



The Importance of Project Networking for the Replacement Research Reactor

GREG WHITBOURN

Project Manager, ANSTO, PMB 1 MENAI NSW 2234

SUMMARY. When the HIFAR research reactor was commissioned in 1958 it was both constructed and regulated by the then Australian Atomic Energy Commission. The situation now is much more complicated, with an independent regulator, The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and oversight by national security agencies and the Australian Safeguards and Non proliferation Organisation (ASNO).

In July 2000 ANSTO contracted INVAP SE a suitably qualified and experienced nuclear organisation based in Argentina to provide the Replacement Research Reactor (RRR). INVAP subcontracted an Australian entity, a joint venture between John Holland and Evans Deakin Industries (JHEDI) to provide resources in Australia. There is an international network of over 100 subcontractors providing services, products and materials to INVAP and JHEDI and a significant number of contractors providing project support services to ANSTO.

The interaction of all these entities to provide the RRR is a significant networking challenge, involving a complex network of legal, contractual and functional relationships and communication processes.

Background

- The HIFAR reactor has been in service since 1958.
- The Australian Government decided to replace HIFAR in 1997, with a total budget of (1997) \$286.4 million.
- User requirements and operating specifications were determined.
- Exhaustive reviews were carried out to address environmental, safety and Parliamentary concerns.
- A Site Licence was issued by ARPANSA in September 1999.
- Tender evaluation was carried out from January to April 2000.
- ANSTO contracted INVAP SE and its Australian alliance subcontractor JHEDI in July 2000 to design, construct and commission the RRR.

Stakeholders and Interest Groups

- The Australian Government has ultimate responsibility:
 - ANSTO is responsible for approvals, construction and operation.
 - ARPANSA has regulatory responsibility for nuclear safety.
 - Australian agencies are responsible for security.

- Federal Government interest groups include Attorney General, Defence, Education Science and Training, Employment and Workplace Relations, Environment and Heritage, Finance and Administration, Foreign Affairs and Trade, Health and Ageing and Prime Minister and Cabinet.

● Other Interest Groups:

- Various user and advisory groups eg Beam Instruments Advisory Group.
- Scientific organisations, universities, industry and academia.
- NSW Government and various departments and agencies such as Health and EPA.
- Local Government for example Sutherland Shire Council.
- Issues Motivated Groups with environmental or other focus.

Project Delivery

When a contract is awarded for the design, construction and commissioning of a facility, the principal has limited control of the project and must make any significant project changes via the contract amendment process. This can be a costly undertaking.

This is the situation with the RRR project and it requires highly effective relationship management and communication.

