 80 per cent of staff parking. I think that 110 bays will be provided at the end of this development.

CHAIR—I do not think that anyone has asked a question about water conservation—we had one on energy conservation—but, given the problems with water supply, I have a question on that. In paragraph 127 of your main submission you said that water-saving devices will be incorporated into hydraulic fixtures and fittings. Can you explain for the benefit of the committee and of the public just what measures you have taken to ensure that water conservation is at a maximum? In particular, there is quite a lot of landscaping to be done. How are you managing to conserve water in landscaping?

Mr Hawkins—I will start with the landscaping. The plan is to use indigenous species, which will require less water than other species, and to mulch and take other measures to reduce both water need and water losses. Within the buildings, the fixtures will use dual-flush toilets and waterless urinals, which will help reduce consumption. We also plan to capture roof water and utilise that for toilet flushing, so the demands on the town system for toilet fixtures, particularly, will be zero.

CHAIR—Thank you. With a couple of the inquiries we have done recently the committee has been very impressed by examples where water is being harvested from the roof area and where chemical flushing urinals are being used because we understand this is a major use of water in buildings. It is good to hear that those things are being incorporated into this particular development. We have no further questions. I remind you that you may be recalled after the other witnesses appear and you will continue to be under oath.

[11.31 am]

GLOVER, Professor Bevil Milton, Pro Vice-Chancellor, Research and Development, Curtin University of Technology

Witness was then sworn or affirmed—

CHAIR—Welcome, and thanks for taking the time to meet with the committee today. The committee has received a submission from the university. The submission will be made available in a volume of submissions and also on the committee's web site. Do you have any amendments to the submission?

Prof. Glover—I do not have amendments. I was keen to elaborate a little on the strategic importance of the minerals and chemistry precinct.

CHAIR—We will give you that opportunity now to make a short statement in support of your submission and then we will go to questions.

Prof. Glover—Thank you for the opportunity to appear before you. As I am sure you have seen from the submissions that have been made, the university, along with the state government of Western Australia and CSIRO, has a vision to develop a minerals and chemistry research and education precinct on the southern part of the university campus adjacent to the Waterford site. Consequently, we are extremely supportive of CSIRO's plans to extend their minerals laboratory as a critical part of that. The diagrams that the committee will see on the boards show the proposed first stage of the Curtin development adjacent to the proposed extension of the CSIRO facility where we will be locating the Chemistry Centre of Western Australia and of course our own Department of Applied Chemistry and a range of research groups from Curtin which work very closely in collaboration with CSIRO Minerals division. We are also developing some significant changes in the infrastructure surrounding the site to allow better access, as you have heard from my colleagues. Of course, that opens up opportunities along our southern boundary for synergistic development with industry.

Our aim is to create a precinct to support the resources sector in particular but also the areas of the environment, forensic science, water quality and other areas. When it is completed, there will be approximately 150 scientists, engineers, researchers, academics and support staff in our part of the facility, along with and including the staff from the Chemistry Centre of Western Australia. We are advanced in discussions with a number of industry partners that are very keen to locate on the sites that are opening up on the west of this particular development. From our perspective, what has been critical is CSIRO's proposal to extend the laboratories because that establishes their long-term presence and high-level research capacity there as an attraction to us and to industry and it has enabled us to leverage considerably more from state government and our own resources. So we see it as a critical component and are highly supportive of it.

Senator PARRY—To me, the most exciting parts of this whole project are the collaborative effect and the great precinct. You have mentioned in your letter, in paragraph 2, year 11 and year 12 students. Have you got an indicative volume of students that may be involved in the science

and mathematics focus? Do you know how many will progress into the geological sciences or the sciences that particularly relate to this development?

Prof. Glover—At the moment, we are in negotiation and discussion with the state government about the potential to locate a high-school presence on the site, which is what is referred to in our submission. They are still ongoing discussions. A range of options are being considered, from the perspective of, potentially, a centre of excellence to support teachers and professional development in science right through to the potential for an actual senior high school on site. We have not finalised those discussions.

