Inspection report

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| **Licence holder:** ASC Pty Ltd and ASC AWD Shipbuilder Pty Ltd | **Licence number:** S0190 |
| Location inspected: Osborne, SA | **Dates of inspection:** 28-29 May 2018 |
| **Report no:** R18/06911 |
| An inspection was conducted as part of ARPANSA’s baseline inspection program to assess compliance with the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act), the Australian Radiation Protection and Nuclear Safety Regulations 1999 (the Regulations), and conditions of Source Licence S0190. The scope of the inspection included an assessment of ASC Pty Ltd and ASC AWD Shipbuilder Pty Ltd’s performance at Osborne, SA against the Source Performance Objectives and Criteria (PO&Cs) with specific emphasis placed on the use of Industrial Radiography Sources. The inspection consisted of a review of records, interviews, and a physical inspection of sources.BackgroundASC provides non-destructive testing (NDT) and inspection services to the Department of Defence in the building and maintenance of naval vessels.ASC is licenced to deal with industrial radiography sources and X-ray equipment, magnetic field NDT devices, partially enclosed x-ray analysis units and lasers for materials analysis.The main codes and standards applicable to this licence are: * RPS-3 Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3kHz to 300 GHz (2002)
* RPS-11 Code of Practice on the Security of Radioactive Sources (2007)
* RHS-31 Code of Practice for the safe use of industrial radiography equipment (1989)
* AS/NZS:2243.4 Australian Standard Safety in Laboratories – Ionising Radiations (1998)

ObservationsIn general, the management of safety and security at the ASC site was found to be strong. Operational staff were found to be very knowledgeable on the relevant standards, engaged in seeking high performance and, demonstrated significant industry experience. However, in some cases there appeared to be room for minor improvements to information contained within ASC safety documentation. Performance reporting and verificationASC provided relevant information through the timely submission of their recent quarterly reports. ASC also maintained an accurate and up to date inventory of their controlled materials and controlled apparatus which were cross-checked and referenced during the inspection. Configuration managementDuring the inspection ASC’s personnel were able to demonstrate substantial configuration knowledge gained through several years of operational experience. Site management for fully closed and open site operations were described and were found to be consistent with RHS-31 requirements. ASC staff were also able to demonstrate their ability to take into consideration human factors elements in the design of improving ergonomics associated with carrying and transporting supplementary NDT equipment. ASC staff recognised the substantial mass and associated difficulty with transporting this equipment to and from testing locations, and developed an improved conveyance to safely transport NDT equipment onsite. Inspection, testing and maintenanceASC uses a third party to service and calibrate all equipment in accordance with requirements. Servicing records confirmed this during the inspection. ASC conducts pre-operational testing of NDT Radiography and X-Ray equipment. However, ASC plans and arrangements indicated that a more frequent testing regime was in place. During the inspection, it was agreed by ASC and ARPANSA that plans should reflect the practice that is conducted. TrainingASC maintains comprehensive records of personnel training requirements, their status in terms of training currency and required re-training requirements. ASC ensures that personnel are qualified under the Australian Institute of Non-Destructive Testing (AINDT) framework. Each NDT operator must at a minimum be qualified to level 2. This is also a requirement under their NATA accreditation.Event protectionASC safety documentation referred to a range of measures to prevent, detect and mitigate events that could lead to radiation exposures. Specifically, fire prevention and accidental radiation exposures during operation were considered. The physical inspection confirmed that adequate fire protection systems and arrangements were available for sources in storage. Further, a range of controls are implemented during operation to ensure that personnel are not inadvertently exposed. This included the use of safety interlocks in exposure rooms and the use of live detection equipment sentries when performing open site NDT. However, during the inspection it was found that combustible materials were co-located with radiation sources within the storage bunker.SecurityASC maintains an ARPANSA-endorsed security plan detailing the relevant arrangements in accordance with ARPANSA RPS-11. The security plan has been formulated specifically for high activity 75Se non-destructive testing radiography sources. The physical inspection identified that an effective protective security system was in place. Detection, assessment, delay and response arrangements were found to have been implemented in a way that would achieve the performance requirements specified in RPS-11 for a Security Category II source. However, it was noted in the security plan, the radiation safety plan and the incident notification procedure that timescales for notification should be reviewed in accordance with the requirements of RPS-11 and harmonised. Further, when reviewing the composition of the ASC Safety Accident and Investigation Committee, it was noted that a designated protective security representative was not a standing member. ASC staff acknowledged that security incidents can at times manifest themselves to appear as safety incidents and agreed that a protective security professional should be explicitly included in the committee’s composition.Section 5 Protective Security in the endorsed Security Plan for Radioactive Sources (NDT-RT-001 Rev. 2 indicated a range of potential security risk list in the plan have been considered as potential security risk; however ASC was unable to provide documented evidence of a formalised risk assessment that records this process; including the risk treatments that mitigate each risk. The inspection noted that while NDT activities are conducted across two separate locations; ASC currently only conducts NDT at facilities in one location. However, the evolving nature and complexity of future shipbuilding and maintenance projects to be co-located at Port Adelaide sites warrants a formal record of the risk assessment process to assist ASC in the timely identification of emerging risks to radioactive sources in future iterations of the Security Pan, such as potential future transport risks. Radiation protectionThe ASC Radiation Safety Manual describes the arrangements in place to protect workers and the public from the harmful effects of radiation. However, it was noted that some items required updating, including:* updating the relevant laser safety standard
* referencing the newly acquired Optical Stimulated Luminescence (OSL) dosimetry technology.

Emergency preparedness and responseEmergency arrangements at ASC were not covered during the inspection. Other matters An area for improvement (AFI) was identified in an inspection in 2017 relating to conducting security awareness briefings. During the inspection it was noted that security briefings had since been conducted covering relevant information and records were maintained. FindingsThe licence holder was found to be in compliance with the requirements of the Act, the Regulations, and licence conditions. The inspection revealed the following **areas for improvement**:1. Details within the array of safety plans and arrangements, including:
* the appropriate laser safety standard
* referencing the OSL dosimetry technology
* specific timeframes for the notification of a security incident in accordance with RPS-11
* the frequency of X-ray performance tests
1. Combustible materials co-located within the radiation source store room
2. The formalisation of ASC’s risk assessment processes
3. The composition of ASC’s Safety Accident and Investigation Committee.

It is expected that improvement actions be taken in a timely manner.The inspection revealed the following **good practice**:1. as part of verifying the presence of the radioactive source during use, direct radiation measurements are conducted prior to and after all uses of industrial radiography sources; and, direct measurement records are maintained.
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