Deviation Report between NUREG-1432 Rev. 4.0 and APR1400 Technical Specifications

Technical Report

Non-Proprietary

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ABSTRACT

The APR1400 Technical Specifications are described based on NUREG-1432, Rev.4.0, “Standard Technical Specifications Combustion Engineering Plants,” by reference.

This report provides the justification for the deviations from NUREG-1432 and the APR1400 Technical Specifications.

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Acronyms and Abbreviations

AC	Alternating Current
ADV	Atmospheric Dump Valve
AFW(S)	Auxiliary Feedwater (System)
AFWST	Auxiliary Feedwater Storage Tank
AMI	Accident Monitoring Instrumentation
ASI	Axial Shape Index
CCW	Component Cooling Water
CEA(C)	Control Element Assembly (Calculator)
COLR	Core Operating Limits Report
COLSS	Core Operating Limit Supervisory System
CPC	Core Protection Calculator
CPIS	Containment Purge Isolation
CREACS	Control Room Emergency Air Cleanup System
CREATCS	Control Room Emergency Air Temperature Control System
CRIS	Control Room Isolation
CS(P)	Containment Spray (Pump)
CST	Condensate Storage Tank
DC	Direct Current
DCD	Design Control Document
DE	DOSE EQUIVALENT
DG	Diesel Generator
DNB(R)	Departure from Nucleate Boiling (Ratio)
DRCS	Digital Rod Control System
ECCS	Emergency Core Cooling System
ECW	Essential Chilled Water
EDG	Emergency Diesel Generator
ESFAS	Engineered Safety Features Actuation System
FBACS	Fuel Building Air Cleanup System
FHIS	Fuel Handling Isolation Signal
FSAR	Final Safety Analysis Report
HMS	Hydrogen Mixing System

ICS	Iodine Cleanup System
IRWST	In-Containment Refueling Water Storage Tank
KHNP	Korea Hydro & Nuclear Co., Ltd.
LCO	Limiting Condition for Operation
LHR	Linear Heat Rate
LOCA	Loss Of Coolant Accident
LOVS	Loss of Voltage Start
LTOP	Low Temperature Overpressure Protection
MCR	Main Control Room
MFIV	Main Feedwater Isolation Valve
MSIV	Main Steam Isolation Valve
MSSV	Main Steam Safety Valves
MTC	Moderator Temperature Coefficient
PAM	Post Accident Monitoring
PIV	Pressure Isolation Valve
PORV	Pressurizer Power Operated Relief Valves
POSRV	Pilot Operated Safety Relief Valve
PREACS	Pump Room Exhaust Air Cleanup System
PTLR	Pressure and Temperature Limits Report
PZR	Pressurizer
RCGV	Reactor Coolant Gas Vent
RCS	Reactor Coolant System
RG	Regulatory Guide
RHR	Residual Heat Removal
RPCS	Reactor Power Cutback System
RPS	Reactor Protection (Protective) System
RTCB	Reactor Trip Circuit Breaker
RTP	Rated Thermal Power
RTSG	Reactor Trip Switch Gear
RWT	Refueling Water Tank
SBEACS	Shield Building Exhaust Air Cleanup System
SC(P)	Shutdown Cooling (Pump)

SCS	Shutdown Cooling System
SDC	Shutdown Cooling
SDM	Shutdown Margin
SG	Steam Generator
SI(P)	Safety Injection (Pump)
SIS	Safety Injection System
SIT	Safety Injection Tank
SL	Safety Limit
SR	Surveillance Requirement
STE	Special Test Exceptions
SWS	Service Water System
TS	Technical Specifications
TSP	Trisodium Phosphate
UHS	Ultimate Heat Sink

1. INTRODUCTION

The APR1400 Technical Specifications satisfies 10 CFR 50.36 (Reference 1), "Technical specifications" and applies NUREG-1432, Rev. 4.0 (Reference 2) as the Standard Technical Specifications (STS). The difference between STS and the APR1400 Technical Specification exists only as necessary to reflect advanced design features and operational features based on KHNP's plant design, construction, and operating experience.

This report provides the deviations of APR1400 Technical Specifications compared to the Standard Technical Specification (NUREG-1432, Rev. 4.0) with justification.

2. DEVIATIONS AND JUSTIFICATION

The APR1400 Technical Specifications are compared with STS in this section. The deviations and justification between STS and the APR1400 Technical Specifications are described in Table 2-1.

Table 2-1 Deviations and Justification between Standard Technical Specifications and the APR1400 Technical Specifications

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
1.0 USE AND APPLICATION				
1.1 Definitions	CORE ALTERATION None	CORE ALTERATION CORE ALTERATION shall be the movement or manipulation of any fuel, sources, reactivity control components, or other components (excluding control element assemblies [CEAs] withdrawn into the upper guide structure) affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.	The definition of a term of CORE ALTERATION is added.	
	DOSE EQUIVALENT I-131 DOSE EQUIVALENT I-131 shall be that concentration of I-131(microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in [Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites,"or those listed in Table E-7 of Regulatory Guide 1.109, Rev.1, NRC, 1977, or ICRP 30,	DOSE EQUIVALENT I-131 DOSE EQUIVALENT I-131 shall be that concentration of I-131 (Bq/g) that alone would produce the same dose when inhaled as the combined activities of iodine isotopes I-131, I-132, I-133, I-134, and I-135 actually present. The determination of DOSE EQUIVALENT I-131 shall be performed using thyroid dose conversion factors from Table 2.1 of EPA Federal Guidance Report No. 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation,	The definition (DE I-131) is consistent with the TSTF-490, Rev.0, "Deletion of E Bar Definition and Revision to RCS Specific Activity Tech Spec". TSTF-490 presents the following changes; • Revise the definition of DE I-131 • Delete the definition of "E-Bar,"Average Disintegration Energy • Add a new definition for DE Xe-133 • Revise LCO 3.4.16, "RCS	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	Supplement to Part 1, page or Tissues per Intake of Unit 192-212, Table titled, “Committed Dose Equivalent in Target Organs Activity”].	Submersion, and Ingestion,”EPA-520/1-88-020, September 1988.	Specific Activity,”	
	Ē-AVERAGE DISINTEGRATION ENERGY E shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > [15] minutes, making up at least 95% of the total noniodine activity in the coolant.	DOSE EQUIVALENT XE-133 DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (Bq/g) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135 and Xe-138 actually present. The determination of DOSE EQUIVALENT Xe-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, “External Exposure to Radionuclides in Air, Water, and Soil,”EPA 402-R-93-081, September 1993.	The definition (DE Xe-133) is consistent with the TSTF-490, Rev.0, “Deletion of E Bar Definition and Revision to RCS Specific Activity Tech Spec”.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	LCO SELECTION CRITERIA None	LCO SELECTION CRITERIA LCO (Limiting Conditions for Operation) is the lowest functional capability and performance level required for the safe operation of the nuclear facility. The selection criteria for LCO are classified as the following four categories per 10 CFR 50: CRITERIA 1, 2, 3 and 4	The definition of a term of LCO SELECTION CRITERIA is added.	
	MAXIMUM ALLOWABLE CONTAINMENT LEAKAGE RATE (L_a) None	MAXIMUM ALLOWABLE CONTAINMENT LEAKAGE RATE (L_a) MAXIMUM ALLOWABLE CONTAINMENT LEAKAGE RATE (L_a) shall be 0.1 % of containment air weight per day at the calculated peak containment pressure (P_a).	The definition of a term of MAXIMUM ALLOWABLE CONTAINMENT LEAKAGE RATE is added.	
	MID-LOOP None	MID-LOOP MID-LOOP is defined as the plant condition with the fuel in the reactor vessel and the reactor coolant level below the top of the hot legs at their junction with the reactor vessel.	APR1400 defines an operation case which a RCS level is lowered to a level between the hot leg center line and top.	
	REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until electrical power to the CEAs drive mechanism is interrupted. The response time	REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME The RPS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RPS trip setpoint at the channel sensor until electrical power to the CEAs drive mechanism is interrupted. The response time	APR1400 has no NRC approved methodology.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.	may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.		
	REDUCED RCS INVENTORY None	REDUCED RCS INVENTORY REDUCED RCS INVENTORY is the plant condition when the RCS level is below the 38.72 m (127 ft 1/4 in) elevation and fuel is in the reactor vessel. The 38.72 m (127 ft 1/4 in) elevation corresponds to 91.44 cm (3 ft) below the reactor vessel flange.	APR1400 defines an operation case which a RCS level is lowered down to 3 feet below the RV flange level.	
	SHUDOWN MARGIN (SDM) None [b. There is no change in part length CEA position.]	SHUDOWN MARGIN (SDM) b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level. c. There is no change in part strength CEA position.	The calculation condition of shutdown margin during MODES 1 and 2 is described for the SDM confirmation of LCO 3.1.5, 3.1.6 and 3.1.7. Also there is no part length CEA in APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	Table 1.1-1 1. Classification Standard: AVERAGE REACTOR COOLANT TEMPERATURE 2. MODE 5 ≤ [200] °F	Table 1.1-1 1. Classification Standard: REACTOR COOLANT COLD LEG TEMPERATURE 2. MODE 5 ≤ 210 °F	APR1400 operation MODES are divided by REACTOR COOLANT COLD LEG TEMPERATURE.	
1.2 Logical Connectors	-	Same as NUREG-1432		
1.3 Completion Times	-	Same as NUREG-1432		
1.4 Frequency	-	Same as NUREG-1432		
2.0 SAFETY LIMITS				
2.1 SLs	2.1.1.2 In MODES 1 and 2, the peak fuel centerline temperature shall be maintained < [5080] °F, decreasing by [58 °F per 10,000 MWD/MTU] and adjusted for burnable poison per [CENPD-275-P, Revision 1-P-A or CENPD-382-P-A].	2.1.1.2 In MODES 1 and 2, the peak fuel centerline temperature shall be maintained < 5080 °F, decreasing by 58 °F per 10,000 MWD/MTU for burnup and adjusted for burnable poison per CENPD-275-P, Revision 1-P-A.	Ref. CENPD-382-P-A is related to Erbium BA. Only Gd BA is considered in APR1400.	
2.2 SL Violations	-	Same as NUREG-1432		
3.0 LIMITING CONDITIONS FOR OPERATION APPLICABILITY				
LCO 3.0.1	-	Same as NUREG-1432		
LCO 3.0.2	-	Same as NUREG-1432		
LCO 3.0.3	-	Same as NUREG-1432		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
LCO 3.0.4	When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made: a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time; b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or c. When an allowance is stated in the individual value, parameter, or other Specification. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.	When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time. LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.	Risk informed Technical Specification is not applied for APR1400.	
LCO 3.0.5	-	Same as NUREG-1432		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
LCO 3.0.6	-	Same as NUREG-1432		
LCO 3.0.7	-	Same as NUREG-1432		
LCO 3.0.8	-	Same as NUREG-1432		
LCO 3.0.9	When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed.	When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s).	Risk informed Technical Specification is not applied for APR1400.	
3.0 SURVEILLANCE REQUIREMENT APPLICABILITY				
SR 3.0.1	-	Same as NUREG-1432		
SR 3.0.2	-	Same as NUREG-1432		
SR 3.0.3	-	Same as NUREG-1432		
SR 3.0.4	None	SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.	SR 3.0.4 is only applicable for MODE change.	
3.1 REACTIVITY CONTROL SYSTEMS				

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.1.1 SHUTDOWN MARGIN (SDM)	3.1.1 SHUTDOWN MARGIN (SDM) LCO 3.1.1 SDM shall be within the limits specified in the COLR. APPLICABILITY MODES 3, 4, and 5.	3.1.1 SHUTDOWN MARGIN (SDM) – T_{cold} > 99 °C (210 °F) LCO 3.1.1 a. SDM shall be within the limits specified in the COLR. b. k_{N-1} shall be < 0.99. c. With reactor trip circuit breakers (RTCBs) closed: Reactor criticality shall not be achieved with shutdown group CEA movement. APPLICABILITY MODES 3 and 4.	SDM specifications are divided into 2 sections according to the applicable mode dependent shutdown margin in APR1400. Also, the SDM specifications according to RTCB condition are considering the assumptions of the safety analyses.	LCO 3.1.1 is divided into LCO 3.1.1 and LCO 3.1.2 for APR1400
	None	3.1.2 SHUTDOWN MARGIN (SDM) – T_{cold} ≤ 99 °C (210 °F) LCO 3.1.2 a. SDM shall be within the limits specified in the COLR. b. k_{N-1} shall be < 0.99. c. With reactor trip circuit breakers (RTCBs) closed: Reactor criticality shall not be achieved with shutdown group CEA movement. APPLICABILITY MODES 5.		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.1.2 Reactivity Balance	-	Same as NUREG-1432		
3.1.3 Moderator Temperature Coefficient (MTC)	LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR, and a maximum positive limit as specified below: a. [0.5 E-4 Δk/k/°F] when THERMAL POWER is ≤ 70% RTP and b. [0.0 Δk/k/°F] when THERMAL POWER is > 70% RTP.	LCO 3.1.4 The MTC shall be maintained within the limits specified in the COLR, and a maximum positive limit that varies linearly from 0.9 x 10^{-4} Δk/k/°C (0.5 x 10^{-4} Δk/k/°F) at 0% RTP to 0.0 Δk/k/°C (0.0 Δk/k/°F) at 100% RTP.	Positive MTC limits are specified as a linear function of power in APR1400.	
	SURVEILLNACE SR 3.1.3.1 Verify MTC is within the upper limit specified in the COLR.	SURVEILLANCE SR 3.1.4.1 Verify MTC is within the upper limit.	Positive MTC limits are not in the COLR in APR1400.	
3.1.4 Control Element Assembly Alignment (CEA)	CONDITION A. One or more CEAs misaligned from its group by > [7 inches] and ≤ [19 inches] OR One CEA misaligned from its group by > [19 inches].	CONDITION A. One or more regulating CEAs trippable and misaligned from its group by > 16.8 cm (6.6 in) and ≤ 48.3 cm (19 in). OR One regulating CEA trippable and misaligned from its group by > 48.3 cm (19 in). B. One or more shutdown CEAs trippable and misaligned from its group by > 16.8 cm (6.6 in) and ≤ 48.3 cm (19 in).	Required Actions are divided into 3 parts, with the types of CEAs	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		OR One shutdown CEA trippable and misaligned from its group by > 48.3 cm (19 in). C. One or more part strength CEAs misaligned from its group by > 16.8 cm (6.6 in) and ≤ 48.3 cm (19 in). OR One part strength CEA misaligned from its group by > 48.3 cm (19 in).		
	REQUIRED ACTION A.1 Reduce THERMAL POWER in accordance with Figure 3.1.4-1. AND A.2 Restore CEA Alignment.	REQUIRED ACTION A.1 Reduce THERMAL POWER in accordance with Figure 3.1.5-1. AND A.2.1 Verify SDM is within the limits specified in the COLR. OR A.2.2 Initiate boration to restore SDM to within limit. AND A.3.1 Restore the misaligned	Required Actions are divided into 3 parts, with the types of CEAs	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		CEA(s) to within 16.8cm (6.6 in) (indicated position) of its group. OR A.3.2 Align the remainder of the CEAs in the group to within 16.8 cm (6.6 in) (indicated position) of the misaligned CEA(s) while maintaining the insertion limit of LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits." B.1 Reduce THERMAL POWER in accordance with Figure 3.1.5-1. AND B.2.1 Verify SDM is within the limits specified in the COLR. OR B.2.2 Initiate boration to restore SDM to within limit. AND B.3 Restore the misaligned CEA(s) to within 16.8 cm (6.6 in) (indicated position) of its		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		group. C.1 Reduce THERMAL POWER in accordance with Figure 3.1.5-1. AND C.2.1 Restore the misaligned CEA(s) to within 16.8 cm (6.6 in) (indicated position) of its group. OR C.2.2 Align the remainder of the CEAs in the group to within 16.8 cm (6.6 in) (indicated position) of the misaligned CEA(s).		
	SURVEILLANCE SR 3.1.4.5 Verify each full length CEA drop time ≤ [3.5] seconds and the arithmetic average of all full length CEA drop times ≤ [3.2] seconds.	SURVEILLANCE SR 3.1.5.5 Verify each full and part strength CEA drop time at 90 % inserted position ≤ 4 seconds.	Part strength CEAs are available in APR1400 and APR1400 procedure is enough to check the CEA drop.	
	Figure 3.1.4-1 Specified in COLR	Figure 3.1.5-1 Specified in TS	Figure 3.1.4-1 is treated non-COLR item in APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.1.5 Shutdown Control Element Assembly (CEA) Insertion Limits	REQUIRED ACTION None A.1 Restore shutdown CEA(s) to within limit.	REQUIRED ACTION A.1.1 Verify SDM is within the limits specified in the COLR. OR A.1.2 Initiate boration to restore SDM to within limit. AND A.2 Restore shutdown CEA(s) to within limit.	Additional specification to verify and restore SDM before the CEA restoration procedure is added in APR1400.	Related COMPLETION TIMEs are added.
	FREQUENCY SR 3.1.5.1 None	FREQUENCY SR 3.1.6.1 ----------NOTE---------- SR 3.1.6.1 shall be performed within 15 minutes prior to withdrawal of any CEAs in regulating groups during an approach to reactor criticality. ----------	A NOTE is added to assure that required SDM is maintained by verifying each shutdown CEA is withdrawn greater than or equal to 367.7 cm (144.75 in) (SR 3.1.6.1) within 15 minutes prior to withdrawal of any CEA in regulating groups during an approach to reactor criticality.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.1.6 Regulating Control Element Assembly (CEA) Insertion Limits	REQUIRED ACTION None A.1 Restore regulating CEA groups to within limits. OR A.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by the CEA group position and insertion limits specified in the COLR. None	REQUIRED ACTION A.1.1 Verify SDM is within the limits specified in the COLR. OR A.1.2 Initiate boration to restore SDM to within limit. AND A.2.1 Restore regulating CEA groups to within limits. OR A.2.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by the CEA group position and insertion limits specified in the COLR. D.1.1 Verify SDM is within limits specified in COLR. OR D.1.2 Initiate boration to restore SDM to within limit. AND	Additional specification to verify and restore SDM before the CEA restoration procedure is added in APR1400.	Related COMPLETION TIMEs are added. .

