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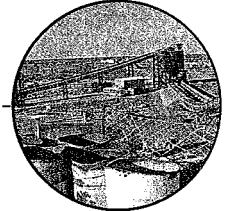
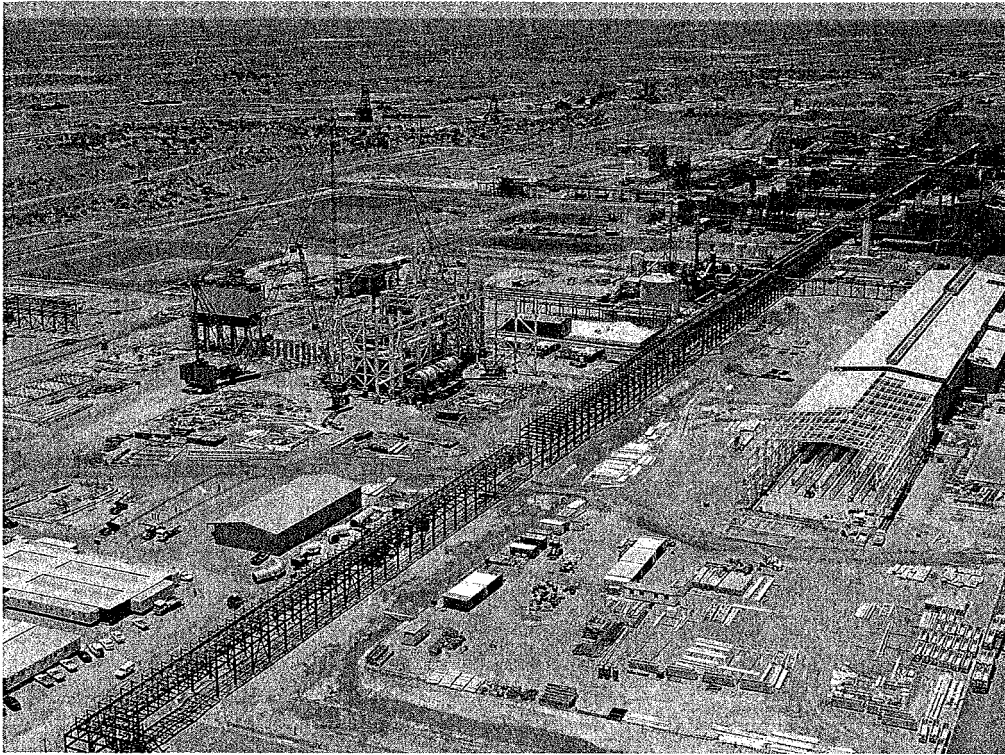
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Thiess tests alliance contracting

By Juliet Pratley

The \$1.634 billion expansion of Western Mining's Olympic Dam Mine at Roxby Downs in South Australia is one of the largest, most complex construction projects of its type currently being undertaken in Australia.

The Olympic Dam site, 580km north of Adelaide, is one of the world's largest multi-metal deposits containing fine grained copper sulphide, uranium, gold and silver.

In an attempt to maximise the efficiency of the project and to avoid the potential for an adversarial form of contracting, an alliance contract was specifically drafted for the project. According to the management team, alliance contracting is not just a 'feel good' response and would be

rendered useless unless this form of contracting delivers value to the client, Western Mining, as well as a reasonable profit to the various contractors involved.

"From the outset we wanted to ensure that everyone was pulling on the same piece of rope and to avoid the adversarial approach which sometimes develops from traditional lump sum contracting," said the construction team.

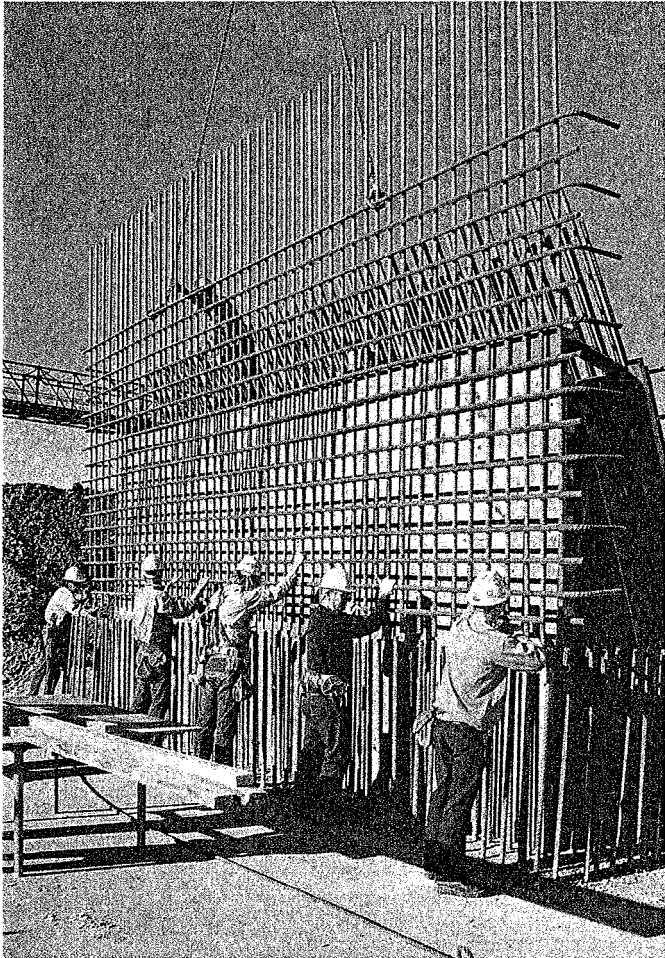
A huge amount of effort was expended at the very beginning of the project examining the history and performance of various contractors which included looking at specific projects undertaken by the contractors, talking to their past clients, to the companies' own project managers. At the end of the

day, quite a few reputable contractors were 'dropped' from the preferred contractors list.

