

System Verification Plan and Report

Project Second Target Station
Item Target Assembly
WBS S.03.02
Lead Aaron Jacques
Date 7/31/2026

Date	7/31/2026		Reqmts Review			8/13/2026	Final Design Review			8/13/2026	Dwg release			8/14/2027	Vendor			8/14/2027	MUTS			8/14/2027	In Core Vessel			8/14/2027
			SRR				FDR				PRR				FAT				Installation Test				Integrated System Test			
ID	Name	Requirement	Method	STATUS	Date	Method	STATUS	Date	Method	STATUS	Date	Method	STATUS	Date	Method	STATUS	Date	Method	STATUS	Date	Method	STATUS	Date			
10958	[S.03.02-10958] MAWP - Target Assembly	The Target Assembly shall be designed for a Maximum Allowable Working Pressure of 758kPa~, with relief devices for overpressure protection.	-	-	-	Analysis	PASSED	7/27/2026	Analysis	Not Run	-	-	-	-	-	-	-	Test	Not Run	-	-	-	-			
10953	[S.03.02-10953] Assembly Blow Down Level	The water level in the system shall be ~>3cm below any water boundary to disrupted for maintenance. ~Note: The water level must be below the crown and valve assembly as well as the segment sealing	-	-	-	Inspection	PASSED	7/24/2026	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	Demonstrat ion	Not Run	-			
10948	[S.03.02-10948] Water Leak rate	Target Assembly water boundaries and seals shall have a leak rate of 1 x 10 ~^ ~-5 mbar~-l/s or less. Note: This captures the overall leak rate into the core vessel during vacuum operation.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Test	Not Run	-	-	-	-			
10947	[S.03.02-10947] Material radiation damage	The accumulated radiation dose (or damage) for each segment component and its constituent materials~, evaluated at that component's end of life (i.e.~, at the planned replacement or retirement point)~	-	-	-	Analysis	PASSED	7/24/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10836	[S.03.02-10836] Permit MRA Vertical Removal	The target assembly shall provide features and capability to permit the MRA to be removed and installed vertically from the core vessel. ~Note: the target assembly and the MRA are "nested" togethe	-	-	-	Inspection	PASSED	7/24/2026	Inspection	Not Run	-	-	-	-	-	-	-	-	Not Run	-	-	-	-			
10793	[S.03.02-10793] Upper Mounting point - Vertical Installation tolerances	The target assembly shall be located within +/- 0.5mm~, of the global (master) coordinate system in the vertical direction.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Test	Not Run	-	-	-	-			
10792	[S.03.02-10792] Snubber Nominal Gap - Horizontal	The restraint ring at the bottom of the target shall have a nominal radial gap of 6mm between rotating and static faces.	-	-	-	Inspection	PASSED	7/24/2026	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10791	[S.03.02-10791] Snubber Nominal Gap -Vertical	The restraint ring at the bottom of the target shall have a nominal vertical gap of 8mm between rotating and static faces.	-	-	-	Inspection	PASSED	7/24/2026	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10735	[S.03.02-10735] Lower restraint - adjustment allowance	The lower restraint of the target assembly shall be able to withstand adjustment relative to the shield mounting points of: Horizontal: +/- 3.5mm Vertical: +/- 1.5mm	-	-	-	Inspection	PASSED	7/24/2026	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10734	[S.03.02-10734] Mid-height location - Profile tolerance	The vertical surfaces of the target assembly (above the target foot) shall have a profile tolerance~, when assembled~, not to exceed +/-0.5mm relative to the installed axis of the shaft.	-	-	-	-	-	-	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10733	[S.03.02-10733] Mid-Height locations - Radial deflections during normal operation	The outer profile of the target assembly (above the target) shall not deflect in the radial direction more than +/-4.5mm during normal operation and pressure testing operations Normal operations i	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	Test	Not Run	-	-	-	-			
10732	[S.03.02-10732] Foot location - Radial deflections during normal operations	The outer boundary of the target assembly at the foot elevation shall deflect <0.5mm radially during the worst case combination of: * L ~- Live loads (imbalance target rotation) * P ~- Operational	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10731	[S.03.02-10731] Foot location - Vertical Deflection during seismic event	The outer boundary of the target assembly at the foot elevation shall deflect in the vertical direction < 3.65mm (down) and <0.55mm (up) during a seismic vertical force. Seismic conditions include	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10713	[S.03.02-10713] Foot location - Radial Deflections During Seismic Event	The outer boundary of the target assembly at the foot elevation shall deflect in the radial direction <0.25mm beyond any imposed displacements between mounting flange and lower extremity. ll Sei	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10702	[S.03.02-10702] Foot location - Vertical Deflections During Normal Operations	The outer boundary of the target assembly at the foot elevation shall not deflect in the vertical direction more than 3.25mm (down) or more than 0.25mm (up) during the worst case combination of: *	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10701	[S.03.02-10701] Foot location - Profile	The target shall have a profile within +/- 0.2mm of the nominal CAD boundary (at installation)	-	-	-	-	-	-	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10699	[S.03.02-10699] Upper mounting point adjustment allowance	The target assembly shall permit adjustment relative to the core vessel lid of: Horizontal: +/- 5mm Vertical: +/- 1.5mm	-	-	-	Inspection	PASSED	7/24/2026	Inspection	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10698	[S.03.02-10698] Structural capacity during relative motion	The target assembly shall be capable of maintaining structural integrity under a horizontal relative motion between base and lower extremity (snubber ring) of up to: 13mm.	-	-	-	Analysis	Not Run	-	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10693	[S.03.02-10693] Mid-height locations - Radial deflections during seismic operation	Any portion of the target assembly shall not deflect in the radial direction more than 7 mm during a seismic lateral force; displacement is that beyond an imposed relative displacement between mountin	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			
10677	[S.03.02-10677] Vertical Deflections During Normal Operation	The lower extremity shall deflect in the vertical direction <2mm (down) and< 0.2mm (up) during the worst case combination of: * L ~- Live loads (imbalance target rotation) * P ~- Operational press	-	-	-	Analysis	PASSED	7/31/2026	Analysis	Not Run	-	-	-	-	-	-	-	-	-	-	-	-	-			

Date 7/31/2026

[illegible]