Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
7.1.	7. Engineered Safety Features	(d) Second Shutdown System	Chapter 2 Table 2.5/2 classifies the Reflector Tank as a Category 2 safety item. Is the Reflector Tank considered to be part of the Second Shutdown System?
			Response: No, the Reflector Vessel is not part of the Second Shutdown System.
7.2.	7. Engineered Safety Features	…a brief description is included together with a reference to the section in the PSAR where full details are given.	Needs to be checked
			Response: No response considered necessary.
7.3.	7.4 Second Shutdown System	The Second Shutdown System (SSS) is described in Chapter 5, Section 5.2	The correct reference is assumed to be Chapter 5, Section 5.5.4
			Response: Correct. The reference will be amended in the next revision of the PSAR
7.4.	7.4 Second Shutdown System	The system is connected to the Reflector Vessel…	This statement would imply that the Reflector Vessel is not considered as part of the SSS.
			Response: Correct. See response to Question 7.1.
7.5.	7.4 Second Shutdown System	The supply of compressed air to the valves is controlled by solenoid valves and loss of electrical supply to them causes them to open, thereby initiating a heavy water dump.	Is this correct? Are these solenoids supplied by the Standby Power Supply? Please provide the cross reference.

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The loss of electrical supply to the solenoid valves will result in closing of the solenoid valves and the loss of pneumatic pressure that keeps the SSS trigger valves closed. As a consequence, the loss of electric supply will result in the triggering of the SSS. Because the solenoid valves are connected to the Standby Power Supply (UPS), this event would require both the loss of the off-site power supply and the failure of the UPS. The SSS is connected to the Standby Power Supply. This is stated in Chapter 5, Section 5.5.4.2 i), however, the item will be clarified in the next revision of the PSAR.
	Reactor Containment System		
7.6.	7.8.2.1 System Categorisation	Filters Safety Category 2	The CPRFVS is a backup system (see 7.8.3.5). Is the classification of the Filters as Cateogory 2 appropriate?
			Response: The CPRFVS is a backup system designed to protect the containment from structural damage under beyond design basis accident conditions. Its classification as a Category 2 system is considered appropriate.
7.7.	7.8.2.3.4 Containment Pressure Relief and Filtered Vent System	It must provide a manual means of venting filtered air from the Containment to the stack for managing accidents.	Will the manual actuated be performed from within ECC?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The capability exists for the actuation to be performed from both the Main Control Room and the Emergency Control Centre.
7.8.	7.8.Codes and Standards	The systems are designed considering the guidelines in the relevant parts of the following Codes and Standards: 1. Building Code of Australia (BCA) with NSW amendments 2. AS 1668 Parts 1 & 2 3. AS 1170 4. AS 2107 5. AS 2243 6. AS 3000 7. AS 3666 8. ASHRAE 9. AECP 1054 10. Relevant Regulations of Work-Cover Authority NSW	Are there additional nuclear industry Standards that are applicable? Chapter 2 Section 2.5.1.1 states "Safety Category 1 components, structures and systems will be designed in accordance with the applicable codes and standards". What is the level of compliance with the Standards listed? 1
			Response: The stated list is considered complete at this time. The reactor Containment System will fully comply with the relevant parts of these Codes and Standards.
7.9.	7.8.3.1 General	The RCS comprises all systems and sub-systems that constitute the fourth barrier…	Section 7.8.1 states "The Containment represents the third barrier…" Which statement is correct?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The Containment represents the third barrier. The confusions arises from whether the fuel matrix may itself be considered as a barrier. In the PSAR, the fuel matrix together with the fuel plate cladding is considered to form a single, first, barrier and the water in the PCS the second. The statement will be amended in the next revision of the PSAR..
7.10.	7.8.3.2.1 Walls, Floors and Ceilings	Special attention will be paid to joints between successive concrete pours, floor-to-wall joints, wall-to-wall joints and wall-to-ceiling joints	Please provide explanation of the term "special attention".
			Response: The term was used as part of indicating that those aspects of concrete construction that require care are known and will be controlled as part of the construction. No special meaning should be attached to its use.
7.11.	7.8.3.2.2 Windows	Windows that are part of the Containment physical barrier have double glass and allow the possibility of testing the air tightness of the assembly seals.	Will the window seals be routinely tested during maintenance/ surveillance programs?
			Response: Yes, a program of maintenance and surveillance will be developed during the Detail Engineering Phase and will be presented in the FSAR.
7.12.	7.8.3.2.2 Windows	The main windows are: a) Main Control Room to Reactor Hall b) Meeting Room to Reactor Hall c) Above Pool Hot Cells Area to Corridor	Do the windows b) and c) serve any purpose?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The windows are intended to permit viewing, of operations within the Reactor Hall without the need for entry, including by members of the public.
7.13.	7.8.3.2.3 Access Ways	a) Safety Access Systems b) Equipment Hatches	Will access ways be monitored by the RCMS?
			Response: The access ways form part of the containment boundary. As such, they are monitored by the PAM system as part of monitoring containment integrity.
7.14.	7.8.3.2.4 Penetrations	Penetrations are grouped, as feasible, in a few places.	Table 7.8/2 provides a list of the penetrations grouping. Have the physical separation requirements been adequately addressed? Please provide a drawing showing the penetrations.
			Response: Adequate separation of cabling through penetrations is a known issue for any design. Conformance with the relevant codes and standards will ensure adequate separation. Detailed drawings of all the penetration types will be produced as part of the Detail Engineering Phase and presented in the FSAR.
7.15.	7.8.3.2.4.4 Ventilation Penetrations	…detailed information of the penetration layout summarised below…	The information provided appears to be more than just the ventilation penetrations – should this information be located elsewhere?
			Response: Agreed, the text contains information on more than just the ventilation penetrations. The layout of the text wil be revised in the next revision of the PSAR.