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	D.1 Restore regulating CEA groups to within limits. OR D.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by CEA group position and short term steady state insertion limit specified in the COLR.	D.2.1 Restore regulating CEA groups to within limits. OR D.2.2 Reduce THERMAL POWER to less than or equal to the fraction of RTP allowed by the CEA group position and insertion limits specified in the COLR.		
3.1.7 Part Length Control Element Assembly (CEA) Insertion Limits	LCO 3.1.7 The part length CEA groups shall be limited to the insertion limits specified in the COLR.	LCO 3.1.8 The part strength CEA groups shall be limited to the insertion limits specified in the COLR.	There is no part length CEA and only part strength CEAs are available in APR1400.	
	CONDITION A. Part length CEA groups inserted beyond the transient insertion limit.	CONDITION None	The CONDITION is not needed for APR1400 since the transient insertion of part strength CEA is not restricted up to the full insertion in APR1400.	
	SURVEILLANCE None	SURVEILLANCE SR 3.1.8.2 Verify the accumulated times during which the part strength CEA groups are inserted beyond the long term steady state insertion limits.	The surveillance requirement for the verification of the accumulated time beyond the long term steady state insertion limits is added to be consistent with CONDITION A. of ACTIONS.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
Addition - Charging Flow	None	LCO 3.1.9 Charging flow shall be maintained below 567.8 L/min (150 gpm) by closing charging flow restriction orifice bypass valve and removing the power to the above valve. APPLICABILITY MODE 5 during MID-LOOP operation for maintenance	Charging flow restriction during MODE 5 (MID-LOOP operation) is an assumption of initial condition for safety analysis as described in the APR1400 DCD Tier2, Chapter 15.	Related ACTIONS and SURVEILLANCE REQUIREMENT are added.
3.1.8 Special Test Exceptions (STE) - SHUTDOWN MARGIN (SDM)	LCO 3.1.8 During performance of PHYSICS TESTS, the requirements of: LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," LCO 3.1.5, "Shutdown Control Element Assembly (CEA) Insertion Limits," and LCO 3.1.6, "Regulating Control Element Assembly (CEA) Insertion Limits," None	LCO 3.1.10 During performance of criticality test or measurement of CEA worth and SDM, the requirements of: LCO 3.1.1, “SHUTDOWN MARGIN (SDM): T_{cold} > 99 °C (210 °F)” LCO 3.1.6, “Shutdown Control Element Assembly (CEA) Insertion Limits” LCO 3.1.7, “Regulating Control Element Assembly (CEA) Insertion Limits” LCO 3.3.1, “Reactor Protection System (RPS) Instrumentation - Operating”(Only applied to Trip Functions 2, 14, and 15 in Table 3.3.1-1)	Criticality test is added due to the STE of RPS Instrumentation LCO. RPS bypass setpoint change is determined as a STE during a previous plant startup test. Therefore the criticality test and related SR are added.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	None	LCO 3.3.2, “Reactor Protection System (RPS) Instrumentation - Shutdown”(Only applied to Trip Function 1 in Table 3.3.2-1)		
	may be suspended for measurement of CEA worth, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.	may be suspended, provided shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion or the reactor is subcritical by at least the reactivity equivalent of the highest CEA worth.	The last underlined blue sentence is added due to criticality test and dynamic rod worth measurement.	
	SURVEILLANCE SR 3.1.8.2 ----------NOTE---------- Not required to be performed during initial power escalation following a refueling outage if SR 3.1.4.5 has been met. ----------	SURVEILLANCE SR 3.1.10.2 None	The change reflects APR1400 design.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	None	SR 3.1.10.3 ----------NOTE---------- Applicable to operation in MODE 3 only. ---------- Verify that when all full strength CEAs are fully inserted, the reactor is subcritical by more than the above required shutdown reactivity equivalent.	The SR 3.1.10.3 is added due to the critical test.	
	None	SR 3.1.10.4 Perform CHANNEL FUNCTIONAL TESTS of each logarithmic and variable overpower neutron flux monitoring channel.	The SR 3.1.10.4 is added due to the due to the application of STE for RPS Instrumentation LCO.	
	FREQUENCY SR 3.1.8.2 Once within [7 days] prior to reducing SDM to less than the limits of LCO 3.1.1	FREQUENCY SR 3.1.10.2 Within 24 hours prior to reducing SDM to less than the limits of LCO 3.1.1	The SR reflects APR1400 design.	
3.1.9 Special Test Exceptions (STE) - MODES 1 and 2 (Digital)	LCO 3.1.9 None	LCO 3.1.11 LCO 3.2.5, “AXIAL SHAPE INDEX (ASI)”	The STE for LCO 3.2.5 of ASI is added for initial startup test. (ex. CPC power distribution test)	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
Addition - Special Test Exception (STE) - Reactivity Coefficient Testing	None	LCO 3.1.12 During performance of PHYSICS TESTS, the requirements of: LCO 3.1.7, “Regulating Control Element Assembly (CEA) Insertion Limits” LCO 3.1.8, “Part Strength CEA Insertion Limits” LCO 3.4.1, “RCS Pressure, Temperature and Flow limits”(LCO 3.4.1.b, RCS Cold Leg Temperature only) may be suspended, provided LHR and DNBR do not exceed the limits specified in their LCOs. APPLICABILITY MODE 1 with Thermal Power > 20 % RTP.	The STE for LCO 3.1.7 and LCO 3.1.8 are added for initial core startup test. The LCO for cold leg temperature is narrow for APR1400, so the LCO 3.4.1.b may be suspended.	Related ACTIONS and SURVEILLANCE REQUIREMENT are added.
3.2 POWER DISTRIBUTION LIMITS				
3.2.1 Linear Heat Rate (LHR)	CONDITION B. LHR not within region of acceptable operation when the COLSS is out of service.	CONDITION B. One OPERABLE core protection calculator (CPC) calculated LHR not within region of acceptable operation when the COLSS is out of service.	Additional description to clarify the condition	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.2.2 Planar Radial Peaking Factors (Fxy)	FREQUENCY SR 3.2.2.1 Once after each fuel loading with THERMAL POWER > 40 % RTP but prior to operations above 70 % RTP	FREQUENCY SR 3.2.2.1 Once after each fuel loading with THERMAL POWER > 40 % RTP but prior to operations above 80 % RTP	The FREQUENCY reflects APR1400 design feature.	
3.2.3 Azimuthal Power Tilt (T_q)	COMPLETION TIME B.2 16 hours	COMPLETION TIME B.2 8 hours	The COMPLETION TIME is more conservative than that of NUREG-1432. The COMPLETION TIME reflects APR1400 design feature.	
3.2.4 Departure From Nucleate Boiling Ratio (DNBR)	LCO 3.2.4 b. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR decreased by the allowance specified in the COLR (when COLSS is inservice and neither CEAC is OPERABLE) c. Operating within the region of acceptable operation of Figure 3.2.4-1 specified in the COLR using any operable core protection calculator (CPC) channel (when COLSS is out of service and either one or both CEACs are OPERABLE), or	LCO 3.2.4 b. Maintaining COLSS calculated core power less than or equal to COLSS calculated core power operating limit based on DNBR decreased by the allowance specified in Figure 3.2.4-1 of the COLR (when COLSS is inservice and neither CEAC is OPERABLE) c. Operating within the region of acceptable operation of Figure 3.2.4-2 specified in the COLR using any operable core protection calculator (CPC) channel (when COLSS is out of service and either one or both CEACs are OPERABLE), or	COLSS calculated core power operating limit is specified as a function of thermal power in Figure 3.2.4-1 for APR1400. Thus, figure index is increased compared to NUREG-1432.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	d. Operating within the region of acceptable operation of Figure 3.2.4-2 specified in the COLR using any operable CPC channel (when COLSS is out of service and neither CEAC is OPERABLE).	d. Operating within the region of acceptable operation of Figure 3.2.4-3 specified in the COLR using any operable CPC channel (when COLSS is out of service and neither CEAC is OPERABLE).		
	SURVEILLANCE SR 3.2.4.1 Verify DNBR, as indicated on all OPERABLE DNBR channels, is within the limit of Figure 3.2.4-1 or 3.2.4-2 of the COLR, as applicable.	SURVEILLANCE SR 3.2.4.1 Verify DNBR, as indicated on all OPERABLE DNBR channels, is within the limit of Figure 3.2.4-2 or 3.2.4-3 of the COLR, as applicable.	COLSS calculated core power operating limit is specified as a function of thermal power in Figure 3.2.4-1 for APR1400. Thus, figure index is increased compared to NUREG-1432.	
3.2.5 AXIAL SHAPE INDEX (ASI)	-	Same as NUREG-1432		
3.3 INSTRUMENTATION				
3.3.1 Reactor Protective System (RPS) Instrumentation - Operating	LCO 3.3.1 Four RPS trip and bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.	LCO 3.3.1 Four RPS trip and associated operating bypass removal channels for each Function in Table 3.3.1-1 shall be OPERABLE.	The LCO is changed to clarify the bypass function and clarify the meaning of the bypass removal.	
	ACTIONS None	ACTIONS ----------NOTE---------- 2. When one channel is bypassed and the bypassed condition exceeds 7 days, whether the operation with bypass state in one channel is allowed during Completion Times identified in Required Action A.2 or C.2.2	The NOTE is described to add the administrative control when one channel is bypassed. This is an intrinsic design characteristic of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		shall be reviewed within the next 24 hours in accordance with administrative controls. ----------		
	REQUIRED ACTION None	REQUIRED ACTION (Item B.1) ----------NOTE---------- LCO 3.0.4 is not applicable. ---------- (Item D.1) ----------NOTE---------- LCO 3.0.4 is not applicable. ----------	Operational mode can be changed after action. This is an intrinsic design characteristic of APR1400.	
	CONDITION E. One or more core protection calculator (CPC) channels with a cabinet high temperature alarm. F. One or more CPC channels with three or more autorestarts during 1 12 hour period.	None None	Channel function test is not performed in APR 1400, when high temperature alarm of CPC is generated. There is no autorestart function in APR 1400.	
	SURVEILLANCE SR 3.3.1.1 Perform a CHANNEL CHECK of each RPS instrument channel except Loss of Load.	SURVEILLANCE SR 3.3.1.1 Perform CHANNEL CHECK of each RPS instrument channel.	APR1400 does not have trip function by loss of load. This is an intrinsic design characteristic of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.3.1.2 & SR 3.3.1.5 ----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER ≥ 70% RTP. ---------- SR 3.3.1.3 Check the CPC auto restart count. SR 3.3.1.4 ----------NOTE---------- 1. Not required to be performed until 12 hours after THERMAL POWER ≥ 20% RTP. ---------- Perform calibration (heat balance only) and adjust the linear power level signals and the CPC addressable constant multipliers to make the CPC ΔT power and CPC nuclear power calculations agree with the calorimetric, if the absolute difference is ≥ [2]%.	SR 3.3.1.2 & SR 3.3.1.5 ----------NOTE---------- The performance shall be completed within 12 hours after THERMAL POWER ≥ 80% RTP. ---------- SR 3.3.1.3 Check CPC system event log. SR 3.3.1.4 ----------NOTE---------- 1. The performance shall be completed within 12 hours after THERMAL POWER ≥ 15% RTP. ---------- Perform calorimetric calculation and adjust linear power, CPC ΔT, and CPC neutron flux power to agree with calorimetric calculation if any of the linear power, CPC ΔT, and CPC neutron flux power is less than calorimetric calculation by more than 0.5%.	THERMAL POWER for heat balance calibration is considered. This is an intrinsic design characteristic of APR1400. There is no autorestart function in APR 1400. The CPC System Event Log is checked every 12 hours to monitor the CPCS channel performance. The SR is changed to clarify the meaning, considering operability and safety. This is an intrinsic design characteristic of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.3.1.6 ----------NOTE---------- Not required to be performed until 12 hours after THERMAL POWER ≥ 15% RTP. ----------	SR 3.3.1.6 ----------NOTE---------- The performance shall be completed within 12 hours after THERMAL POWER ≥ 15% RTP. ----------	The SR is changed to clarify the meaning. This is an intrinsic design characteristic of APR1400.	
	SR 3.3.1.7 ----------NOTE---------- 1. The CPC CHANNEL FUNCTIONAL TEST shall include verification that the correct values of addressable constants are installed in each OPERABLE CPC. 2. Not required to be performed for logarithmic power level channels until 2 hours after reducing logarithmic power below 1E-4% and only if reactor trip circuit breakers (RTCBs) are closed. ---------- Perform CHANNEL FUNCTIONAL TEST on each channel except Loss of Load and power range neutron flux in accordance with the Setpoint Control Program.	SR 3.3.1.7 ----------NOTE---------- 1. The CPC CHANNEL FUNCTIONAL TEST includes verification that correct values of addressable constants are installed in each OPERABLE CPC. 2. Not required to be performed for Logarithmic Power Level – High until 2 hours after reducing THERMAL POWER below 1E-3% RTP and only if Reactor Trip Switch Gears (RTSGs) are open. ---------- Perform CHANNEL FUNCTIONAL TEST for each RPS instrumentation channel in accordance with the Setpoint Control Program.	NOTE 1 is an editorial change. NOTE 2 reflects intrinsic design characteristic of APR1400. APR1400 does not have trip function by loss of load.	
	SR 3.3.1.9 ----------NOTE---------- [Not required to be performed until 2 hours after THERMAL POWER ≥	SR 3.3.1.9 None	APR1400 does not have trip function by loss of load.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	55% RTP. --- Perform CHANNEL FUNCTIONAL TEST for Loss of Load Function in accordance with the Setpoint Control Program.			
	Frequency SR 3.3.1.7 & SR 3.3.1.8 92 days SR 3.3.1.12 Once after each refueling prior to exceeding 70% RTP SR 3.3.1.13 Once within 92 days prior to each reactor startup	Frequency SR 3.3.1.7 & SR 3.3.1.8 31 days SR 3.3.1.11 Once after each refueling prior to exceeding 80% RTP SR 3.3.1.12 Once within 31 days prior to each reactor startup	Frequencies of SR 3.3.1.7 and SR 3.3.1.8 are More conservative surveillance frequency than NUREG1432. THERMAL POWER for heat balance calibration is considered. This is an intrinsic design characteristic of APR1400. The SR is more conservative surveillance frequency than NUREG1432.	
3.2.2 Reactor Protective System (RPS) Instrumentation – Shutdown	LCO 3.3.2 Four RPS Logarithmic Power Level - High trip channels and associated instrument and bypass removal channels shall be OPERABLE.	LCO 3.3.2 Four RPS trip and bypass removal channels for each Function in Table 3.3.2-1 shall be OPERABLE.	The LCO is changed to refer the functions listed in Table 3.3.2-1.	
	APPLICABILITY MODES 3, 4, and 5, with any reactor trip circuit breakers (RTCBs) closed and any control element assembly capable of being withdrawn.	APPLICABILITY According to Table 3.3.2-1	The table is added for addition of bypass variable list.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	----------NOTE---------- Bypass may be enabled when logarithmic power is > [1E-4]% and shall be capable of automatic removal whenever logarithmic power is > [1E-4]%. Bypass shall be removed prior to reducing logarithmic power to a value ≤ [1E-4]%. ----------			
	ACTIONS None	ACTIONS ----------NOTE---------- 1. Separate Condition entry is allowed for each RPS Function. 2. When one channel is bypassed and the bypassed condition exceeds 7 days, whether the operation with bypass state in one channel is allowed during Completion Times identified in Required Action A.2 or C.2.2 shall be reviewed within the next 24 hours in accordance with Administrative Control. ----------	1. The NOTE is added to clarify the meaning. 2. The NOTE is described to add the administrative control when one channel is bypassed.	
	CONDITION A. One RPS logarithmic power level trip channel inoperable. B. Two RPS logarithmic power level trip channels inoperable.	CONDITION A. One or more Functions with one automatic RPS trip channel inoperable. B. One or more Functions with two trip channels inoperable.	Variables are added as shown in Table 3.3.2-1.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE None	SURVEILLANCE ----------NOTE---------- Refer to Table 3.3.2-1 to determine which SR shall be performed for each RPS Function.	Note is added to refer to table 3.3.2-1 for each SR.	Table 3.3.2-1 is added.
	FREQUENCY SR 3.3.2.2 [92 days] SR 3.3.2.3 Once within 92 days prior to each reactor startup	FREQUENCY SR 3.3.2.2 31 days SR 3.3.2.3 Once within 31 days prior to each reactor startup	The FREQUENCY is more conservative than that of NUREG-1432.	
3.3.3 Control Element Assembly Calculators (CEACs)	LCO 3.3.3 Two CEACs shall be OPERABLE.	LCO 3.3.3 Two CEACs shall be OPERABLE in each Core Protection Calculator System (CPCS) channel.	The deviations reflect the changes of CPCS structure compared with legacy CPCS structure. (There are two CEACs for all channels in legacy CPCS but two CEACs for each channel in APR1400.)	
	ACTIONS None	ACTIONS ----------NOTE---------- Separate Condition entry is allowed for each CPCS channel. ----------		
	CONDITION A. One CEAC inoperable.	CONDITION A. One CEAC inoperable in one or more CPCS channels.		
	REQUIRED ACTION A.1 Perform SR 3.1.4.1	REQUIRED ACTION A.1 Declare affected CPCS channel(s) inoperable OR A.2.1 Verify indicated position of each full and part strength	The REQUIRED ACTION is changed to the result of safety analysis.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		CEA is within 16.8 cm (6.6 in) of all other CEAs in its group.		
	CONDITION B. Both CEACs inoperable.	CONDITION B. Both CEACs inoperable in one or more CPCS channels.	The deviations reflect APR1400 CPCS design.	
	REQUIRED ACTION None	REQUIRED ACTION B.1 Declare affected channel(s) inoperable. OR	The deviations reflect APR1400 CPCS design.	
	B.1 Verify the departure from nucleate boiling ratio requirement of LCO 3.2.4, "Departure from nucleate boiling ratio (DNBR)", is met [and the Reactor Power Cutback System is disabled]. AND B.2 Verify all full strength and part strength CEA groups are fully withdrawn and maintained fully withdrawn, except during Surveillance testing pursuant to SR 3.1.4.3[or for control, when CEA group #6 may be inserted to a maximum of 127.5 inches.	B.2.1 Verify departure from nucleate boiling ratio requirement of LCO 3.2.4 is met and Reactor Power Cutback System (RPCS) is disabled. AND B.2.2 Verify all full strength and part strength CEA groups are fully withdrawn and maintained fully withdrawn, except during Surveillance testing pursuant to SR 3.1.5.3, or for power control, when CEA group #5 may be inserted to a maximum of 323.9 cm (127.5 in).		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	AND B.3 Verify the "RSPT/CEAC Inoperable" addressable constant in each core protection calculator(CPC) is set to indicate that both CEACs are inoperable. AND B.4 Verify the Control Element Drive Mechanism Control System is placed in "OFF" and maintained in "OFF", except during CEA motion permitted by Required Action B.2. AND B.5 Perform SR 3.1.4.1	AND B.2.3 Verify addressable constant in each affected CPC is set to indicate that all two CEACs are inoperable and "RSPT/CEAC inoperable" status is indicated. AND B.2.4 Verify Digital Rod Control System (DRCS) is placed in "standby" and maintained in "standby", except during CEA motion permitted by Required Action B.2.2. AND B.2.5 Verify indicated position of each full and part strength CEA is within 16.8 cm(6.6 in) of all other CEAs in its group.		
	CONDITION C. Receipt of a CPC channel B or C cabinet high temperature alarm.	CONDITION C. Required Action and associated Completion time of Condition B not met.	The deviations reflect APR1400 CPCS design.	
	REQUIRED ACTION C.1 Perform CHANNEL FUNCTIONAL TEST on affected CEAC(s).	REQUIRED ACTION C.1 Be in MODE 3.		
	COMPLETION TIME	COMPLETION TIME		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	C.1 12 hours	C.1 6 hours		
	CONDITION D. One or two CEACs with three or more auto restarts during a 12 hour period.	CONDITION None	The deviations reflect APR1400 CPCS design.	
	E. Required Action and associated Completion Time of Condition B, C, or D not met.	None	The deviations reflect APR1400 CPCS design.	
	SURVEILLANCE SR 3.3.3.2 Check the CEAC auto restart count.	SURVEILLANCE SR 3.3.3.2 Check CPC system event log.	There is no auto restart function in APR 1400. The CPC System Event Log is checked every 12 hours to monitor the CPCS channel performance.	
	SR 3.3.3.5 Perform a CHANNEL FUNCTIONAL TEST in accordance with the Setpoint Control Program.	SR 3.3.3.5 Perform CHANNEL FUNCTIONAL TEST in accordance with the Setpoint Control Program (including annunciation and trip function test).	The contents are clarified.	
	SR 3.3.3.6 Verify the isolation characteristics of each CEAC isolation amplifier and each optical isolator for CEAC to CPC data transfer in accordance with the Setpoint Control Program.	None	The deviations reflect APR1400 CPCS design.	
	FREQUENCY SR 3.3.3.3 [92 days]	FREQUENCY SR 3.3.3.3 31 days	To ensure the entire channel will perform its intended	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
			function when needed.	
3.3.4 Reactor Protective System (RPS) Logic and Trip Initiation	LCO 3.3.4 Six channels of RPS Matrix Logic, four channels of RPS Initiation Logic, [four channels of reactor trip circuit breakers (RTCBs),] and four channels of Manual Trip shall be OPERABLE.	LCO 3.3.4 Four RPS logic channels (Coincidence, Initiation Logic), four channels of Reactor Trip Switch Gears (RTSGs), and four manual trip channels shall be OPERABLE.	APR1400 RPS does not have Matrix logic but coincidence logic.	
	CONDITION A. One Matrix Logic channel inoperable. OR Three Matrix Logic channels inoperable due to a common power source failure deenergizing three matrix power supplies. B. One channel of manual Trip, RTCBs, or Initiation Logic inoperable in MODE 1 or 2.	CONDITION None A. ----------NOTE---------- RTSGs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ---------- One channel of RTSGs, one manual trip channel, or one RPS logic channel inoperable in MODE 1 or 2.	There is no Matrix logic in APR1400 RPS. The RTSG condition for channel function test is added. This is an intrinsic design characteristic of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	C. One channel of manual Trip, RTCBs, or Initiation Logic inoperable in MODE 3, 4, or 5.	B. ----------NOTE---------- RTSGs associated with one inoperable channel may be closed for up to 1 hour for the performance of an RPS CHANNEL FUNCTIONAL TEST. ---------- One channel of RTSGs, one manual trip channel, or one RPS logic channel inoperable in MODE 3,4, or 5.	The RTSG condition for channel function test is added. This is an intrinsic design characteristic of APR1400.	
	E. Required Action and associated Completion Time of Condition A, B,or D not met. OR One or more Functions with more than one Manual Trip, Matrix Logic, Initiation Logic, or RTCB channel inoperable for reasons other than Condition A or D.	D. Required Action and associated Completion Time of Condition A or C not met. OR One or more Functions with more than two RPS logic channels, manual trip channels, or RTSG channels inoperable for reasons other than Condition C.	APR1400 RPS does not have Matrix logic but coincidence logic.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE SR 3.3.4.1 Perform a CHANNEL FUNCTION TEST on each RTCB channel. SR 3.3.4.2 Perform a CHANNEL FUNCTION TEST on each RPS Logic channel	SURVEILLANCE SR 3.3.4.1 Perform a CHANNEL FUNCTION TEST on each RPS logic channel and RTSG channel.	The SRs for RPS logic channel and RTSG channel are merged into SR 3.3.4.1.	
	FREQUENCY SR 3.3.4.2 [92 days] SR 3.3.4.4 Once within 7 days prior to each reactor startup	FREQUENCY SR 3.3.4.1 31 days SR 3.3.4.3 31 days	The FREQUENCYs are more conservative than that of NUREG-1432.	
3.3.5 Engineered Safety Features Actuation System (ESFAS) Instrumentation	ACTIONS None	ACTIONS ----------NOTE---------- When one channel is bypassed and the bypassed condition exceeds 7 days duration, it shall be reviewed in 24 hours whether to maintain the operation in bypassed condition within the specified Completion Time of the Required Action 1.2 or administrative control. ----------	The NOTE is described to add the administrative control when one channel is bypassed.	
	REQUIRED ACTION None	REQUIRED ACTION (For Item B & D) ----------NOTE---------- LCO 3.0.4 is not applicable ----------	Operational mode can be changed after action. This is an intrinsic design characteristic of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	None	(For Item E.1) ----------NOTE---------- Only applicable to the functions 3, 5 and 6 of Table 3.3.5-1. ----------	The shutdown risk evaluation for APR1400 is incorporated to clarify the ESFAS functions required to each mode for shutdown.	
	None	(For Item F.1) ----------NOTE---------- Only applicable to the functions 1,2 and 4 of Table 3.3.5-1 ----------		
	FREQUENCY SR 3.3.5.2 [92 days]	FREQUENCY SR 3.3.5.2 31 days	The FREQUENCYs are more conservative than that of NUREG-1432.	
	SR 3.3.5.5 Once within 92 days prior to each reactor startup	SR 3.3.5.5 Once within 31 days prior to each reactor startup		
3.3.6 Engineered Safety Features Actuation System (ESFAS) Logic and Manual Trip	LCO 3.3.6 Six channels of ESFAS Matrix Logic, four channels of ESFAS Initiation Logic, two channels of Actuation Logic, and two channels of Manual Trip shall be OPERABLE for each Function in Table 3.3.6-1.	LCO 3.3.6 Four channels of ESFAS Coincidence Logic, four channels of ESFAS Initiation Logic, four channels of Actuation Logic, and four channels of Manual Trip shall be OPERABLE for each Function in Table 3.3.6-1.	APR1400 ESFAS does not have Matrix logic but coincidence logic.	
	CONDITION A. ----------NOTE---------- This action also applies when three Matrix Logic channels are inoperable due to a common power source failure de-energizing three matrix power supplies. ----------	CONDITION A. One or more Functions with one Coincidence Logic channel, Initiation Logic channel, or Manual Trip channel inoperable.	APR1400 ESFAS does not have Matrix logic but coincidence logic. CONDITION A and B of NUREG-1432 are integrated into CONDITION A of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	One or more Functions with one Matrix Logic channel inoperable. B. One or more Functions with one Manual Trip or Initiation Logic channel inoperable E. Two Actuation Logic channels inoperable. OR Required Action and associated Completion Time no met.	D. One or more Functions with one Diverse Manual ESF Actuation Channels inoperable E. Required Action and associated Completion Time not met. F. Required Action and associated Completion Time not met.	This is an intrinsic design characteristic of APR1400. The shutdown risk evaluation for APR1400 is incorporated to clarify the ESFAS functions required to each mode for shutdown.	
	SURVEILLANCE SR 3.3.6.2 ----------NOTE---------- Relays exempt from testing during operation shall be tested during each MODE 5 entry exceeding 24 hours unless tested during the previous 6 months. ---------- Perform a subgroup relay test of	SURVEILLANCE SR 3.3.6.2 ----------NOTE---------- Components exempt from testing during operation shall be tested once every 18 month(MODE 6) or in MODE 5 if not tested until the previous 62 days. Subgroup of Actuation Logic channel A, C and B, D shall be tested on a staggered basis. ---------- Perform a verification of the	This is an intrinsic design characteristic of APR1400. APR1400 ESF-CCS does not have subgroup relays but the logic for subgroup control.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	each Actuation Logic channel, which includes the de-energization of each subgroup relay and verification of the OPERABILITY of each subgroup relay.	OPERABILITY of subgroup for Actuation signal of each Actuation Logic channel		
	SR 3.3.6.3 Perform a CHANNEL FUNCTIONAL TEST on each ESFAS Manual Trip channel.	SR 3.3.6.3 Perform a CHANNEL FUNCTIONAL TEST on each Diverse Manual ESFAS Actuation channel.	This is an intrinsic design characteristic of APR1400.	
	FREQUENCY SR 3.3.6.1 92 days SR 3.3.6.2 184 days	FREQUENCY SR 3.3.6.1 31 days SR 3.3.6.2 31 days on a STAGGERED TEST BASIS	The FREQUENCYs are more conservative than that of NUREG-1432.	
3.3.7 Diesel Generator (DG) - Loss of Voltage Start (LOVS)	-	Same as NUREG-1432		The name of DG is changed. - DG → EDG (Emergency Diesel Generator)
3.3.8 Containment Purge Isolation Signal (CPIS)	APPLICABILITY MODES 1, 2, 3, and 4, During movement of [recently] irradiated fuel assemblies within containment.	APPLICABILITY MODES 1, 2, 3, and 4, During CORE ALTERATIONS, During movement of irradiated fuel assemblies within containment.	The APPLICABILITY reflects APR1400 practice.	Item name is changed. - CPIS → CPIAS (Containment Purge Isolation Actuation Signal)