Curtin is very keen to see such a development at the northern end of this to, as you put it, see the link with students doing science and mathematics at high school and to co-locate them very close to outstanding research, tertiary education opportunities and, importantly, industry, as industry comes on site. The industry we hope to locate on site will be research focused aspects of industry. At the moment, we do not have figures that I can quote to you, but it is an important part of our planning and we are advanced with the state government in discussion. If we are able to achieve the full campus concept, it would probably be a years 10, 11 and 12 campus of up to about 400 students. But that is still subject to finalisation.

Senator PARRY—Would it be an accurate statement to say that there is a slow-down of students at years 11 and 12 moving into science and mathematics and, in particular, the geological areas?

Prof. Glover—My understanding is that is true. I think attracting students into science is one of those issues nationally that we face in the tertiary sector. Curtin has made a commitment to focus a great deal of its energy into the resources sector, in particular, in terms of our research activities. Of course, that requires strong science, engineering and technology skill sets. From our perspective we see this development as one way of being a strong attractor and bringing more students into state-of-the-art facilities. CSIRO have a history of being extremely supportive of science generally, beyond their research mandate. We see that as another attraction to this. My belief is that those numbers are not as strong as we need them to be in Australia.

Senator PARRY—It is my understanding that there is a gap in senior- and middle-management levels in the mining sector per se across the country. In fact, I think it is so beyond Australian shores. Do you see this as a way for gaining entry level access into the mining industry across the board, not just in this research area or this particular field? Do you see it being wider than that?

Prof. Glover—It is not just a research precinct; it is a research and education precinct. Importantly, the graduates coming out of Curtin university located on site will be, in many cases, moving into the minerals-processing industry as well as into the mining industry. Curtin has a strong commitment to our campus at Kalgoorlie, where we have the Western Australian School of Mines. We will continue to be strongly supportive of the mining engineering developments there. We see this as synergistic with those developments. We have strong growth in our student numbers at Kalgoorlie, which is a good sign for the future. But, of course, there is a time lag between students coming into higher education and their release into the market, so we need to build that up. But the resources boom at the moment gives us every indication that the demand in the industry is going to remain for some time in the future.

Senator TROETH—From what you are saying, this sounds like the biggest conglomeration of educational and research opportunities in the minerals sector in Australia, if not wider shores.

Prof. Glover—It is our belief that it will be one of the most substantial aggregations of research and education capacity anywhere in the world that is focused largely in the minerals and chemistry area. It is important to note that it is much more than resources because we will be moving our water quality research centre into the same facility, so it has environmental impact. Our forensic science work jointly with the chemistry centre will be located in the same facility. So there are a range of areas of application beyond resources. Nevertheless, it will be, in our opinion, one of the most significant centres, certainly in Australia if not internationally.

Senator TROETH—Could you give us a couple of concrete examples of the links between educational and research facilities in the area of either current projects or projects that are anticipated?

Prof. Glover—One of the obvious links between education and research in the university context is our higher-degree-by-research students. So we will be anticipating that the number of PhD students, master's students and postgraduate research students generally will be increasing as a result of this development, and our staff are heavily involved in education related to that. We will be moving our major research groups, our molecular modelling group and our nanotechnology group into the building. Their facilities, their equipment and their expertise are absolutely essential to our undergraduate teaching programs. So there is a great deal of shared equipment and facilities between the educational and the research components.

In the university context, our research capacity is an important part of the attraction for our undergraduate students—in particular, international students, who see that a university like Curtin has the capacity to undertake research at the cutting edge. That attracts high quality students to Western Australia and to Australia. So there is a very strong link between research and education.

Mr BRENDAN O'CONNOR—So, Professor Glover, it sounds like there is nothing at all wrong with this project from your point of view. I would not mind you being my referee, I would have to say! Is there any constructive criticism you could make of the project to date? Could it be better? From your knowledge, are there ways in which it could be improved?

Prof. Glover—We have been working very closely with CSIRO from the very early stages of conceiving of a minerals and chemistry precinct. I think the local CSIRO representatives and the senior representatives of CSIRO in Canberra and Melbourne have been very supportive of our vision. They have joined with us. They have helped to rethink their own design to better meet our needs, and I think you have heard of some of those. We are looking very carefully at shared facilities between us and CSIRO.