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
7.16.	7.8.3.2.4.4 Ventilation Penetrations	Duct 2/-5.23 located in South East…	Is this a typing error? Should it read " Duct 2 located in south east wall between rooms –5.25 and –5.23"?
			Response: Yes, the next revision of the PSAR will correct this.
7.17.	7.8.3.2.4.4 Ventilation Penetrations	North wall Rooms 10.212, 10.214 provide Electrical and Instrumentation cables access…	Table 7.8/2 does not appear to contain this information – is this correct?
			Response: Correct, the next revision of the PSAR will correct this. Note that Table 7.8/2 presents a Preliminary List of Containment penetrations that will be optimised during the Detail Engineering Phase and presented in the FSAR.
7.18.	7.8.3.3.1 Air Supply/Exhaust Isolation Valves	The valves will use compressed air to open and spring-force to close.	Is this statement only relevant to the air supply/exhaust valves or all the valves of the system?
			Response: The statement refers solely to the air supply/exhaust valves.
7.19.	7.8.3.3.1 Air Supply/Exhaust Isolation Valves	…they will close automatically on loss of electric power or loss of compressed air.	Do the valves close on loss of normal power or standby power?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: The valves will close on loss of either normal power or standby power. The valves are provided with pneumatic actuators and the compressed air is supplied to those actuators via solenoid valves. If normal power is lost, the CIS valves will close automatically caused by loss of power to the solenoid valves. Once standby power is established with the starting of the diesels, the CIS valves may be reopened through operator initiated action. If standby power is then lost, the valves would again close automatically caused again by loss of power to the solenoid valves.
7.20.	7.8.3.4 Containment Energy Removal System	…adequate physical separation to avoid common mode failures.	Physical separation is a method to avoid one group of common mode failures. Have other sources of common mode failure been considered?
			Response: Yes. Sources of common mode failure have been considered in the design.
7.21.	7.8.3.4 Containment Energy Removal System	Each chiller provides 400 kW of cooling power.	Has this been taken into account for the electrical loading calculations for the Standby Power Supply?
			Response: Yes, Chapter 9 will be revised in the next revision of the PSAR to reflect this.