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	REQUIRED ACTION B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 Be in MODE 5.	The REQUIRED ACTION is a conservative approach.	Related COMPLETION TIME is changed.
	CONDITION C. CPIS Manual Trip, Actuation Logic, or one or more required channels of radiation monitors inoperable during movement of [recently] irradiated fuel assemblies within containment.	CONDITION C. CPIAS Manual Actuation, Actuation Logic, or one or more required channels of radiation monitors inoperable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment.	The deviations reflect the APPLICABILITY practice.	
	REQUIRED ACTION None C.2 Suspend movement of [recently] irradiated fuel assemblies in containment.	REQUIRED ACTION C.2.1 Suspend CORE ALTERATIONS. AND C.2.2 Suspend movement of irradiated fuel assemblies in containment.	The deviations reflect the APPLICABILITY practice.	
	SURVEILLANCE SR 3.3.8.4 ----------NOTE---------- Only required to be met during movement of irradiated fuel assemblies within containment. ----------	SURVEILLANCE ----------NOTE---------- This SR is only applicable during CORE ALTERATIONS or during movement of irradiated fuel assemblies within containment. ----------	The deviations reflect the APPLICABILITY practice.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.3.9 Control Room Isolation Signal (CRIS)	APPLICABILITY MODES 1, 2, 3, 4, [5, and 6], During movement of [recently] irradiated fuel assemblies.	APPLICABILITY MODES 1, 2, 3, and 4, During CORE ALTERATIONS, During movement of irradiated fuel assemblies.	The APPLICABILITY reflects APR1400 practice.	Item name is changed. - CRIS → CREVAS (Control Room Emergency Ventilation Actuation Signal)
	REQUIRED ACTION A.1 ----------NOTE---------- Place Control Room Emergency Air Cleanup System (CREACS) in toxic gas protection mode if automatic transfer to toxic gas protection mode inoperable. ---------- B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION None B.2 Be in MODE 5.	The REQUIRED ACTION reflects APR1400 design feature. The REQUIRED ACTION is a conservative approach.	 Related COMPLETION TIME is changed.
	CONDITION C. CRIS Manual Trip, Actuation Logic, or required particulate/iodine or gaseous radiation monitors inoperable [in MODE 5 or 6], or during movement of [recently] irradiated fuel assemblies.	CONDITION C. CREVAS Manual Actuation, Actuation Logic, or Radiation Monitors channels inoperable, during CORE ALTERATIONS, or during movement of irradiated fuel assemblies.	The deviation reflects the APPLICABILITY change.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	REQUIRED ACTION C.2.2 ----------NOTE---------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ---------- None	REQUIRED ACTION None C.2.3 Suspend CORE ALTERATIONS.	The REQUIRED ACTION reflects APR1400 design feature. The deviation reflects the APPLICABILITY change.	
	SURVEILLANCE SR 3.3.9.3 ----------NOTE---------- 2. Relays associated with plant equipment that cannot be operated during plant operation are required to be tested during each MODE 5 entry exceeding 24 hours unless tested within the previous 6 months. ----------	SURVEILLANCE None	The SR reflects APR1400 design feature.	
3.3.10 Fuel Handling Isolation Signal (FHIS)	ACTION ----------NOTE---------- LCO 3.0.3 is not applicable. A. [Actuation Logic, Manual Trip, or [one or more required channels of particulate/iodine and gaseous] radiation monitors inoperable in MODE 1, 2, 3, or 4.] B. [Required Action and associated Completion Time of Condition A not met.]	ACTION None	The deviations reflect APR1400 design feature. FHEVAS is not applicable to Modes 1,2,3, and 4.	Item name is changed. - FHIS → FHEVAS (Fuel Handling Area Emergency Ventilation Actuation Signal)