If I were to criticise it at all—and I think it would be a minor criticism, because we have overcome it—I would have liked to have seen the two buildings more closely linked so that we could see greater interaction between our researchers. But in response to that criticism we have gone a long way to look at how we can share the facilities. The plaza development, which is on the northern side of the southern building in our part of the development and adjacent to the curved part of the extension of the Koch Building, will be a major area of focus—a cafe

environment, a recreational area and an area for people to meet and exchange information and have discussions. There will also be shared meeting spaces. We have gone a long way to address that criticism by the way in which we are shaping up the sharing. We are also sharing equipment potentially as well; it is an area we are looking into. Perhaps I would have liked them to have been a little closer together if that were possible.

Mr BRENDAN O'CONNOR—A ringing endorsement.

Prof. Glover—A ringing endorsement.

CHAIR—What can I say? It is marvellous to chair a public works committee hearing where the support from other groups that are impacted by the development is so strong. As a Western Australian member of parliament and a regular visitor to Curtin, I have to say that I have always been impressed with the energy, the vision and the commitment of Curtin to education with a strong research focus and the connections it has made with industry groups and obviously with the CSIRO.

But I noticed a couple of practical problems. I think questions were asked earlier about traffic management and child care. Traffic management could be a potential problem for Curtin university. Could you run us through the university's perspective on the traffic management issues? The other issue that was raised was child care. I understand that CSIRO will be relying on or negotiating with Curtin to use the child-care facilities there. Can you tell us what the adequacy of those facilities are and whether those negotiations are likely to be successful?

Prof. Glover—On the traffic management issues, those of us who have ever had to exit Curtin at about five or six o'clock in the afternoon from the southern side of the campus will know that it is a very congested exit point at the moment and in relatively close proximity to the traffic lights at Centenary Avenue. The advantages of this development to Curtin have been quite dramatic in terms of traffic management. We have moved our main entrance way to a new major southern entrance, which has been mentioned by my colleagues at CSIRO. It is west of our building, as you see on the diagram, so it is further away from the existing traffic lights. We are planning for traffic light management at that intersection, and that will greatly assist those entering and exiting. At the moment, I believe that has not yet been approved by the relevant council, but we are moving in that direction. We believe that traffic management will be significantly enhanced by this infrastructure development coinciding with the development of the precinct, and that has also allowed us to open up other development sites for synergistic industry to co-locate in the precinct. We believe traffic management is well under control.

On child care, Curtin does have a substantial child-care facility. There is also a substantial child-care facility on Technology Park, just north of our campus. Curtin is at the moment going through the final approval stages to expand our child-care facilities in anticipation of both the precinct development in general and the CSIRO expansion in particular. I know those negotiations are going on at the moment, but we anticipate an expansion of our child-care capability.

CHAIR—And you do not foresee any great barriers to that expansion program?

Prof. Glover—No. Child-care facilities are under heavy demand. I know that our researchers at Curtin also see a great need for more flexible child-care arrangements on campus, so I can imagine it will continue to be a difficult issue. But the university is committed to working through a process of expanding those facilities.

CHAIR—In light of the heavy demand for child-care facilities, in your opinion would it have been better to have incorporated child-care facilities within this development?

Prof. Glover—I do not think that would have been necessary. I think Curtin has planned to accommodate that level of growth. But it is one of those contentious issues that we deal with from time to time at the university, and I think we are anticipating addressing that substantially through the planned expansion. I am confident that that can meet the needs of the growth in CSIRO, but that is a matter for continuing negotiation. I do not anticipate it being a problem.

CHAIR—Thank you very much.

[11.47 am]

HYDE, Dr Philippe John, Managing Director, Chemistry Centre, Western Australian Department of Industry and Resources

Witness was then sworn or affirmed—

CHAIR—On behalf of the committee, welcome to this hearing. Thank you for taking the time to appear before the committee today. The committee has received a submission from the department. This submission will be made available in a volume of submissions for the inquiry. It will also be available on the committee's web site. Do you have any amendments to make to your original submission?