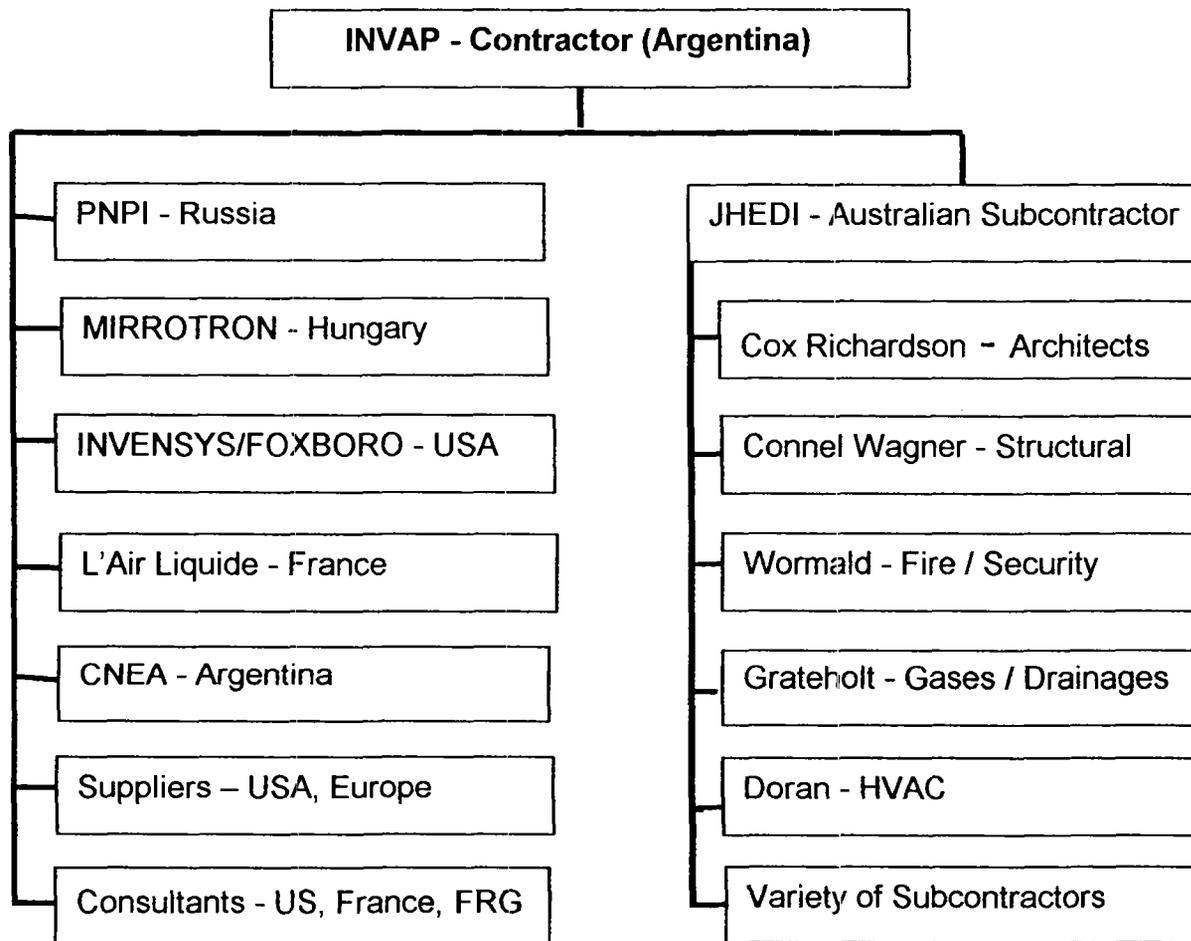
ANSTO could have maintained overall project management responsibility for the project through the subcontracting of various activities, taking on the project management and coordination role. This would have enabled ANSTO to take full control of the project however ANSTO would also have taken responsibility for most of the project risks.

There would also have been regulatory concerns if an organisation with a history of operating a reactor proposed to take project delivery responsibility for the establishment of a new facility. An experienced nuclear construction organisation would be a more credible entity to take on the overall responsibility.

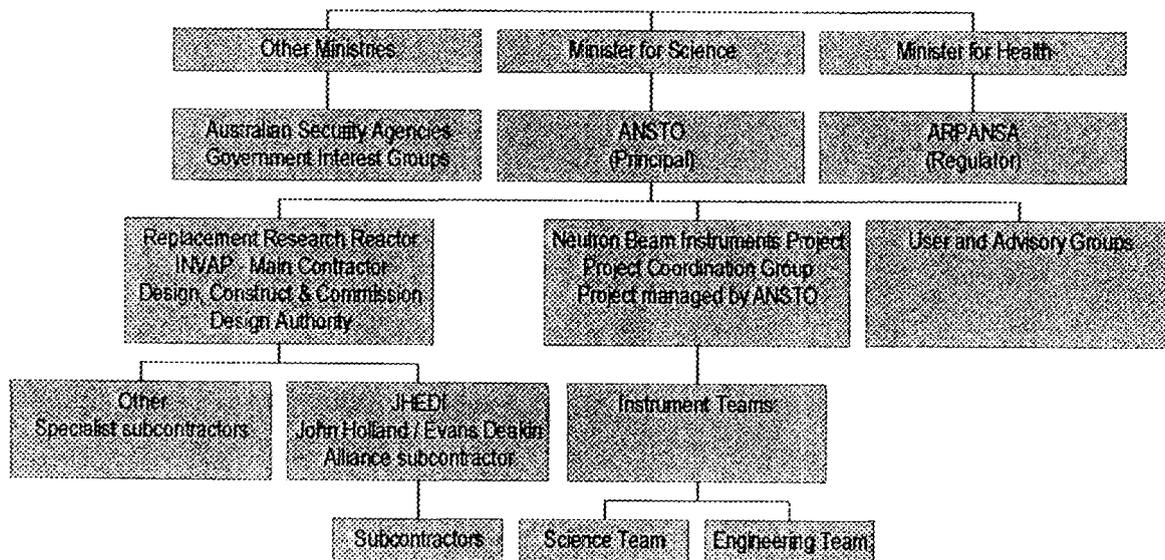
ANSTO's decision to contract the complete project of establishment of the new reactor minimised the overall risk.