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.3.11 Post Accident Monitoring (PAM) Instrumentation	ACTION None	ACTION ----------NOTE---------- 1. LCO3.0.4 is not applicable.	Note 1 has been added in the ACTIONS to exclude the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE while relying on the ACTIONS, even though the ACTIONS may eventually require plant shutdown. This exception is acceptable due to the passive function of the instruments, the operator's ability to monitor an accident using alternate instruments and methods, and the low probability of an event requiring these instruments.	Item name is changed. - PAM Instrumentation → AMI (Accident Monitoring Instrumentation)
	COMPLETION TIME A.1 30 days	COMPLETION TIME A.1 31 days	The COMPLETION TIME is unified a month from 30 days to 31 days.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.3.12 Remote Shutdown System	LCO 3.3.12 The Remote Shutdown System Functions shall be OPERABLE.	LCO 3.3.12 The Remote Shutdown Display and Control Functions in Table 3.3.12-1 shall be OPERABLE.	APR1400 identifies the term "System" as "Display and Control". - Item Name is changed: "Remote Shutdown System" → "Remote Shutdown Display and Control"	APR1400 identifies display and control as Table 3.3.12-1
	ACTION ----------NOTE---------- Separate Condition entry is allowed for each Function. ----------	ACTION ----------NOTE---------- 1. LCO 3.0.4 is not applicable 2. Separate Condition entry is allowed for each Function. ----------	Added a Note "LCO 3.0.4 is not applicable" so as not to prohibit or hinder operator to enter the specified Operating Mode and Status during shutdown to execute the unsatisfied required action base on the referenced plants.	
	COMPLETION TIME A.1 30 days	COMPLETION TIME A.1 31 days	The COMPLETION TIME is unified a month from 30 days to 31 days.	
3.3.13 [Logarithmic] Power Monitoring Channels	REQUIRED ACTION A.2 Perform SDM verification in accordance with SR 3.1.1.1.	REQUIRED ACTION A.2 Perform SDM verification in accordance with SR 3.1.1.1 if T_{cold} > 99°C (210°F) or SR3.1.2.1 if T_{cold} ≤ 99°C (210°F).	SR 3.1.1.1 of NUREG-1432 is separately described with SR 3.1.1.1 (T_{cold} > 99°C) and SR 3.1.2.1 (T_{cold} ≤ 99°C).	
	FREQUENCY SR 3.3.13.2 92 days	FREQUENCY SR 3.3.13.2 31 days	The FREQUENCY is a plant-specific data, and it is matched with the interfacing system (3.3.1 RPS).	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
Addition - Boron Dilution Alarms	None	LCO 3.3.14 Two startup channel high neutron flux alarms shall be OPERABLE. APPLICABILITY MODES 3, 4 and 5. ----------NOTE---------- MODE 3, within 1 hour after the neutron flux is within the startup range following a reactor shutdown.	The OPERABILITY of BDAS channels is necessary to meet the assumptions of the safety analyses as described in the APR1400 DCD Tier2, Chapter 15.	Related ACTIONS and SURVEILLANCE REQUIREMENT are added.
3.4 REACTOR COOLANT SYSTEM (RCS)				
3.4.1 RCS Pressure, Temperature, and Flow [Departure from Nucleate Boiling (DNB)] Limits	LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR.	LCO 3.4.1 RCS departure from nucleate boiling (DNB) parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified below. a. Pressurizer pressure ≥ 154.7 kg/cm^{2}A (2,201 psia) and ≤ 161.6 kg/cm^{2}A (2,299 psia); b. RCS cold leg temperature (T_{cold}) ≥ 286.7℃ (548˚F) and ≤ 293.3℃ (560˚F) for < 90% RTP, or ≥ 289.4℃ (553˚F) and ≤ 293.3℃ (560˚F) for ≥ 90% RTP; and c. RCS total flow rate ≥ 75.6 ×10^6 kg/hr (166.6 ×10^6 lb/hr).	COLR is not applicable for this item.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	APPLICABILITY MODE 1 ----------NOTE---------- Pressurizer pressure limit does not apply during: a. THERMAL POWER ramp > 5% RTP per minute or b. THERMAL POWER step > 10% RTP. ----------	APPLICABILITY MODES 1 and 2 for pressurizer pressure. MODE 1 for RCS cold leg temperature (T_{cold}). MODE 2 (k_{eff}≥1)for RCS cold leg temperature (T_{cold}). MODE 1 for RCS total flow rate.	The addition of MODE 2 for the DNB LCO reflects APR1400 practice.	
	CONDITION A. Pressurizer Pressure or RCS flow rate not within limit C. RCS cold leg temperature not within limits.	CONDITION A. RCS total flow rate not within limit. C. Pressurizer pressure or RCS cold leg temperature not within limit	LCO for RCS flow rate is only applied to MODE 1 in APPLICABILITY. So, the condition for the flow rate is separated from the pressurizer (PZR) pressure. LCOs for PZR pressure and cold leg temperature are applied to MODES 1 and 2 in APPLICABILITY. So, PZR pressure is merged into the cold leg temperature. When the LCOs are not met, the condition shall be changed into the not-applicable MODE.	
	REQUIRED ACTION D.1 Reduce THERMAL POWER to ≤[30]% RTP	REQUIRED ACTION D.1 Be in Mode 3	The deviation reflects the APR1400 plant specific operating practice.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE SR 3.4.1.1 Verify pressurizer pressure is within the limits specified in the COLR. SR 3.4.1.2 Verify RCS cold leg temperature is within the limits specified in the COLR. SR 3.4.1.3 ----------NOTE---------- Only required to be met in MODE 1. ---------- Verify RCS total flow rate is greater than or equal to the limits specified in the COLR. SR 3.4.1.4 ----------NOTE---------- Not required to be performed until [24] hours after ≥ [90]% RTP. ---------- Verify by precision heat balance that RCS total flow rate is within limits specified in the COLR	SURVEILLANCE SR 3.4.1.1 Verify pressurizer pressure ≥ 154.7 kg/cm^{2}A (2,201 psia) and ≤ 161.6 kg/cm^{2}A (2,299 psia). SR 3.4.1.2 Verify RCS cold leg temperature ≥ 286.7℃ (548˚F) and ≤ 293.3℃ (560˚F) for < 90% RTP or ≥ 289.4℃ (553˚F) and ≤ 293.3℃ (560˚F) for ≥ 90% RTP. SR 3.4.1.3 Verify RCS total flow rate ≥ 75.6 ×10^6 kg/hr (166.6 ×10^6 lb/hr) SR 3.4.1.4 ----------NOTE---------- Not required to be performed until 24 hours after ≥ 95**%** RTP. ---------- Verify by precision heat balance that RCS total flow rate ≥ 75.6 ×10^6 kg/hr 9166.6 ×10^6 lb/hr) and ≤ 86.9 ×10^6 kg/hr (191.6 ×10^6 lb/hr)	COLR is not applied for this item. Higher power is desirable for more accurate measurements. The upper flow limit is also required to be met to ensure the mechanical integrity of the RCS.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	FREQUENCY SR 3.4.1.4 [18] months	FREQUENCY SR 3.4.1.4 31 days	Actual practice for the flow rate adjustment is considered. The RCS flow rate is measured every month in APR1400. (plant specific)	
3.4.2 RCS Minimum Temperature for Criticality	LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ [520] °F.	LCO 3.4.2 Each RCS cold leg temperature (T_{cold}) shall be ≥ 286.7℃ (548 °F).	The operation MODE for APR1400 is defined based on the cold leg temperature.	
	APPLICABILITY MODE 1 with T_{avg} in one or more RCS loops < [535] °F, MODE 2 with T_{avg} in one or more RCS loops < [535] °F and K_{eff} ≥ 1.0.	APPLICABILITY MODE 1, MODE 2 with k_{eff}≥1.0.	The operation MODE is defined based on T_{cold}. It is the practice of APR1400.	
	CONDITION A. T_{avg} in one or more RCS loops not within limit. B.	CONDITION A. RCS T_{cold} in one or more RCS loops not within limit.	To enter into a MODE out of APPLICABILITY	
	REQUIRED ACTION A.1 Be in MODE 2 with K_{eff} < 1.0.	REQUIRED ACTION A.1 Be in MODE 3.		
	FREQUENCY SR 3.4.2.1 [12 hours]	FREQUENCY SR 3.4.2.1 Once within 15 minutes prior to achieving criticality AND ----------NOTE---------- Required if the reactor is critical and RCS T_{cold} < 289.4°C (553°F). ---------- 30 minutes	The first FREQUENCY is to verify LCO more vigilantly when approaching core critical. The second FREQUENCY of 30 minutes is to reduce possibility of inadvertent violation of LCO by frequent surveillance when the reactor is critical.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.4.3 RCS Pressure and Temperature (P/T) Limits	APPLICABILITY At all times	APPLICABILITY At all times (except when reactor vessel closure head is fully de-tensioned such that the RCS cannot be pressurized)	The exception is allowed in MODE 6 with the reactor vessel closure head removed since there is no potential for pressurization and therefore no potential for a non-ductile failure.	
3.4.4 RCS Loops – MODES 1 and 2	LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.	LCO 3.4.4 Two RCS loops shall be OPERABLE and two reactor coolant pumps in each loop shall be in operation.	More specific information is described for "in operation".	
3.4.5 RCS Loops – MODE 3	LCO 3.4.5 [Two] RCS loops shall be OPERABLE and one RCS loop shall be in operation.	LCO 3.4.5 Two RCS loops shall be OPERABLE with steam generators and at least one reactor coolant pump per loop and at least one RCS loop shall be in operation.	The meanings of the REQUIRED ACTIONs are practically the same.	
	REQUIRED ACTION C.1. Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.	REQUIRED ACTION C.1. Suspend all operations involving a reduction of RCS boron concentration.	The meanings of the REQUIRED ACTION are practically the same.	
	SURVEILLANCE SR 3.4.5.3 ----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ----------	SURVEILLANCE SR 3.4.5.3 None	This NOTE is not required for APR1400 (plant specific).	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.4.6 RCS Loops – MODE 4	LCO 3.4.6 ----------NOTE---------- 2. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless: a. Pressurizer water level is < [60]% or b. Secondary side water temperature in each steam generator (SG) is < [100]°F above each of the RCS cold leg temperatures. ----------	LCO 3.4.6 ----------NOTE---------- 2. No RCP shall be started with any RCS cold leg temperatures less than or equal to the LTOP enable temperature specified in the PTLR, unless secondary side water temperature in each steam generator (SG) is < 55.6 °C (100 °F) above each of the RCS cold leg temperatures. ----------	The meanings of the REQUIRED ACTIONs are practically the same. There is no limit for PZR high level because POSRV is qualified for liquid as well.	
	CONDITION A. One required loop inoperable.	CONDITION A. One required RCS loop inoperable. AND Two SC trains inoperable.	LCO requires that two RCS loops or two SC trains are operable and one loop or train is in operation. “One RCS loop inoperable” is not LCO violation if another RCS loop and one of two SC trains are operable and any one of them is in operation. Therefore, combination for LCO violation is defined exactly.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	REQUIRED ACTION A.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Initiate action to make at least one steam generator available for decay heat removal via natural circulation.	REQUIRED ACTION None	Natural circulation cooldown in Mode 4 is not analyzed.	
	CONDITION None B. Two required loops or trains inoperable. OR Required loop or train not in operation.	CONDITION B. One required SC train inoperable. AND Two required RCS loops inoperable. C. Two required RCS loops or SC trains inoperable OR Required RCS loop or SC train not in operation.	LCO requires that two RCS loops or SC trains are operable and one loop or train is in operation. This condition is for defining combination for LCO violation exactly. The meanings of the conditions are practically the same.	
	REQUIRED ACTION B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM of LCO 3.1.1.	REQUIRED ACTION B.1 Be in MODE 5.	The deviations reflect the APR1400 plant specific operating practice. With only one SC train OPERABLE, redundancy for decay heat removal is lost and then, in the event of a loss of the remaining SC train, it would be safer to be in	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
			loss from MODE 5 rather than MODE 4.	
	SURVEILLANCE SR 3.4.6.3 ----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ----------	SURVEILLANCE None	The exception in the SR Note is not necessary because the SR action is not so sensitive to the time after a transient.	
3.4.7 RCS Loops – MODE 5, Loops Filled	LCO 3.4.7 ----------NOTES---------- 3. No RCP shall be started with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR unless: a. Pressurizer water level is < [60]% or b. Secondary side water temperature in each steam generator (SG) is < [100] °F above each of the RCS cold leg temperatures. None ----------	LCO 3.4.7 ----------NOTES---------- 3. No RCP shall be started with one or more of the RCS cold leg temperatures less than or equal to the LTOP enable temperature specified in the PTLR, unless secondary water temperature of each SG is < 55.6 °C (100 °F) above each of the RCS cold leg temperatures. 5. A containment spray pump can be manually realigned to meet the requirement of a SC pump. ----------	For NOTE 3, there is no limit for PZR high level because POSRV is qualified for liquid as well. Containment Spray Pump (CSP) can be realigned to be used as Shutdown Cooling Pump (SCP) because SCP and CSP are interchangeable each other.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE SR 3.4.7.3 ----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ----------	SURVEILLANCE None	The exception in the SR Note is not necessary because the SR action is not so sensitive to the time after a transient.	
3.4.8 RCS Loops – MODE 5, Loops Not Filled	LCO 3.4.8 ----------NOTE---------- 1. b. No operations are permitted that would cause introduction of coolant into the RCS with boron concentration less than required to meet the SDM of LCO 3.1.1 3. None. ----------	LCO 3.4.8 ----------NOTE---------- 1. b. No operations are permitted that would cause reduction of the RCS boron concentration required to meet the SDM of LCO 3.1.1 3. A containment spray pump can be manually realigned to meet the requirement of a SC pump. ----------	The meanings of the REQUIRED ACTIONs are practically the same. Containment Spray Pump (CSP) can be realigned to be used as Shutdown Cooling Pump (SCP) because SCP and CSP are interchangeable each other.	
	CONDITION B. No Required SDC train OPERABLE. OR Required SDC train not in operation.	CONDITION B. Required SC trains inoperable. OR No SC train in operation.	The meanings of the CONDITION are practically the same.	
	REQUIRED ACTION B.1 Suspend operation that would cause introduction of coolant into the RCS with boron concentration less than	REQUIRED ACTION B.1 Suspend all operations involving reduction of RCS boron concentration.	The meanings of the REQUIRED ACTIONs are practically the same.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	required to meet SDM of LCO 3.1.1.			
	None	B.3 Initiate action to raise RCS level to > EL 127'-1/4"(38.72 m)	There is a level set point for level recovery ACTION.	
	SURVEILLANCE SR 3.4.8.2 ----------NOTE---------- Not required to be performed until 24 hours after a required pump is not in operation. ----------	SURVEILLANCE None	The exception in the SR Note is not necessary because the SR action is not so sensitive to the time after a transient.	
3.4.9 Pressurizer	LCO 3.4.9 a. Pressurizer water level <[60%] and b. [Two groups of] pressurizer heaters OPERABLE with the capacity [of each group] ≥[150 kw [and capable of being powered from an emergency power supply]	LCO 3.4.9 a. Pressurizer water level ≥ 25% and ≤ 56%, and b. Two groups of pressurizer backup heaters OPERABLE with the capacity of each group ≥ 300 kw and capable of being powered from an emergency power supply.	The deviations reflect the APR1400 design feature.	
	CONDITION B. One [required] group of pressurizer heaters inoperable.	CONDITION B. Required Action and associated Completion Time of Condition A not met.	The deviations reflect the APR1400 plant specific operating practice.	
	REQUIRED ACTION None.	REQUIRED ACTION A.1 Restore pressurizer water level within limit.	The deviations reflect the APR1400 plant specific operating practice. With PZR water level outside the limits, ACTION is taken within 1 hour to restore the	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
			plant to be operated within the bounds of safety analyses. If PZR water level cannot be restored to within the limits in 1 hour, the plant is placed in MODES 3 with the reactor trip breakers open within 6 hours, and in MODE 4 within 12 hours.	
	FREQUENCY SR 3.4.9.2 [18 month]	FREQUENCY SR 3.4.9.2 92 days	92 days is considered adequate to detect heater degradation based on operating experience.	
	SURVEILLANCE SR 3.4.9.3 [Verify required pressurizer heaters are capable of being powered from an emergency power supply.	SURVEILLANCE SR 3.4.9.3 Verify that on an engineered safety features actuation test signal concurrent with a loss of offsite power: a. pressurizer backup heaters are automatically shed from emergency power sources. b. pressurizer backup heaters can be reconnected to their respective buses manually from the control room	APR1400 heaters can be manually transferred to be energized by emergency power supply.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.4.10 Pressurizer Safety Valves	LCO 3.4.10 [Two] pressurizer safety valves shall be OPERABLE with lift settings ≥ [2475] psia and ≤ [2525] psia.	LCO 3.4.10 Four pressurizer POSVRs shall be OPERABLE such that: a. Two spring-loaded pilot valves shall be OPERABLE with lift settings ≥171.1 kg/cm^{2}A (2,433.0 psia) and ≤176.3 kg/cm^{2}A (2,507.0 psia) b. The opening time of pressurizer POSRV shall be OPERABLE within 0.5 seconds, including dead time.	The setpoint range is a plant specific characteristics and the valve type is different. Pressurizer Pilot Operated Safety Relief Valve (POSRV) is applied in APR1400.	
	APPLICABILITY ----------NOTE---------- The lift setting are not required to be within LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for [36] hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup	APPLICABILITY ----------NOTE---------- The opening time measurement and lift pressure setting of POSRV are not required to be within LCO limits during MODES 3 and 4 for the purpose of setting the POSRVs under ambient (hot) conditions. This exception is allowed for 72 hours following entry into MODE 3	The meanings of the APPLICABILITY are practically the same. The 72 hours exception is based on 18 hours outage time for each of the four valves (APR1400 adapts 4 POSRVs). The 18 hours period is determined based on operating experience.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	REQUIRED ACTION B.2 Be in MODE 4 with any RCS cold leg temperature less than or equal to the LTOP enable temperature specified in the PTLR	REQUIRED ACTION B.2.1 Be in MODE 4 with all RCS cold leg temperatures less than or equal LTOP enable temperature specified in PTLR. OR B.2.2 Be in MODE 4 on shutdown cooling with the requirements of LCO 3.4.11 met.	The REQUIRED ACTIONs reflect the APR1400 design. When the POSRV(s) are inoperable, LTOP relief valves shall be aligned for OPP. Alignment of LTOP relief valves can be allowed by meeting conditions by reducing the cold leg temperature down to the LTOP enable temperature and by opening SCS isolation valve.	
	SURVEILLANCE SR 3.4.10.1 Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be within ±1%. None None	SURVEILLANCE SR 3.4.10.1 Verify the open and close positions for the following valves in the main control room (MCR); a. main valves – close, b. motor operated isolation valves and manual isolation valves – open, c. spring-loaded pilot valves – close, and d. motor operated pilot valves – close. SR 3.4.10.2 Verify electric power disconnections of the following motor-operated valves: SR 3.4.10.3 Verify each pressurizer POSRV meets the following:	The SRs reflect POSRV characteristics.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	None None None	SR 3.4.10.4 Verify alarm devices for valve positions and electric power connections of the following valves: SR 3.4.10.5 Verify position indicators of the following valves are operated normally: SR 3.4.10.6 Verify downstream manual valves of spring-loaded pilot valves are locked in open position.		
3.4.11 Pressurizer Power Operated Relief Valves (PORVs)	The LCO is for PORV.	None	There is no PORV in APR1400 (plant specific).	
3.4.12 Low Temperature Overpressure Protection (LTOP) System	LCO 3.4.12 An LTOP System shall be OPERABLE with a maximum of one high pressure safety injection (HPSI) pump and one charging pump capable of injecting into the RCS and the safety injection tanks (SITs) isolated, and: ----------NOTES---------- 1. [Two charging pumps] may be made capable of injecting for ≤ 1 hour for pump swap operations. 2. SIT may be unisolated when SIT pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the	LCO 3.4.11 LTOP System shall be OPERABLE as follows:	LTOP is for preventing an overpressurization of RCS. But SIP, Charging pump & SIT injection can deteriorate LTOP condition. Therefore reactor coolant injection by SIP or charging pump shall be secured. Each LTOP relief valve is designed to be capable of accommodating all four SIP injection and maximum charging. Also, when LTOP relief valves are aligned, SITs are isolated and depressurized already.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	PTLR. ---------- a. Two OPERABLE power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR or b. The RCS depressurized and an RCS vent of ≥ [1.3] square inches.	 a. Two OPERABLE shutdown cooling system (SCS) suction line relief valves with lift settings ≤ 37.3 kg/cm^2 (530 psig), or b. RCS depressurized and an RCS vent of ≥ 180.6 cm^2 (28 in^2) square inches.		
	ACTIONS ----------NOTES---------- LCO 3.0.4.b is not applicable to PORVs when entering MODE 4. ----------	ACTIONS None	PORV is not used in APR1400, and risk assessment is not performed for APR1400.	
	CONDITION A. Two or more HPSI pumps capable of injecting into the RCS. B. Two or more charging pumps capable of injecting into the RCS. C. A SIT not isolated when SIT pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	CONDITION None None None	SIP can cause the RCS overpressurization and open the LTOP valves. Charging can cause the RCS overpressurization and open the LTOP valves. When the SCS is in operation, the SITs are already isolated. Therefore this ACTION is not required.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	D. Required Action and associated Completion Time of Time of Condition C not met.	None	When the SCS is in operation, the SITs are already isolated. Therefore this ACTION is not required.	
	E. One required PORV inoperable in MODE 4.	A. One required SCS suction line relief valve inoperable in MODE 4.	Different valve name is used for APR1400.	
	F. One required PORV inoperable in MODE 5 or 6.	B. One required SCS suction line relief valve inoperable in MODE 5 or 6.	Different valve name is used for APR1400.	
	G. Two required PORVs inoperable. OR Required Action and associated Completion Time of Condition A, [B], D, E, or F not met. OR LTOP System inoperable for any reason other than Condition A, [B], C, D, E, or F.	D. Two required SCS suction line relief valves inoperable. C. Required Action and associated Completion Time not met.	C. When one LTOP valve is inoperable and the required action and associated completion time are not met in ACTION B, an additional action for preventing RCS pressurization should be taken such as establishing a vent. D. If two LTOP valves are inoperable, an action for preventing RCS pressurization should be taken such as establishing a vent immediately. Different valve name is used in APR1400.	
	SURVEILLANCE SR 3.4.12.1 Verify a maximum of one HPSI pump is capable of injecting into the RCS.	SURVEILLANCE None	The SR is not applied because conditions for SIP may deteriorate LTOP condition.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.4.12.2 Verify a maximum of one charging pump is capable of injecting into the RCS.	None	The SR is not applied because conditions for Charging pump may deteriorate LTOP condition.	
	SR 3.4.12.3 Verify each SIT isolated.	None	When the SCS is in operation, the SITs are already isolated. Therefore this SR is not required.	
	SR 3.4.12.4 Verify required RCS vent ≥ [1.3] square inches is open.	SR 3.4.11.1 ----------NOTE---------- Not required to be met if SR 3.4.11.2 is satisfied for LCO 3.4.11.b requirement. ---------- Verify RCS vent of ≥ 180.6 cm^2 (28 in^2) is established.	RCS vent path is not required because LTOP valve setpoint is already adjusted for overpressure protection.	
	SR 3.4.12.5 Verify PORV block valve is open for each required PORV.	None	During MODE 4~6, at least one SC train shall be in operation. Therefore SCS suction line isolation valves (PORV block valves) are open.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.4.12.6 ----------NOTE---------- Not required to be performed until [12] hours after decreasing RCS cold leg temperature to less than or equal to the LTOP enable temperature specified in the PTLR. ---------- Perform CHANNEL FUNCTIONAL TEST on each required PORV, excluding actuation.	None	LTOP valves are not a PORV but self-actuating type. Therefore this SR is not required.	
	SR 3.4.12.7 Perform CHANNEL CALIBRATION on each required PORV actuation channel.	SR 3.4.11.2 ----------NOTE---------- Not required to be met if SR 3.4.11.1 is satisfied for LCO 3.4.11.a requirement. ---------- Verify setpoint setting for each required SCS suction line relief valve is within limits.	LTOP valves are not a PORV but self-actuating type. Therefore this SR is not required to prevent RCS overpressurization.	
3.4.13 RCS Operational LEAKAGE	LCO 3.4.13 RCS operational LEAKAGE shall be limited to: b. 1 gpm unidentified LEAKAGE,	LCO 3.4.12 RCS operational LEAKAGE shall be limited to the following: b. 1.89 L/min (0.5 gpm) unidentified LEAKAGE,	The limit is reduced for satisfying dose limit for steam line leak-before-break application.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.4.14 RCS Pressure Isolation Valve (PIV) Leakage	REQUIRED ACTION A.2 [Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve. [or] Restore RCS PIV to within limits.	REQUIRED ACTION A.2 Restore RCS PIV leakage to within limits.	An isolation may cause a loss of Residual Heat Removal (RHR). The (automatic) isolation function is not used in APR1400.	
	CONDITION C. Shutdown Cooling (SDC) System autoclosure interlock function inoperable.	CONDITION C. SC System open permissive interlock function inoperable.	There is no autoclosure interlock in APR1400. OPP for SCS is performed by LTOP relief valves.	
	REQUIRED ACTION C.1 Isolate the affected penetration by use of one closed manual or deactivated automatic valve.	REQUIRED ACTION C.1 Depressurize RCS pressure below open permissive interlock setpoint.	An isolation may cause a loss of RHR. Therefore RCS should be depressurized for connecting SCS operation for residual heat removal.	
	FREQUENCY SR 3.4.14.1 In accordance with the Inservice Testing Program, and [[18] months AND Prior to entering MODE 2 determine the unit has been in MODE 5 for 7 days or more, if leakage testing has not been	FREQUENCY SR 3.4.13.1 18 months AND Prior to entering MODE 2 whenever unit has been in MODE 5 for 72 hours or more, if leakage testing has not been	The valve leakage rate shall be verified for inservice after any maintenance, repair or replacement work.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	performed in the previous 9 months AND Within 24 hours following valve actuation due to automatic or manual action or flow through the valve	performed in previous 9 months AND Prior to returning valve to service following maintenance, repair, or replacement work on valve AND Within 24 hours following valve actuation due to automatic or manual action or flow through the valve		
	SURVEILLANCE SR 3.4.14.2 ----------NOTE---------- Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ---------- Verify SDC System autoclosure interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ [425] psig.	SURVEILLANCE SR 3.4.13.2 ----------NOTE---------- The performance of this Surveillance Requirement is not required if SC suction line isolation valves are open for LTOP by LCO 3.4.11.a. ---------- Verify SC system open permissive interlock prevents the SC system suction line isolation valve from being opened with a simulated or actual RCS pressure signal ≥ 31.6 kg/cm^2 (450 psia).	There is no autoclosure interlock in APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.4.14.3 ----------NOTE---------- Not required to be met when the SDC System autoclosure interlock is disabled in accordance with SR 3.4.12.7. ---------- Verify SDC System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ [600] psig.	None	There is no autoclosure interlock in APR1400.	
3.4.15 RCS Leakage Detection Instrumentation	LCO 3.4.15 [Two of] the following RCS leakage detection instrumentation shall be OPERABLE: a. One containment sump monitor c. One containment air cooler condensate flow rate monitor.]	LCO 3.4.14 The following RCS leakage detection instrumentation shall be OPERABLE: a. One containment sump level monitor c. One containment atmosphere humidity monitor	1. For item 'a', Containment sump means containment sump level. Therefore they are the same one. 2. For item 'c', the method used in APR1400 is one of the methods described in RG 1.45.	
	COMPLETION TIME A.2 30 days B.2.1 30 days B.2.2 30 days E.1 30 days E.2 30 days	COMPLETION TIME A.2 31 days B.2.1 31 days B.2.2 31 days E.1 31 days E.2 31 days	The COMPLETION TIME is unified a month from 30 days to 31 days.	
	FREQUENCY SR 3.4.14.2 92 days	FREQUENCY SR 3.4.14.2 31 days	APR1400 is more conservative.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.4.16 RCS Specific Activity	LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.	LCO 3.4.15 RCS DOSE EQUIVALENT I-131 and DOSE EQUIVALENT XE-133 specific activity shall be within limits.	In order to be consistent with TSTF-490, Rev.0, the relevant phrases are modified.	
	APPLICABILITY MODES 1 and 2, MODE 3 with RCS average temperature (T_{avg}) ≥ 500˚F	APPLICABILITY MODES 1, 2, 3 and 4.		
	CONDITION A. DOSE EQUIVALENT I-131 > 1.0 µCi/gm. B. Required Action and associated Completion Time of Condition A not met. OR DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1 C. Gross specific activity of the reactor coolant not within limit.	CONDITION A. DOSE EQUIVALENT I-131 not within limit. B. DOSE EQUIVALENT XE-133 not within limit. C. Required Action and associated Completion Time of Condition A or B not met. OR DOSE EQUIVALENT I-131 > 2.22×10^6 Bq/g.		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	REQUIRED ACTION ----------NOTE---------- LCO 3.0.4.c is applicable. ---------- A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1. AND A.2 Restore DOSE EQUIVALENT I-131 to within limit.	REQUIRED ACTION ----------NOTE---------- LCO 3.0.4 is not applicable. ---------- A.1 Verify DOSE EQUIVALENT I-131 ≤ 2.22 x 10^6 Bq/g AND A.2 Restore DOSE EQUIVALENT I-131 to within limit.	In order to be consistent with TSTF-490, Rev.0, the relevant phrases are modified.	
	B.1 Be in MODE 3 with T_{avg} < 500°F.	----------NOTE---------- LCO 3.0.4 is not applicable. ---------- B.1 Restore DOSE EQUIVALENT XE-133 to within limit.	In order to be consistent with TSTF-490, Rev.0, the relevant phrases are modified. - Related COMPLETION TIME is changed.	
	C.1 Be in MODE 3 with T_{avg} < 500°F	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	In order to be consistent with TSTF-490, Rev.0, the relevant phrases are modified. - Related COMPLETION TIME is changed.	
	SURVEILLANCE SR 3.4.16.1 Verify reactor coolant gross specific activity ≤ 100/Ē µCi/gm.	SURVEILLANCE SR 3.4.15.1 ----------NOTE---------- Only required to be performed in MODE 1. ---------- Verify reactor coolant DOSE EQUIVALENT XE-133 specific activity ≤ 1.11 x 10^7 Bq/g.	In order to be consistent with the TSTF-490, Rev.0, the contents are modified.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.4.16.3 ----------NOTE---------- Not required to be performed until 31 days after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. ---------- Determine $\bar{E}$ from a sample taken in MODE 1 after a minimum of 2 EFPD and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	None	In order to be consistent with the TSTF-490, Rev.0, this item is deleted. - The definition of $\bar{E}$ is deleted in "1.1 Definitions".	
Addition - Reactor Coolant Gas Vent (RCGV) Function	None	LCO 3.4.16 The following RCGV path shall be OPERABLE: a. Two paths from the reactor vessel closure head to in-containment refueling water storage tank (IRWST) and b. Two paths from the pressurizer steam space to IRWST APPLICABILITY MODES 1,2 and 3, MODE 4 with RCS pressure ≥ 31.6 kg/cm^{2}A (450 psia)	BTP RSB 5-4 requires as follows: 1. The design shall be such that the reactor can be taken from normal operating conditions to cold shutdown using only safety-grade systems. 2. RCGVS is a safety-grade means in order to use for pressure control during RCS cooling from the hot zero power to the entry condition of SCS. Therefore it is controlled by LCO for operability.	Related ACTIONS and SURVEILLANCE REQUIREMENT are added.