Dr Hyde—No amendments, but some expansion perhaps.

CHAIR—If you would like to make a short statement in support of your submission, please do so and we will then go to questions.

Dr Hyde—The Chemistry Centre is a section of the Western Australian Department of Industry and Resources. We are presently in transition to becoming a statutory authority. We provide forensic services to the state; analysis and R&D services for the food industry; and analytical services relating to water, soil and air. We provide support to police raids on clandestine drug laboratories and we are part of the state's response to hazardous material incidents and security issues including terrorist incidents, white powders and misuse of industrial chemicals. In a broader sense, we feel a responsibility in the areas of public health and safety, law and order, and future proofing the state economy through the development of an appropriate science base and sustainable industry development.

The common thread through all that is chemistry. CCWA at the moment is the largest collection of chemists and related professionals and technicians in the state, although with their expansion CSIRO will surpass our numbers. We are good at what we do—dare I even say that we are excellent at what we do—yet I see our state economy and our national economy threatened by skills shortages and the race to stay abreast of technological developments. I almost have the sense that we are running our hardest and are still seeing things move past us. Clearly we need to do things in some way differently to get a better result.

Last Wednesday, I listened to Geoff Garrett, the Chief Executive of CSIRO, deliver the Brodie Hall lecture. He made several points which resonated with my views on WA's and Australia's future. Two of the main points were about collaboration and focus. A large multinational company like General Motors spends more on R&D than Australia does. When it comes down the scale to something like the Chemistry Centre—a small part of one state in the nation of Australia—I am forced to ask what, in the scale of things, can we hope to achieve? Barring the unforeseen, the answer is clearly not a great deal. How do we change this? By collaboration—by working with other like-minded groups to achieve a greater mass of professionals working together on tasks, pooling resources for economies of scale to achieve access to equipment that is out of the reach of any individual member of this grouping. With this gathering, we can

greatly increase the likelihood of achieving a greater number of significant outcomes than we could individually.

The other aspect is focus. A scattergun approach simply dissipates our energies. Bringing groups like Curtin, CSIRO, CCWA and the various industry participants together in a focused—even be it broadly focused—collection greatly increases the effort and resources bearing on problems of value to our state and our nation. From a self-interest perspective, the proposed CSIRO expansion and the related minerals and chemistry precinct will help my group return better outcomes in our areas of responsibility to our own state government.

However, I am still worried about skills shortages. Even now, we are experiencing difficulties recruiting appropriate staff and are losing staff to expertise-starved industry. The problem is exacerbated by the general decline in interest in chemistry, sciences and engineering in the young people of our country and in the developed world in general. In Australia, the number of students presenting in science and maths in year 12 has declined by 40 per cent over the last 15 years. This trend must be reversed in the interests of our self-preservation. It must help to generate interest within our young people if they can see an active role model in front of them in the form of a large, active, science-driven, successful engine of development. I believe that the minerals and chemistry precinct is an important development for our state and our nation and that the proposed CSIRO expansion is an integral part of that development, which I support wholeheartedly.

CHAIR—Thank you very much for a very interesting and thoughtful presentation. I think we have all become aware of the skills shortage. I am sorry that our committee in its own self cannot address that particular issue at this time.

Senator TROETH—In the light of your comments, Dr Hyde, what do you see as the advantages of this proposed nucleus in attracting more secondary school students and therefore undergraduates into science pursuits?

Dr Hyde—In terms of success tomorrow, probably not a lot, but as you go through a couple of years and build on that, I would anticipate that this is going to be quite a successful collection of people, gathering more momentum as more industries become involved. It will undoubtedly gain a reputation, and that reputation will then become known throughout our schools. Certainly, we at CCWA will be trying to spread that sort of reputation, targeting even year 9 because students start to make their decisions around year 9. If they can see that there are people who are successful, contributing, respected for what they do and successful role models, it will increase their interest in those areas and hopefully encourage more of them to come through in the science and maths areas.

