

Senate Standing Committee on Economics
ANSWERS TO QUESTIONS ON NOTICE
Innovation, Industry, Science and Research Portfolio
Budget Estimates Hearing 2010-11
31 May 2010

AGENCY/DEPARTMENT: AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION

TOPIC: OPAL Reactor

REFERENCE: Written Question - Senator Heffernan

QUESTION No.: BI-41

- (a) Can ANSTO confirm the original budget for constructing OPAL from Argentinean technology?
- (b) Including rectification problems how much has the project cost to date? (close to \$400 m)
- (c) How much of the cost over-runs were covered by the INVAP claim?
- (d) What was the cause of the leak in of light water into the heavy water containment vessels?
- (e) Is the fix permanent or temporary?
- (f) Is ANSTO building a water reprocessing plant on-site because of the leak? If so, what is the cost of this plant?
- (g) One of the main reasons to build OPAL was for the production of pharmaceuticals, specifically Molybdenum 99, used for nuclear medicine. ANSTO is importing Molybdenum 99 from South Africa while the Molybdenum production issues are being addressed with OPAL. How much has the importation of Molybdenum cost?
- (h) Are we still importing Molybdenum?
- (i) How long will ANSTO continue to import Molybdenum?
- (j) Given that there is a global shortage of Molybdenum at present, what does this do to our reputation when we have this reactor that can't make Molybdenum reliability?

ANSWER

- (a) Refer to BI-100 ((Budget Estimates 2008-09).
- (b) Refer to BI-100 (Budget Estimates 2008-09).
- (c) The question is based on a false premise. There is no ANSTO claim on INVAP for any cost overruns. In accordance with the contract, ANSTO has withheld payment from INVAP pending satisfactory resolution of some problems in the construction of the reactor.
- (d) As stated at the Estimates hearing:
"It was a defect caused by a phenomenon called delayed hydride cracking, which resulted in cracks opening up in the weld itself" (Hansard 31 May 2010, page E14).
- (e) Over the past six months, ANSTO has been assessing the effectiveness of the current remediation actions, which were undertaken in November and December 2009. That assessment indicates that the leak of light-water into the reflector vessel has reduced very significantly. ANSTO will continue to monitor the effectiveness of these measures. If the

leak-rate remains low (or non-existent) then the current solution will become a permanent part of the mitigation of the leak. It should be noted that the design of the components used is such that those components can be removed and replaced, consistent with good engineering practice.

- (f) INVAP is building a heavy water reprocessing plant on site as a part of an overall solution to the leak. The plant is additional to the primary goal of mitigating the leak at the leak sites and serves as a back up should the clamps that are currently proving successful (refer (e) above) prove to be problematic in future. The combination of the clamps and the plant will assist with maintaining high levels of heavy water purity and therefore expected performance of neutron beams and irradiation facilities. INVAP are paying for the plant, which will cost in the order of \$7 million. ANSTO has some costs associated with the additional review and supervision of INVAP during the construction of the plant and with additional security and IT infrastructure. These additional costs are in the order of \$2.4 million (GST exclusive).
- (g) The question is based on a false premise. The need to periodically import molybdenum-99 is not caused by OPAL reactor issues.
- (h) As stated at the Estimates hearing:
“We import moly-99 from South Africa when OPAL is shut down. These are fill-in imports that are used widely around the world to supply, and during the time that we were qualifying the plant we had backup imports to ensure that we would not disadvantage the Australian healthcare system (Hansard 31 May 2010, page E 14).
- (i) As noted part (h), the need to import molybdenum-99 during reactor shutdowns, such as for refuelling, will continue indefinitely. This is standard practice internationally.
- (j) As noted in part (g), the reactor can, and does, produce molybdenum-99 reliably.