"We went after triple A players, examining everything from safety to production, scheduling ability to quality and found that Thiess had the right people and the right approach for what we were trying to achieve," said the construction team.

For three months after the Christmas of 1996, the construction team worked with both the designers and Thiess to support the buildability of the project and to further develop the 'fully reimbursable' contract to include estimates for manpower hours onsite, the lump sum profit required by Thiess, and all associated overheads. Interestingly, both

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design and construction commenced on a level playing field to ensure that the construction methodology was implicitly built into the design process.

The construction team worked closely with the designers at the formative stages of the contract to build up a good rapport between the team members and a number of explicit letters referencing buildability were sent out which had to drive the entire process.

"Thiess accepted this concept and jumped into that with full spirit and intent; and by gee have they delivered," said the construction team.

The fully reimbursable contract took the angst out of the contractual negotiations; for example, if Thiess wanted a

crane, they got a crane. The construction team believes it 'selected the right people who have embraced this form of contracting very well.'

The use of alliance contracting across the three separate contracts which make up the project has demonstrated a number of advantages. Firstly, it guarantees the builder a set profit, allowing the contractor to plan accordingly. Secondly, for the client, the predictability allows its to manage works to suit the fast track nature of the OEP project as well as design priorities.

This approach has proved to be a very flexible form of contracting and the level of cooperation achieved across the job unsurpassed.

The company said with four million direct manhours on this job, the productivity levels achieved have been terrific and it would not have been possible without this form of contracting

Thiess project manager for the civil works, Mr Andrew Millar, said the Alliance contract style of delivery has been a major factor in the success of such a massive, complex project.

"Alliance contracting has worked extremely well on this project and Thiess has certainly felt that the more unified approach alliance contracting brings to a project has helped get a lot of work done by a large, diverse workforce," said Mr Millar.

The massive project, known as the OEP, is currently five months ahead of schedule according to Thiess

Contractors which is carrying out a large proportion of the building works. Thiess is involved in civil, mechanical

and underground mining Alliance contracts worth over \$300 million that will result in the total mining capacity of the Olympic Dam increase from three million tonnes per annum of ore to nine million tonnes per annum.

The expansion includes:

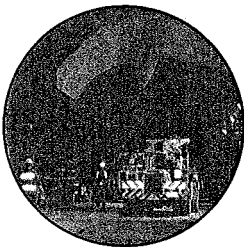
- construction of a new minerals smelter;
- new buildings, laboratories and site services;
- construction of a new gold and silver refinery;
- new ore stockpiles, stacker and grinding mill;
- expansion of the hydrometallurgical plant and the copper-uranium solvent extraction area;
- expansion of the copper refinery;
- construction of an automated underground rail system;
- construction of a new shaft and underground crusher chamber.

The Thiess team peaked in November last year at 460 personnel.

The civil portion of the contract includes all the foundation work for the new processing plant, the construction of new office accommodation, construction of underground services including mine ventilation shafts, five kilometres of road construction, tailings dam raising and 800,000 cubic metres of additional dams.

The civil component is the largest concrete job in the country with Thiess to pour 74,000 cubic metres of this concrete by completion of the project.

One of the greatest challenges of the OEP is that it is not a greenfield site, which has meant every effort has been taken to ensure



construction work does not interfere with Western Mining's current operations.

Working alongside the Thiess civil team is Process Engineering, where over 100 people have constructed and installed over three kilometres of piperack and 35 kilometres of piping throughout the processing plant. Over 90 percent of the auxiliaries project contracts are now complete.

The third and final Thiess contract at OEP consists of the underground development and construction contract which includes all civil, mechanical, electrical and mine services to bring the new \$180 million underground expansion on line.

A major feature of the underground expansion is underground rail haulage system which, when finished, will be the most sophisticated system of its type in the world with the ability to load from the surge bins, haul discharge to the crusher and hoisting system without the need for an operator.

Other aspects of the Thiess underground development and construction contract involve:

- special excavations and approximately three kilometres of lateral development;
- construction of the crushing station, loading station and hoisting station pumping and dewatering;
- HV power, air, water and communications reticulation.

Currently, Thiess have a total of 120 direct employees underground, 80 of whom are involved in construction while the remainder are dedicated to the mining of

the special excavations including the crusher chamber, transfer level, loading station and lateral development.

An excellent safety record was maintained, of 250 days without a lost time injury.

"We completed the crusher excavation, transfer level excavation and the decline to the bottom of shaft three on schedule, thanks to the excellent teamwork of the crews involved," said Thiess underground project manager, Reg Laing.

"Our LTI frequency rate of less than one is an example of the underground team's dedication to safety and their commitment to the project," he said.

A major innovation at the OEP project is the off-site assembly area at Port Augusta where the auxiliaries and various aspects of the underground of contract are constructed, then transported to site ready for installation.

Mr Laing said the off-site assembly area has helped in minimising the number of

employees required onsite as well as reducing the cost of onsite production.

The off-site production has reduced the social impact of the development on the remote community with approximately one million manhours or a quarter of the manhours for the project pushed offsite.

The success of this strategy is evident with the extraordinary speed of construction being achieved. The formal go-ahead for the project was only given in January 1996 and completion is already scheduled for October this year. The construction team said the entire project epitomises what the Australian building industry is capable of. ■