Project Delivery – Major Organisations

Major Contractors, Subcontractors, Suppliers and Providers:
The International and Australian Resources Require Careful Coordination



High Level Project Structure



Project Networking

1. The ANSTO/INVAP contract is for design, construction, commissioning and performance demonstration of the RRR -- ANSTO responsibility and risk are minimised.
 2. ANSTO needs to combine contract administration with project management.
 3. A network of contracts and legislative requirements determines the interaction between the parties.
 4. Effective relationship management is essential. Influence is the most important attribute to apply with this type of project structure.
 5. Project coordination is a significant challenge, with RRR, Neutron Beam Instruments Project (NBIP), Principal Furnished Materiel (PFM) and related projects that will enable ANSTO to take full advantage of the RRR, all requiring both scope and schedule coordination.
 6. Regular reporting is required to ANSTO Board, Minister, Government departments, advisory and user groups and others. Presentations are often used to make the reporting process more interactive and personalised.
2. The Preliminary Safety Assessment Report (PSAR) was prepared and submitted as part of ANSTO's application to ARPANSA for a Construction Licence.
 3. The licence application was submitted on schedule in May 2001.
 4. A peer review of the PSAR was carried out in June 2001 by a team of international nuclear experts as part of the ARPANSA evaluation process, with a satisfactory outcome.

Recent History

1. The Construction Licence was issued in early April 2002, following a 2 month delay to examine the security implications of the events of September 11 2001.
2. Greenpeace launched an action to challenge the validity of the Construction Licence in May 2002.
3. A geological fault was identified in the excavated site and construction was suspended to carry out an investigation on 21 June 2002.
4. The Greenpeace action was defeated in a court judgment delivered in September 2002.
5. An appeal by Greenpeace was launched in October 2002 and later withdrawn
6. The geological fault investigation and reporting were resolved and ARPANSA

RRR Progress

1. System design was completed and detailed engineering commenced February 2001.

approval to resume construction was received on 22 October 2002.

7. Concrete pouring commenced in November 2002.
8. The first major concrete pour was in mid December, with almost 1,000 cubic metres poured in one day.
9. Work has been proceeding as quickly as possible using increased resourcing and working hours.

Project Summary and Performance

1. Building work is being accelerated using increased resourcing and working hours, including some Sunday work to carry out disruptive activities that could otherwise interfere with productivity.
2. The productivity agreement in the Project Award for the construction site can accelerate completion of building construction.
3. The approval process required by Regulation 54 of the ARPANS Act (requiring approval of each item of importance to safety) requires extra resources and time not allowed for in the project plan.
4. The web of relationships is working effectively
5. QA document control and ongoing audits have been satisfactory

Neutron Beam Instruments Progress Summary

1. ANSTO is on track to deliver 6-7 commissioned neutron beam instruments by Early 2006.
2. 8th instrument soon after that.
3. At least 7 instruments will be "leading-edge"
4. ANSTO has assembled a world-class team of scientists.
5. ANSTO NBI facilities will be in the top 3 such facilities worldwide.
6. This project has the potential to be a flagship for Australian science.

Acknowledgments

This paper is published with the permission of the Chief Executive of ANSTO.

The collaboration of Dr Rob Robinson, Leader of the Bragg Institute, in providing progress details of the Neutron Beam Instruments Project, is gratefully acknowledged.