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.4.17 Special Test Exceptions (STE)-RCS Loops	LCO 3.4.17 The requirements of LCO 3.4.4, "RCS Loops - MODES 1 and 2," and the listed requirements of LCO 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating," for the [(Analog) RC flow low, thermal margin or low pressure, and asymmetric steam generator transient protective trip functions] [(Digital) high log power, high local power density, low departure from nucleate boiling ratio protective trip functions] may be suspended provided: a. THERMAL POWER ≤ 5% RTP and b. The reactor trip setpoints of the OPERABLE power level channels are set ≤ 20% RTP.	None	These STEs are needed during a startup & PHYSICS TESTS in MODE 2 which means actually a Natural Circulation test at a criticality condition. APR1400 performs Natural Circulation test at Hot Standby condition, so these STEs are not required.	
3.4.18 Steam Generator (SG) Tube Integrity	-	Same as NUREG-1432		
3.5 EMERGENCY CORE COOLING SYSTEM (ECCS)				
3.5.1 Safety Injection Tanks (SITs)	APPLICABILITY MODES 1 and 2, MODE 3 with pressurizer pressure ≥ [700] psia.	APPLICABILITY MODES 1 and 2, MODES 3 and 4 with pressurizer pressure ≥ 50.3 kg/cm^{2}A (715 psia).	Safety analysis assumes MODE 4.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	CONDITION A. One SIT inoperable due to boron concentration not limits. OR One SIT inoperable due to the inability to verify level or pressure.	CONDITION A. One SIT inoperable due to boron concentration not limits. B. One SIT inoperable due to the inability to verify level or pressure.	The meaning is the same as that of NUREG-1432. The required actions of APR1400 are clearer.	Related REQUIRED ACTIONs are changed.
	COMPLETION TIME B.1 24 hours C.2 2 hours	COMPLETION TIME C.1 1 hours D.2 12 hours	When SIT isolation valve is inoperable, completion time to restore to the operable status is changed from 1 hour to 24 hours in NUREG 1432 Rev. 4 based on probabilistic assessment. The completion time of APR1400 is not reduced from the more conservative value. 12 hours (NUREG 1432 Rev. 2), 2 hours (NUREG 1432 Rev. 3), 2 hours (NUREG 1432 Rev. 4). 12 hours is correct.	
	FREQUENCY SR 3.5.1.4 Once within 6 hours after each solution volume increase of ≥ [1]% of tank volume that is not the result of addition from the refueling water tank	FREQUENCY SR 3.5.1.4 Whenever a SIT volume change not from IRWST exceeds the limits of SR 3.5.1.2, immediately after a boron concentration measurement is ready	The SIT boron concentration will not fall below the safety analysis minimum of 2,000 ppm even if the SIT is at 2,300 ppm and the SIT water volume has swing from its minimum to maximum volume.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.5.2 ECCS - Operating	LCO 3.5.2 Two ECCS trains Shall be OPERABLE.	LCO 3.5.2 Four trains of SIS shall be OPERABLE.	NUREG 1432 Rev. 4 is based on that ECCS consists of two HPSIPs and two LPSIPs. APR1400 is based on that ECCS consists of four SIPs.	
	APPLICABILITY MODES 1, 2, and 3, with pressurizer pressure ≥ 1700 psia	APPLICABILITY MODES 1, 2, and 3	The APPLICABILITY reflects APR1400 plant specific design.	
	CONDITION A. One LPSI subsystem Inoperable. B. One or more trains inoperable for reasons other than Condition A. D. Less than 100% of the ECCS flow equivalent to a single OPERABLE train available C. Required Action and associated Completion Time not met.	CONDITION A. Two(1) or One SIS train inoperable C. Two(2) or more SIS train(s) inoperable. (1) If the two injection lines corresponded to the two inoperable trains are diagonal in reactor vessel, i.e., SI train # 1/3 or 2/4. (2) If the two injection lines corresponded to the two inoperable trains are not diagonal in reactor vessel, i.e., SI train # 1/2, 1/4, 2/3 or 3/4. B. Required Action and associated Completion Time not met.	NUREG 1432 Rev. 4 is based on that ECCS consists of two HPSIPs and two LPSIPs. APR1400 is based on that ECCS consists of four SIPs supported by 4 EDGs. Two trains if two injection lines corresponded to the two inoperable trains are diagonal in reactor vessel or three trains are assumed in safety analysis.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	COMPLETION TIME A.1 7 days	COMPLETION TIME A.1 72 hours	When one train LPSI is inoperable, completion time to restore to the operable status is changed from 72 hours to 7 days in NUREG 1432 Rev. 4 based on probabilistic assessment. But the completion time of APR1400 is not changed, since specific probabilistic assessment was not performed on completion time relaxation of SI train operability.	
	REQUIRED ACTION C.2 Reduce pressurizer pressure to < [1700] psia.	REQUIRED ACTION B.2 Be in Mode 4.	The REQUIRED ACTION reflects APR1400 plant specific design.	
	SURVEILLANCE SR 3.5.2.1 Verify the following valves are locked in the listed position with power to the valve operator removed and key locked in position. SR 3.5.2.5 [Verify each charging pump develops a flow of [36] gpm at a discharge pressure of [2200] psig.	SURVEILLANCE SR 3.5.2.1 Verify the following valves are locked in the listed position. SR 3.5.2.5 Verify each SIS pump develops a flow of 3,407 lpm (900 gpm) at a differential pressure greater than or equal to 86.9 kg/cm^2 D (1,236 psid).	The valves with power to the valve operator removed are not applicable for APR1400. The SR reflects APR1400 plant specific design.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.5.2.6 Verify each ECCS automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	SR 3.5.2.6 Verify each SIS train automatic valve in the flow path actuates to the correct position on an actual or simulated actuation signal.	Not locked, sealed, or otherwise secured in position is not necessary in APR1400.	
	SR 3.5.2.8 Verify each LPSI pump stops on an actual or simulated actuation signal.	None	The SR reflects APR1400 plant specific design.	
	SR 3.5.2.9 Verify, for each ECCS throttle valve listed below, each position stop is in the correct position.	None	The throttle valve is included in SR 3.5.2.2.	
	SR 3.5.2.10 Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet trash racks and screens show no evidence of structural distress or abnormal corrosion.	SR 3.5.2.8 Verify, by visual inspection, that the IRWST, holdup volume tank (HVT), IRWST strainers, HVT trash racks, and IRWST spillway is not restricted by debris and strainers show no evidence of structural distress or abnormal corrosion.	IRWST is applied in APR1400. The SR reflects the APR1400 plant specific structural design. But the meaning is the same as NUREG-1432.	
3.5.3 ECCS - Shutdown	LCO 3.5.3 One high pressure safety injection (HPSI) train shall be OPERABLE.	LCO 3.5.3 Two trains of SIS shall be OPERABLE.	NUREG 1432 Rev. 4 is based on that ECCS consists of two HPSIPs. APR1400 is based on that ECCS consists of four SIPs and one train is assumed in safety analysis for a DVI line break in Mode 4.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	APPLICABILITY MODE 3 with pressurizer pressure < [1700] psia, MODE 4.	APPLICABILITY MODES 4 and 5, MODE 6 with RCS level < 39.7 m (130 ft 0 in)	Applicable MODES are extended for improvements of shutdown risk for APR1400. LCO 3.5.3 is not required during MODE 5 for NUREG 1432 Rev. 4. LCO 3.5.3 is required during MODE 5 for APR1400.	
	ACTIONS ----------NOTE---------- LCO 3.0.4.b is not applicable to ECCS High Pressure Safety Injection subsystem when entering MODE 4. ----------	ACTIONS None	This NOTE is not necessary for APR1400 because LCO does also apply to MODE 5.	
	REQUIRED ACTION B.1 Be in MODE 5	REQUIRED ACTION B.1.1 Verify RCS level ≥ 39.7 m (130'-0") OR B.1.2 Initiate actions to restore RCS level ≥ 39.7 m (130'-0") AND B.2 Reduce RCS cold leg temperature to < 57.2 ℃ (135°F)	Actions are changed because applicable MODE 6 RCS level ≥ 39.7 m (130 ft 0 in) is required for APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.5.4 Refueling Water Tank (RWT)	LCO 3.5.4 The RWT shall be OPERABLE.	LCO 3.5.4 The IRWST shall be OPERABLE.	RWT is changed IRWST which is arranged in reactor containment building.	Item name is changed. - RWT → IRWST (In-Containment Refueling Water Storage Tank)
	APPLICABILITY: MODES 1, 2, 3, and 4.	APPLICABILITY: MODES 1, 2, 3, 4 and 5, MODE 6 with RCS level < 39.7 m(130 ft 0 in)	Applicable Mode for SIS (LCO 3.5.3) are extended for improvements of shutdown risk because one safety injection pump is required after loss of coolant accident at the low power shutdown condition according to the shutdown LOCA safety analysis. And then Applicable MODES for IRWST are extended for providing the water to SIS.	
	CONDITION A. RWT boron concentration not within limits. C. RWT borated water temperature not within limits. B. Required Action and associated Completion Time of Condition A not met. E. Required Action and associated Completion Time of Condition C or D not met.	CONDITION A. IRWST boron concentration not within limits. OR IRWST borated water temperature not within limits. C. Required Action and associated Completion Time of Condition A or B not met in MODES 1, 2, 3, or 4.	The two items are integrated into one item. The two items are same. There is no difference between NUREG-1432 and APR1400 except the extension of applicable modes.	Related REQUIRED ACTIONs and COMPLETIONs are changed.