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
7.22.	7.8.3.5 Containment Pressure Relief and Filtered Vent System	The manual valve outside of containment will be provided for accident management purposes.	Should this read "The remotely operated manual valve…"?
			Response: Yes, the next revision of the PSAR will correct this.
7.23.	7.8.4 Description of Operation	Isolation Mode is automatically initiated by the First Reactor Protection System (FRPS)	High activity in the Stack does not generate a reactor trip. Why not have a system that is independent of the FRPS?
			Response: High activity in the stack caused by release from the core would generate a trip by the FRPS from a number of parameters. Other situations could lead to containment isolation unrelated to core behaviour.
7.24.	7.8.4.1 Containment Isolation System	All other isolation valves, such as those of Secondary Cooling System (SCS), are able to be manually operated.	Manually operated from where?
			Response: Manually operated means operated local to plant.
7.25.	7.8.4.1 Containment Isolation System	They are not automatically closed because closure may, dependent upon the event circumstances, be detrimental to the safety.	Please provide the reference to the analysis.

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: In all cases where closure is not automatic, the system on which the closure acts is performing a safety or safety related function, e.g., automatic closure of the CIS valves on the SCS could challenge the reactor shutdown systems. These valves are not automatically closed because automatic closure may, dependent upon the event circumstances, be detrimental to safety. This event was analysed as part of the design process.
7.26.	7.8.5 Testing, Inspection and Surveillance	The system will be regularly inspected, tested and maintained in accordance with applicable surveillance requirements	There is no reference to OLCs for the system. Do any exist? Should there be a cross reference to Chapter 17?
			Response: OLCs are applicable to the containment system and will be developed as part of the Detail Engineering Phase. They will be identified in Chapter 17 of the FSAR.
7.27.	7.8.6.1 Loss of Normal Power Supply	The CERS will function once standby power is available to remove sensible and latent heat…	What is meant by "sensible"?
			Response: 'Sensible heat' refers to the heat transferred to or from a substance while the temperature changes
7.28.	7.8.6.1 Loss of Normal Power Supply	The pressure rise will be less than if normal power had been available…	Why is the pressure rise less when using Standby Power?

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
			Response: A significant portion of the heat load within the containment comes from electric loads within the containment. The electric loads within containment supplied from Standby Power are less that those supplied from Normal Power. Therefore, the total heat load within containment is less when Normal Power is not available. The heat removal characteristics of the CERS are the same irrespective of the source of power.
7.29.	7.8.6.2 Failure of Secondary Cooling System	On failure of the SCS, the FRPS will automatically initiate a trip of the reactor.	FRPS trip logic (Figure 8.2/12) does not appear to support this statement. Please provide reference.
			Response: The next revision of the PSAR will correct this. The sentence should state "On failure of the SCS, the FRPS will automatically initiate a trip of the reactor due to high temperature in the Primary cooling system". Note that this event is described in Chapter 6, Section 6.8.9.1.
7.30.	Atmospheric Pressure Variations	The maximum pressure drop observed in a single day at the reactor facility site in the period assessed was 1810Pa and occurred on 10th March 1998.	What was the length of the assessment period? What value has been used in the modelling?
			Response: The length of the assessment period was three years (data for all of 1998, 1999 and 2000 was used). This will be included in the next revision of the PSAR. The value used for modelling is the value stated.

Question reference	Section number and name	Topic	ARPANSA Comment, Issue or Question and ANSTO's Response
7.31.	7.8.7.2.2 Simulation Results	The FRPS will automatically detect the failure of the CERS unit and will start the stand-by CERS unit.	FRPS parameters (Table 8.2/1) do not appear to support this statement. Please provide reference.
			Response: See response to Question 7.29.
7.32.	7.9 ECC Ventilation and Pressurisation System	In the event of an emergency situation, the operation of the ECC Ventilation and Pressurisation System is initiated manually from within the ECC.	Why not automatically start the system in an emergency?
			Response: The operation of the ECC ventilation is not automatic as it may not be required. It is started on an 'as needs' basis.