Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
7.33	7.8.1 Reactor Containment System	The containment represents the third barrier to prevent an uncontrolled release of fission products to the environment in beyond design basis accidents (BDBA).	Is it correct that all the accidents resulting in the release of fission products to the containment environment are BDBA?
			Response: A release of radioactivity to the containment environment is within the design basis (eg a release from an irradiation target) but the release of significant quantity of fission products from a degraded core is beyond the design basis.
7.34	7.8.1 Reactor Containment System	Table 7.8/1 shows a schematic view of the reactor containment system. It show that the building is complex and that there are 45 separate rooms distributed over 5 floor levels	What special provisions are in place where containment rooms border rooms outside the defined containment?
			Response: As stated in Section 7.8.3.2, the Containment physical barrier comprises the Containment walls, ceilings and floors, all of which are to be built in reinforced concrete. There is no difference between walls separating the Containment from the external environment and those separating the Containment from other rooms within the Reactor Facility. As also stated in Section 7.8.3.2.1, the surfaces of the Containment are to be treated to seal pores and imperfections with special attention being paid to the joints between successive concrete pours, floor-to-wall joints, wall-to-wall joints and wall-to-ceiling joints.

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
7.35	7.8.2.2 Safety Functions	The containment safety functions are: Containment Isolation Systems (CIS) to initiate automatic closure of the CIS valves Containment Energy Removal System (CERS) to control pressure in the containment below its design limit and minimise leakage of radioactive material. Containment Pressure Relief and Filtered venting System (CPRFVS) is to keep over pressure within the containment below its upper structural limit in case of over-pressurisation, and also for accident management. Containment Vacuum Relief System is to keep pressure within the containment above its lower structural limit in case of under-pressurisation.	Both the CPRFVS and the CVRS can be used for accident management measures. Is it correct that to operate the system for all situations requires operator action to open the remotely operated inlet valve? The valves in these systems are a potential bypass for the CIS if spuriously opened. Has the spurious opening of these valves been considered in the Containment reliability analysis ? The CPRFVS and CRPS are shown in only one location in Fig 7.8/1.In view of the size, complexity and number of rooms and levels are single relief connections adequate to protect all the containment?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The remote operated manual valves inside the Containment are normally open, thus ensuring that the relief valves are capable of fulfilling their function (ie to prevent structural damage to the Containment in the event of over or under pressure in excess of the design limit). Note that Sections 7.8.3.5 and 7.8.3.6 incorrectly state that these valves are normally closed. This will be amended in the next revision of the PSAR. The CPRFVS and CVRS potential as means of Containment bypass will be considered in the Containment reliability analysis that will be performed during the detail engineering phase and will be reported in the FSAR. It is noted that this involves an additional failure. Yes, single relief connections are adequate. The air flow within the Containment is such that there are no significant pressure differentials within the Containment. This will be confirmed during the detail engineering phase and will be reported in the FSAR.
7.36	7.8.2.2 Safety Functions	Fig 8.8/1 shows triplicated radiation monitors in the containment stack. These monitors initiate the CIS closure on high radiation values	If the CIS is closed the stack valves are no longer available to measure radioactivity. What instrumentation is in place to monitor the radioactivity within the building with the CIS closed (as part of the RCMS and PAMs)?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The PAM System instrumentation is discussed in Chapter 8, Section 8.6.3.1.2.8. This section indicates that following a Containment isolation, Safety Category 1 monitoring within the Containment is provided by gamma activity monitors located around the top of the reactor pool, in the Reactor Hall general area and in the Process Area on Level –5. The RCMS instrumentation distributed along the facility for area monitoring is described in Chapter 8, Section 8.7.3.2.2.5 and Chapter 12, Section 12.3.5.1.
7.37	7.8.3.4 Containment Energy Removal System	A significant part of the heat load , which the CERS is required to remove is electrical systems. As shown in fig 7.8/6 there are 12 dedicated electrical heaters (each 100kw) as part of the HVAC system.	On a containment isolation signal are the electrical system loads, including the electrical heaters automatically shed, or is this an operator action? The helium supply system is isolated on a CIS signal. Does this affect the supply of helium to the Cold Neutron Source ?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The topic is incorrect in that there are nominally two electrical heaters within the Reactor Building HVAC system, one 100 kW heater in each of the main discharge branches (to be confirm during the detail engineering phase). Figure 7.8/6 is incorrect: the two heaters integral within the air handling units were included in the figure by mistake. The figure will be amended in the next revision of the PSAR. The electrical heaters will be tripped by a Safety Category 1 system dependent upon the Containment environmental conditions. The details of this control logic will be determined during the detail engineering phase and will be provided in the FSAR. The helium cooling circuit from the compressor to the CNS is not isolated on a CIS since the helium circuit is a closed loop with no connection to the Containment environment. In addition, the helium make-up supply from a bottle store that provides make-up to the helium cooling circuit and the helium cover gas for the in-pile deuterium piping is also not isolated for the same reason. Table 7.8/8 is incorrect in this respect and will be amended in the next revision of the PSAR.
7.38	7.8.7.2.2 Simulation Results for Containment.	The results of the heat, mass transfer modelling with the containment isolated is presented in figs 7.8/11 to 7.8/13.	It is not clear if the reactor is considered to be tripped during the three simulation runs. What trips the reactor?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The heat load within the containment is determined by whether normal power supplies are available or not since these, together with the heat input from the reactor pool hot water layer, are the dominant sources of heat. As such, the analyses for Cases A and C in Section 7.8.7.2.2 assume that the reactor is not tripped. Case B does assume the reactor is tripped as stated in paragraph 2. Note that there is no reactor trip signal generated by Containment isolation since it will be necessary to test the Containment isolation during power operation. As indicated above, reactor operation makes no significant difference to the heat load within Containment.