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	D. RWT inoperable for reasons other than Condition A or C.	B. IRWST borated water volume not within limits.	The two items are same. IRWST water volume is used in safety analysis for applicable modes (IRWST is water source of SIS and CSS to prevent and mitigate an accident). The condition for IRWST volume is considered as one of inoperable conditions specified in CONDITION D of 3.5.4 of NURES-1432.	
	None	D. Required Action and associated Completion Time of condition A or B not met in MODE 5 or MODE 6 with RCS level < 39.7 m (130 ft 0 in).	The CONDITION is added because applicable MODE 5 or MODE 6 is required.	
	REQUIRED ACTION B.1 ----------NOTES---------- LCO 3.0.4.a is not applicable when entering MODE 3 or MODE 4. ---------- Be in MODE 3. E.1 Be in MODE 3. AND E.2 Be in MODE 5.	REQUIRED ACTION None C.1 Be in MODE 3. AND C.2 Be in MODE 5.	The REQUIRED ACTION is a conservative approach. There is no difference between NUREG-1432 and APR1400 because the inoperable CONDITION A and C or D to be applied REQUIRED ACTION B.1, E.1 AND E.2 of NUREG-1432 are integrated as the inoperable CONDITION A or C of the APR1400	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	None	D.1 Initiate action to restore RCS level to ≥ 39.7 m (130 ft 0 in). AND D.2 Reduce RCS cold leg temperature to < 57.2 ℃ (135 ℉).	The REQUIRD ACTION is added because applicable MODE 5 or MODE 6 is required.	
	SURVEILLANCE SR 3.5.4.1 ----------NOTE---------- [Only required to be performed when ambient air temperature is ≥ 40℉ or ≤ 100℉.] ----------	SURVEILLANCE SR 3.5.4.1 None	The NOTE is not necessary for APR1400 since the IRWST is located in reactor containment building and is not affected by changing of the ambient air temperature.	
3.5.5 Trisodium Phosphate (TSP)	-	Same as NUREG-1432		
3.6 CONTAINMENT SYSTEMS				
3.6.1 Containment	-	Same as NUREG-1432		
3.6.2 Containment Air Locks	REQUIRED ACTION D.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in Mode 4.	REQUIRED ACTION D.2 Be in Mode 5.	For application of Mode 4, the guidance, as specified in Section 11 of NUMARC 93-01 and WCAP-16364-NP, shall be followed.	
	COMPLETION TIME D.2 12 hours	COMPLETION TIME D.2 36 hours		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE SR 3.6.2.1 None	SURVEILLANCE SR 3.6.2.1 The acceptance criteria for air lock testing are: a. Overall air lock leakage rate is ≤ 0.05 L_a when tested at ≤ P_a [3.77 kg/cm^2(53.6 psig)]. b. For each door seal leak rate is ≤ 0.01 La when tested at ≤ P_a [3.77 kg/cm^2(53.6 psig)].	The SR reflects APR1400 practice.	
3.6.3 Containment Isolation Valves	CONDITION A. ----------NOTE---------- Only applicable to the [containment sump supply valves to the ECCS and containment spray pumps]. --- One or more penetration flow paths with one containment isolation valve inoperable B. One or more penetration flow paths with one containment isolation valve inoperable [for reasons other than Condition[s] A, E, [and F]].	CONDITION A. ----------NOTE---------- Only applicable to penetration flow paths with two containment isolation valves. --- One or more penetration flow paths with one containment isolation valve inoperable (except for purge valve leakage not within limit). B. One or more penetration flow paths with two containment isolation valves inoperable (except for purge valve leakage not within limit.	The SR reflects APR1400 practice.	Related REQUIRED ACTION and COMPLETION TIME are changed.