Senator TROETH—Thank you. That is certainly something to think about. Could you give us some specific examples of the way in which your centre and the proposed project will interact, or indeed ways in which they interact at the moment?

Dr Hyde—Our interaction with the minerals group at the moment is not large because we are not terribly minerals oriented, with the exception of a part of our group which works with soils. They would have some overlap in dealing with clay liners, tailing ponds, environmental leakage and things like that. The other area of interest, however, is equipment and instrumentation, where

we have some equipment that they are interested in and could make use of—albeit we do not have a lot of spare time on it—and they will have equipment that we are interested in. We will both, together with Curtin, have interests in equipment that is beyond our reach at the moment and not justifiable economically for any one of us, but it would be far better to have a third of a loaf of bread each than to have none at all. I can see that being achieved.

CHAIR—Senator Parry, do you have any questions?

Senator PARRY—No. I thought it was a great statement and I have no questions.

Mr BRENDAN O’CONNOR—Can you expand upon the concerns you have about skills shortages? It is the modern-day mantra that people decry the problems we have in that area. In particular, if you feel comfortable in reflecting upon the deficiencies in the minerals industry in this state, how bad it is in your view? You said that this proposal may mitigate the decline in skills and the absence of skills. What would be the practical ways in which this collaboration would assist in improving the skills in the industry?

Dr Hyde—Again, it is not the silver bullet to solve it tomorrow; it is a question of looking at trends, dealing with trends and trying to change trends to protect ourselves in the future. It has become increasingly clear to us, just as to CCWA, that the number of people and the standard of people applying for the positions that we are advertising is declining. We are finding that we are losing more people to an expertise-starved industry who are now starting to pay substantially above what one might have expected as a reasonable wage for these people. I have heard one mining person put it as, ‘We pay simply to get warm bodies on site.’ They need people that badly out there.

We are not suffering too badly as yet in terms of skills loss, but we are anticipating in our strategic planning that we are going to have an increasing training role in our job training people in our area of expertise. We are going to have an increasing churn of people at lower levels because it is more common for people to spend less time in a job than they have done in the past. I have somebody retiring after 42 years but these days five to seven is probably more likely, so we have to anticipate that churn. We have to try and get more people in and through the system trained up to fill the niches, not just in our area but throughout the whole of industry. It is about addressing trends, and you have to have shining examples in front of people if you want them to move in that direction.

Mr BRENDAN O’CONNOR—And in the context of this proposal?

Dr Hyde—This proposal is a central part of the minerals and chemistry precinct. I do not believe the precinct would really have a future without the CSIRO presence there. The expansion is a firm statement that CSIRO is here to be a definite part of it. It provides facilities that remove some of the strain that is on that building already and it allows growth into the future to bring this whole statement of belief in science forward.

[12.00 pm]

WOFFENDEN, Mr Mark Harrington, Chief Executive Officer, Parker Centre

Witness was then sworn or affirmed—

CHAIR—Welcome to the hearing. Thank you very much for taking the time to join us today. The committee has received a submission from the Parker Centre, which will be made available in a volume of submissions to the inquiry, which are also available on the committee's web site. Do you wish to propose any amendments to your submission?

Mr Woffenden—No.

CHAIR—Would you like to make a short statement on your submission before we proceed to questions?

Mr Woffenden—Thank you, I would. And thank you for the invitation to participate in your inquiry. The Parker Cooperative Research Centre for Integrated Hydrometallurgy Solutions is part of the federal government's CRC program. It was refunded in December last year to take it through until 2012. The centre represents a significant investment—by industry; by universities, including Curtin; by the CSIRO Minerals division; and by the state government of Western Australia—in research in the minerals industry. There is committed investment to the value of some \$56 million in cash and in kind, with a further federal contribution of some \$20 million over the seven-year period of the centre. CSIRO Minerals is and has been for over a decade a major participant in the Parker Centre. For the forthcoming period, the CSIRO's contribution represents some 47 per cent of the participants' committed in-kind and cash contributions to the centre.

I would like to offer some additional comments on my submission with respect to the context in which the decision on the proposed extension is being made. There is ample evidence of the growth of the minerals industry in Australia. The press is awash with articles about price increases and volume growth in a significant number of sectors in Australia—iron ore, coal, copper, uranium and so forth—and the pressure that that is putting on infrastructure. Minerals are a key element in the Australian economy. The Australian Bureau of Statistics reports that in the financial year 2004-05, some \$40.8 billion of merchandise exports were classified to the mining industry, representing 4.6 per cent of gross value contribution to gross domestic product.

Hydrometallurgy is a key component in the processing of a significant proportion of Australia's minerals and metals exports. Research and development is essential as a long-term contribution to the Australian minerals industry. Research and development addresses issues such as transition to new ore types as the industry develops those which have been available historically; the rising capital and operating costs in the minerals industry; the requirement for improvements to product quality; the increasing requirements for safety, both within operations and for the communities in which they operate; and the impact on the environment and local communities in which the business and industries operate.

Our competitors in the research sector of the minerals industry will and are developing their R&D capabilities. We hear plenty of anecdotal evidence of developments in China, India and South America, particularly with respect to hydrometallurgy. It is reasonable to anticipate that they will move relatively quickly to develop their capabilities. The Australian government is promoting R&D excellence in this country. I am sure we are all aware of the research quality framework that is being promoted by Minister Nelson, the increased focus on training and education, and the increased focus on the export of high-value products, particularly in the knowledge economy. This is evidenced through such things as the Mining Technology Services Action Agenda, which places emphasis on those matters.

I believe the proposal to invest in this extension offers a significant contribution to securing Australia's position in this essential part of our economy. The collaboration between institutions that is inherent in the extension and the potential with respect to the various disciplines that come to bear on hydrometallurgy research are obvious examples. The critical mass, as it is referred to—in other words, the opportunity to bring a large number of people in related disciplines into geographic proximity—is seen as a highly valued asset in research communities. There is potential for significant benefit to industry from the synergies between disciplines that such collaborative extensions engender. There is a significant potential for a contribution to the essential need for Australia to continue its leading role in minerals industry research. Without this sort of investment it is reasonable to presume that we will start to put our leading position in this field in jeopardy.

The investment and the physical demonstration of investment in the sector is undoubtedly an attractor for young people. It is tangible evidence of the importance that our community places on the minerals industry and research in that industry. I believe that it complements the minerals and related activities that are well established at the Australian Resources Research Centre and in Technology Park in the slightly broader vicinity of this proposed extension. The Parker Centre fully supports the proposed extension of the minerals laboratories at Waterford.

CHAIR—I cannot speak for the rest of the committee, but I can say that I think you have made out an excellent case for this extension project, not only in terms of the needs of industry but also in line with the government's commitments. So thank you very much.

Mr BRENDAN O'CONNOR—We are not always this agreeable, I have to say. Can you explain the Parker Centre? What is it and what is its reason for existence?

Mr Woffenden—Certainly. It is a cooperative research centre under the federal CRC program. As such, we bring together research organisations and industry parties that are interested in a particular field—in our case, hydrometallurgy.

Mr BRENDAN O'CONNOR—Can you give me a layperson's definition of hydrometallurgy?

Mr Woffenden—Hydrometallurgy is the processing of minerals and ores using essentially water based solutions to produce metals or minerals. It is used extensively in the alumina industry. It is core in the alumina industry. It is core in the gold industry. It plays a significant role in the copper industry, the zinc industry and the nickel industry. They are the key ones. The centre draws together under one entity a number of research organisations—Curtin university,

Murdoch University, the University of Queensland and CSIRO Minerals—particularly at the Waterford facility. We then draw in industry players and organisations, such as Alcoa, Alcan, BHP Billiton, Rio Tinto, AngloGold Ashanti, Queensland Alumina and what was WMC but has now been picked up by BHP. Increasingly it is indicative of the importance of the centre in the international arena. We now have Hatch Associates engineering and Aughinish Alumina as core partners in the centre.

Mr BRENDAN O’CONNOR—Where does the income, the funding, come from?