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	C. ----------NOTE---------- Only applicable to penetration flow paths with two [or more] containment isolation valves. ---------- One or more penetration flow paths with two [or more] containment isolation valves inoperable [for reasons	C. ----------NOTE---------- Only applicable to those penetration flow paths with only one containment isolation valve. and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.		
	D. ----------NOTE---------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	D. None One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.		
	E. [One or more secondary containment bypass leakage [or purge valve leakage] not within limit.	None		
	F. [One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	None		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	G. Required Action and associated Completion Time not met.	E. Required Action and associated Completion Time not met.		
	SURVEILLANCE SR 3.6.3.1 [Verify each [42] inch purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition E of this LCO.	SURVEILLANCE SR 3.6.3.1 Verify each 1219.2 mm(48 inch) purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition D of this LCO.	The SR reflects the change of CONDITIONs	
	SR 3.6.3.8 [Verify each [ ] inch containment purge valve is blocked to restrict the valve from opening > [50]%.	None	The SR reflects APR1400 practice.	
	SR 3.6.3.9 [Verify the combined leakage rate for all secondary containment bypass leakage paths is ≤ [L_a] when pressurized to ≥ [psig].	None	The SR is not applicable because it deals with dual containments	
3.6.4 Containment Pressure	REQUIRED ACTION B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 None Be in MODE 5.	For application of Mode 4, the guidance, as specified in Section 11 of NUMARC 93-01 and WCAP-16364-NP, shall be followed.	Related COMPLETION TIME is changed.
3.6.5 Containment Air Temperature	REQUIRED ACTION B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 None Be in MODE 5.	For application of Mode 4, the guidance, as specified in Section 11 of NUMARC 93-01 and WCAP-16364-NP, shall be followed.	Related COMPLETION TIME is changed.

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.6.6 Containment Spray and Cooling System	LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.	LCO 3.6.6 Two Containment Spray divisions shall be OPERABLE.	Containment Cooling System does not apply for APR1400. "Train" is changed to "Division".	Item name is changed. - Containment Spray and Cooling System → Containment Spray System Containment Spray System provides the heat removal function from containment atmosphere following a LOCA. Containment Cooling System does not apply for APR1400.
	COMPLETION TIME A.1 [7] days	COMPLETION TIME A.1 72 hours	According to NUREG-1432 B3.6.6A, to apply 7 days must be met the CE NPSD-1045-A and the requirements of the Topical Report and the associated Safety Evaluation. In case of APR1400, 72 hour is applied for one containment spray and one containment cooling train inoperable condition in NUREG1432.	
	REQUIRED ACTION B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 None Be in MODE 5.	The REQUIRED ACTION is a conservative approach.	
	CONDITION C. One containment cooling train inoperable. D. one containment spray and one containment cooling train inoperable.	CONDITION None None	Containment Cooling System does not apply for APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	E. Two containment cooling trains inoperable. F. Required Action and associated Completion Time of Condition C, D, or E not met. G. Two containment spray trains inoperable. OR Any combination of three or more trains inoperable.	None None C. Two containment spray divisions inoperable.	"Train" is changed to "Division".	
	SURVEILLANCE SR 3.6.6.2 Operate each containment cooling train fan unit for ≥ 15 minutes. SR 3.6.6.3 Verify each containment cooling train cooling water flow rate is ≥ [2000] gpm to each fan cooler. SR 3.6.6.8 Verify each containment cooling train starts automatically on an actual or simulated actuation signal.	SURVEILLANCE None	Containment Cooling System does not apply for APR1400.	
3.6.7 Spray Additive System	-	None	There is not the system in APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.6.8 Shield Building Exhaust Air Cleanup System (SBEACS)	-	None	There is not the system in APR1400.	
3.6.9 Hydrogen Mixing System (HMS)	-	None	There is not the system in APR1400.	
3.6.10 Iodine Cleanup System (ICS)	-	None	There is not the system in APR1400.	
3.6.11 Shield Building	-	None	There is not the system in APR1400.	
3.6.12 Vacuum Relief Valves	-	None	There is not the system in APR1400.	
3.7 PLANT SYSTEMS				
3.7.1 Main Steam Safety Valves (MSSVs)	SURVEILLANCE SR 3.7.1.1 ----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	SURVEILLANCE SR 3.7.1.1 ----------NOTE---------- Only required to be performed after MODE 3 entry. In case of entering MODES 3 and 4 for lift setting and test of MSSV, SR 3.0.4 would not apply. ----------	MSSV testing is performed at hot conditions.	
3.7.2 Main Steam Isolation Valves (MSIVs)	SURVEILLANCE SR 3.7.2.1 ----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	SURVEILLANCE SR 3.7.2.1 ----------NOTE---------- Only required to be performed in MODES 3. ----------	The MSIVs are not tested at power since the test increases the risk of valve closure with the unit generating power. The test for verifying the closure time of MSIVs is conducted in MODE 3.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE SR 3.7.2.2 ----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	SURVEILLANCE SR 3.7.2.2 ----------NOTE---------- Only required to be performed in MODES 3. ----------	The MSIVs are not tested at power since the test increases the risk of valve closure with the unit generating power. Therefore, the NOTE is changed such that the MSIVs actuation test to the isolation position is conducted in MODE 3.	
3.7.3 Main Feedwater Isolation Valves (MFIVs) [and [MFIV] Bypass Valves]	-	Same as NUREG-1432		
3.7.4 Atmospheric Dump Valves (ADVs)	-	Same as NUREG-1432		
3.7.5 Auxiliary Feedwater (AFW) System	ACTION ----------NOTE---------- LCO 3.0.4.b is not applicable. ----------	ACTION None	Risk informed Technical Specification is not applied for APR1400. (Refer to the justification of LCO 3.0.4.)	
	CONDITION A. Turbine driven AFW train inoperable due to one inoperable steam supply.	CONDITION A. One turbine driven AFW train inoperable due to associated inoperable steam supply.	Design concept and configuration for AFWS are different between NUREG-1432 and APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	C. Turbine driven AFW train inoperable due to one inoperable steam supply. AND One motor driven AFW train inoperable. D. Required Action and associated Completion Time of Condition A [,B,or C] not met. [OR [Two] AFW trains inoperable in MODE 1, 2, or 3 for reasons other than Condition C.] E. [Three] AFW trains inoperable in MODE 1, 2, or 3.	C. One turbine driven AFW train inoperable due to associated inoperable steam supply. AND One motor driven AFW train inoperable. D. Required Action and associated Completion Time of Conditions A, B, or C not met. OR Three AFW trains inoperable in MODE 1, 2, or 3. E. Four AFW trains inoperable in MODE 1, 2, or 3.	- NUREG-1432 : 3 trains (Two motor driven pump trains and one turbine driven pump train) - APR1400 : 4 trains (Two motor driven pump trains and two turbine driven pump trains)	
	SURVEILLANCE SR 3.7.5.5 Verify the proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.	SURVEILLANCE SR 3.7.5.5 Verify the proper alignment of the required AFW flow paths by verifying flow from auxiliary feedwater storage tank to each steam generator.	AFW is supplied from its exclusive AFWST in APR1400 design.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.7.6 Condensate Storage Tank (CST)	LCO 3.7.6 The CST shall be OPERABLE. CONDITION A. CST inoperable. REQUIRED ACTION A.1 Verify OPERABILITY of backup water supply. AND A.2 Restore CST to OPERABLE status.	LCO 3.7.6 One AFWST shall be OPERABLE. CONDITION A. One AFWST inoperable. REQUIRED ACTION A.1 Verify OPERABILITY of the other AFWST. AND A.2 Restore AFWST to OPERABLE status.	Design concept and configuration for AFWS are different between NUREG-1432 and APR1400. - NUREG-1432 : CST is commonly used. - APR1400 : Two 100 % capacity Auxiliary Feedwater Storage Tanks (AFWSTs) are installed. If one AFWST is not operable, the other AFWST as backup water source provides water to the steam generators.	Item name is changed. - CST → AFWST
3.7.7 Component Cooling Water (CCW) System	REQUIRED ACTION A.1 ----------NOTES---------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for shutdown cooling made inoperable by CCW. ---------- Restore CCW train to OPERABLE status.	REQUIRED ACTION ----------NOTES---------- 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, “AC Sources – Operating,”for emergency diesel generator made inoperable by CCW. 2. Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for shutdown cooling made inoperable by CCW. ---------- A.1 Restore CCW division to OPERABLE status.	This is an intrinsic design characteristic of APR1400. "Train" is changed to "Division".	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	B.2 ----------NOTES---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	B.2 None Be in MODE 5.	In according to NUREG-1432, B 3.7.7, adoption of a MODE 4 end state requires the licensee to make the following commitments: - Section 11 of NUMARC 93-01, and Revision 2 of WCAP-16364-NP. However, APR1400 does not follow above commitments.	
3.7.8 Service Water System (SWS)	REQUIRED ACTION B.2 ----------NOTES---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 Be in MODE 5.	In according to NUREG-1432, B 3.7.7, adoption of a MODE 4 end state requires the licensee to make the following commitments: - Section 11 of NUMARC 93-01, and Revision 2 of WCAP-16364-NP. However, APR1400 does not follow above commitments.	
3.7.9 Ultimate Heat Sink (UHS)	LCO 3.7.9 The UHS shall be OPERABLE.	LCO 3.7.9 [[Two]] UHS [[divisions]] shall be OPERABLE.	There are two cooling tower as UHS in APR1400.	
	CONDITION A. [One or more cooling towers with one cooling tower fan inoperable.	CONDITION A. [[One UHS cooling tower inoperable.]]	The APR1400 UHS consists of two independent, redundant, and safety-related divisions. Each division has 100 percent capacity cooling tower.	Related REQUIRED ACTIONs and COMPLETION TIMEs are changed. For Condition B,