Mr Woffenden—We have income from a number of sources. There is the federal government grant, through the CRC program. There are the substantial in-kind contributions from, particularly in our case, the research partners, and we have contributions from the Western Australian state government, through the Department of Industry and Resources and the Office of Science and Innovation. I am delighted to say that we have a commitment of a minimum \$15 million investment over seven years from industry. On top of that, we will have additional investment by those companies and by companies who are not directly participants in the centre. So we have a very wide net indeed, through the international minerals industry.

Mr BRENDAN O’CONNOR—You indicated in your letter to the committee that the CSIRO should be commended for their ‘inclusive approach’—and I guess that means you were included in the process. Is the Parker Centre itself to be a beneficiary of this project?

Mr Woffenden—It will be a beneficiary to the extent that we have a centre office, which is located at the moment on the Murdoch campus. The centres are called ‘cooperative’ research centres, so collaboration is a key element of the success of the CRCs generally and of the Parker Centre in particular. I commend the approach of CSIRO Minerals, in that they have said, ‘Let’s open this up and invite groups such as the headquarters of the staff of the Parker CRC and of another CRC’—which is the one for sustainable mineral processing—‘and some industry research broker to join, participate and be housed in this facility as a way to further improve the communication between people who are, after all, the heart of the industry.’

Mr BRENDAN O’CONNOR—Thank you.

Senator PARRY—Do you intend to be co-located by representatives or within the new development? Is that on the cards?

Mr Woffenden—It is more than on the cards. When this extension was first mooted the Parker Centre board was approached and asked whether it would be interested in accepting an offer of location in the extension, and the board made a very quick decision to say yes, we would.

Senator PARRY—So you have very much a vested interest in your appearance here today in that sense?

Mr Woffenden—Yes.

Senator PARRY—You mentioned that, if this does not go ahead, we have competitors from an international perspective knocking on our door who might just take the edge off us in the

leading sense. Can you expand upon that? Who are the competitors? Are we talking about countries or about private organisations in other countries?

Mr Woffenden—At that level I am addressing particularly the increasing evidence of emerging capability in China. I have not got the firm data on this but there is sufficient anecdotal commentary that the sheer—

Senator PARRY—Are we talking about Chinese state based organisations?

Mr Woffenden—Yes. And, as I mentioned, one can look to areas of India. There were recent delegations from South America which I have heard report of where there was very great interest in building a stronger link with the mining technology sector, because of their interest in drawing on Australian expertise.

Senator PARRY—You suggested in your opening statement that we are leading the world and that going ahead with this would cement our position. Would we then be attracting researchers from other parts of the world to join us here?

Mr Woffenden—I would suggest that the extension is a contribution to maintaining our position. It is the people who are the key to maintaining that position, and a preparedness to invest, ultimately, in people. An extension such as this offers a number of key contributions to maintaining the position. One is that it engenders collaboration. It facilitates people working together. It is a very clear demonstration of the valuing of this form of research in this field. I think we should also recognise the values that it would contribute to attracting young people into the sector. Where a building such as this is in fact an icon of the community's valuing of the field, where you have a range of disciplines that are going to be present and will tend to draw others towards it, that can only be beneficial in contributing to our having the potential to maintain the leading position. We will only do it if we make the investment in the people and are successful in attracting the people.

Senator PARRY—Thank you.

Senator TROETH—I do not have any questions, but I congratulate you on your willingness to be involved and the work that you do with the CRC.

Mr Woffenden—Thank you very much.

CHAIR—Thank you very much for an excellent presentation. As no members wish to recall CSIRO representatives, there are no further questions. Before closing, I thank all the witnesses who appeared before the committee and those people who assisted, particularly the committee secretariat, with the arrangements for our inspections and the private briefing this morning. I thank Hansard and our secretariat for their services this morning.

Resolved (on motion by **Mr O'Connor**):

That, pursuant to the power conferred by section 2(2) of the Parliamentary Papers Act 1908, this committee authorises publication of the evidence given before it and submissions presented at the public hearing this day.

Committee adjourned at 12.15 pm