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	B. Required Action and associated Completion Time of Condition A or B not met.	B. [[Required Action and associated Completion Time of Condition A not met. OR]] UHS inoperable [[for reasons other than condition A.]]	CONDITION B of APR1400.is described comprehensively to include CONDITION B, C, and D of NUREG-1432.	[[~]] means conceptual design information (CDI). So if UHS is decided by sea, Condition A (only for cooling tower) and B (first part) need to be deleted. And then, Condition B (second part - same as referenced plant) is only UHS Condition.
	C. [Water temperature of the UHS > [90]°F and ≤ [ ]°F	None	CONDITION C of NUREG-1432 is included in CONDITION B of APR1400.	
	D. [Required Action and associated Completion Time of Condition C not met. OR] UHS inoperable [for reasons other than condition A or C.]	None	CONDITION D of NUREG-1432 is included in CONDITION B of APR1400.	
	REQUIRED ACTION B.2 ----------NOTES---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4	REQUIRED ACTION B.2 None Be in MODE 5	In according to NUREG-1432, B 3.7.7, adoption of a MODE 4 end state requires the licensee to make the following commitments: - Section 11 of NUMARC 93-01, and Revision 2 of WCAP-16364-NP. However, APR1400 does not follow above commitments.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SURVEILLANCE SR 3.7.9.1 [Verify water level of UHS is ≥ [562] ft [mean sea level]. SR 3.7.9.2 [Verify average water temperature of UHS is ≤ [90]°F. None	SURVEILLANCE SR 3.7.9.1 Verify water level of UHS is ≥ [[3m(10ft) from the bottom of the basin]]. SR 3.7.9.2 Verify water temperature of UHS [[basin]] is ≤ [[33.2 ˚C (91.8 °F)]]. SR 3.7.9.4 [[Verify each UHS manual, power-operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed or otherwise secured in position, is in the correct position.]]	The SR reflects an intrinsic design characteristic of APR1400. The SR reflects an intrinsic design characteristic of APR1400. The SR reflects an intrinsic design characteristic of APR1400.	Other SRs are added because of an intrinsic design characteristic. - SR 3.7.9.5 - SR 3.7.9.6 - SR 3.7.9.7
3.7.10 Essential Chilled Water (ECW)	REQUIRED ACTION B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 None Be in MODE 5.	The REQUIRED ACTION is a conservative approach.	Related COMPLETION TIME is changed.
3.7.11 Control Room Emergency Air Cleanup System (CREACS)	REQUIRED ACTION C.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION C.2 None Be in MODE 5.	The REQUIRED ACTION is a conservative approach.	The Item name is changed. - CREACS → CRHS (Control Room HVAC System) Related

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	D.1 ----------NOTE---------- Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable. ----------	None	The deviation reflects APR1400 design. Toxic gas protection mode is not required since there are no toxic substances stored or transported in accordance with the result of analysis of toxic hazards.	COMPLETION TIME is changed.
	SURVEILLANCE None	SURVEILLANCE SR 3.7.11.5 Verify each CRSRS division has the capacity to remove design heat load.	SR 3.7.11.5 is reflected by combining 3.7.11 (CREACS) and 3.7.12 (CREATCS) of NUREG-1432 into 3.7.11 (CRHS) of APR1400.	
3.7.12 Control Room Emergency Air Temperature Control System (CREATCS)	-	None	The REQUIRED ACTIONs are reflected by combining 3.7.11 (CREACS) and 3.7.12 (CREATCS) of NUREG-1432 into 3.7.11 (CRHS) of APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.7.13 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)	CONDITION B. Two ECCS PREACS trains inoperable due to inoperable ECCS pump room boundary	CONDITION None	To adopt condition B, the licensee should have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into condition B. However, APR1400 does not have any guidance describing compensatory measures to be taken in the event of entry into condition B. For that reason, APR1400 does not adopt condition B.	This item is equivalent to 3.7.12 Auxiliary Building Controlled Area Emergency Exhaust System (ABCAEES) of APR1400.
	REQUIRED ACTION C.2.----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2. None Be in MODE 5.	The REQUIRED ACTION is a conservative approach.	Related COMPLETION TIME is changed.
	SURVEILLANCE SR 3.7.13.5 [Verify each ECCS PREACS filter bypass damper can be opened.	SURVEILLANCE None	The filter bypass damper is not used in APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.7.14 Fuel Building Air Cleanup System (FBACS)	APPLICABILITY [MODES 1, 2, 3, and 4] During movement of [recently] irradiated fuel assemblies in the fuel building.	APPLICABILITY During movement of [recently] irradiated fuel assemblies in the fuel handling area.	Since this system is not included within the boundary of ECCS equipment area, the system is not required to be OPERABLE. in MODES 1, 2, 3, and 4.	This item is equivalent to 3.7.13 Fuel Handling Area Emergency Exhaust System of APR1400. Related CONDITIONs are changed due to the change of APPLICABILITY.
	CONDITION B. Two FBACS trains inoperable due to inoperable fuel building boundary in MODE 1, 2, 3, or 4.	CONDITION None	To adopt condition B, the licensee should have guidance available describing compensatory measures to be taken in the event of an intentional and unintentional entry into condition B. However, APR1400 does not have any guidance describing compensatory measures to be taken in the event of entry into condition B. For that reason, APR1400 does not adopt condition B.	
	SURVEILLANCE SR 3.7.14.5 [Verify each FBACS filter bypass damper can be opened.	SURVEILLANCE None	The filter bypass damper is not used in APR1400.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.7.15 Penetration Room Exhaust Air Cleanup System (PREACS)	-	None	PREACS of NUREG-1432 is fulfilled by "3.7.12 Auxiliary Building Controlled Area Emergency Exhaust System (ABCAEES)" of APR1400.	
3.7.16 Fuel Storage Pool Water Level	-	Same as NUREG-1432		This item is equivalent to 3.7.14 Spent Fuel Pool Water Level (SFPWL) of APR1400.
3.7.17 Fuel Storage Pool Boron Concentration	-	Same as NUREG-1432		This item is equivalent to 3.7.15 Spent Fuel Pool Boron Concentration of APR1400.
3.7.18 Spent Fuel Pool Storage	-	Same as NUREG-1432		This item is equivalent to 3.7.16 Spent Fuel Assembly Storage of APR1400.
3.7.19 Secondary Specific Activity	-	Same as NUREG-1432	PREACS of NUREG-1432 is fulfilled by 3.7.12 Auxiliary Building Controlled Area Emergency Exhaust System (ABCAEES) of APR1400.	This item is equivalent to 3.7.17 Secondary Specific Activity of APR1400.
3.8 ELECTRICAL POWER SYSTEMS				
3.8.1 AC Sources Operating	LCO 3.8.1 b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System, and	LCO 3.8.1 b. Division I and division II emergency diesel generators (EDGs), each division capable of supplying one division of the onsite Class 1E AC Electrical	1. For item 'b', the APR1400 adopts four EDGs (two redundant and independent divisions I and II, but four independent trains A,B,C, and D)	The name of DG is changed. - DG → EDG (Emergency Diesel Generator)

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		Power Distribution System and consisting of two EDGs (EDG A and EDG C for division I, and EDG B and EDG D for division II), and c. Four automatic load sequencers for EDG A, EDG B, EDG C, and EDG D.	Each division of EDGs provides Class 1E power to its respective Class 1E redundant loads. 2. For item 'c', one automatic load sequencer per EDG is provided.	
	[c. Automatic load sequencers for Train A and Train B.]			
	ACTIONS ----------NOTE---------- LCO 3.0.4.b is not applicable to DGs. ----------	ACTIONS None	The deviation reflects APR1400 design.	
	CONDITION B. One [required] DG inoperable. D. One [required] offsite circuit inoperable. AND One [required] DG inoperable. E. Two [required] DGs inoperable.	CONDITION B. One or two EDGs on one division inoperable. D. One offsite circuit inoperable. AND One or two EDGs on one division inoperable. E. One or two EDGs on each division inoperable.	The unavailability of either one or two EDGs on one division disables one load group to perform its partial or all of the safety functions.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	F. ----------NOTE---------- [This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. ---------- H. Three or more [required] AC sources inoperable.	None H. Two offsite circuits and one or more EDGs inoperable. OR One offsite circuit and one or two EDGs on each division inoperable.	This condition is deleted as the APR1400 design is such that any sequencer failure will only affect the ability of the associated EDG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. The condition with three or more AC sources inoperable falls into two separate cases because of four EDG adoption in the APR1400 design.	
	SURVEILLANCE SR 3.8.1.2 Verify each DG starts from standby conditions and achieves steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	SURVEILLANCE SR 3.8.1.2 Verify each EDG starts from standby conditions and achieves steady state voltage ≥ 3,744 V and ≤ 4,576 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	The SR reflects APR1400 design. - 90% of the rated voltage is 3,744 V, 110% of that is 4,576 V.	The specific values enclosed in brackets are changed to APR1400 design values. - SR 3.8.1.4 - SR 3.8.1.7 - SR 3.8.1.12 - SR 3.8.1.15 - SR 3.8.1.19 - SR 3.8.1.20

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	SR 3.8.1.3 Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ [4500] kW and ≤ [5000] kW.	SR 3.8.1.3 Verify each EDG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ 90 % rating and ≤ 100 % rating.	The load is indicated as the percent of EDG rating rather than specific values.	The deviation is applied to the following items. - SR 3.8.1.10 - SR 3.8.1.14
3.8.2 AC Sources - Shutdown	CONDITION B. One required DG inoperable.	CONDITION B. One or two required EDGs on one division inoperable.	The unavailability of either one or two EDGs on one division disables one load group to perform its partial or all of the safety functions.	
3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air	-	Same as NUREG-1432	The air pressure of starting air receiver may vary depending on manufacturer's recommendations. However, the pressure of 580 psig is the value that has been validated to be an actual one through long-term applications in local nuclear plants.	
3.8.4 DC Sources – Operating	LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.	LCO 3.8.4 The Division I and Division II DC electrical power subsystems shall be OPERABLE.	The term "train" is changed to "division" in which independence and redundancy are maintained.	
	REQUIRED ACTION D.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION D.2 None Be in MODE 5.	APR1400 doesn't apply TSTF-422.	Related COMPLETION TIME is changed.

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.8.5 DC Sources – Shutdown	-	Same as NUREG-1432	The term "Train" is changed to "Division" in which independence and redundancy are maintained.	
3.8.6 Battery Parameters	-	Same as NUREG-1432	The term "Train" is changed to "Division" in which independence and redundancy are maintained.	Item name is changed. - Battery Parameters → Battery Cell Parameters
3.8.7 Inverters – Operating	REQUIRED ACTION B.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	REQUIRED ACTION B.2 None Be in MODE 5.	The APR1400 doesn't apply TSTF-422.	Related COMPLETION TIME is changed.
3.8.8 Inverters – Shutdown	-	Same as NUREG-1432		
3.8.9 Distribution Systems – Operating	LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.	LCO 3.8.9 Division I and Division II AC, DC, and AC vital bus, electrical power distribution subsystems shall be OPERABLE.	The term "Train" is changed to "Division" in which independence and redundancy are maintained.	
3.8.10 Distribution Systems – Shutdown	-	Same as NUREG-1432		
3.9 REFUELING OPERATIONS				
3.9.1 Boron Concentration	-	Same as NUREG-1432		
3.9.2 Nuclear Instrumentation	-	Same as NUREG-1432		

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
3.9.3 Containment Penetrations	APPLICABILITY None During movement of recently irradiated fuel assemblies within containment.	APPLICABILITY During CORE ALTERATIONS. During movement of irradiated fuel assemblies within containment.	The APPLICABILITY reflects APR1400 practice.	
	REQUIRED ACTION None A.1 Suspend movement of recently irradiated fuel assemblies within containment.	REQUIRED ACTION A.1 Suspend CORE ALTERATIONS. AND A.2 Suspend movement of irradiated fuel assemblies within containment	The APPLICABILITY reflects APR1400 practice.	
	SURVEILLANCE SR 3.9.3.2 ----------NOTE---------- Not required to be met for containment purge and exhaust valve(s) in penetrations closed to comply with LCO 3.9.3.c.1. ----------	SURVEILLANCE SR 3.9.3.2 None	The APPLICABILITY reflects APR1400 practice.	
	FREQUENCY SR 3.9.3.1 None 7 days	FREQUENCY SR 3.9.3.1 Within 72 hour prior to the start of movement of irradiated fuel in the containment building AND Once per 7 days during CORE	The APPLICABILITY reflects APR1400 practice.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
		ALTERATIONS or movement of irradiated fuel in the containment building		
3.9.4 Shutdown Cooling (SDC) and Coolant Circulation – High Water Level	LCO 3.9.4 ----------NOTE---------- The required SDC loop may be removed from operation for ≤ 1 hour per [8] hour period, provided no operations are permitted that would cause introduction of coolant into the Reactor Coolant System with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1. ----------	LCO 3.9.4 ----------NOTE---------- The required SCS train may be removed from operation for ≤ 1 hour per 8-hour period, provided no operations are permitted that would cause dilution of the reactor coolant system boron concentration. ----------	APR1400 is more conservative.	
	REQUIRED ACTION A.2 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	REQUIRED ACTION A.1 Suspend operations that involving a reduction in reactor coolant boron concentration.	APR1400 is more conservative.	
3.9.5 Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level	LCO 3.9.5 Two SDC loops shall be OPERABLE, and one SDC loop shall be in operation. ----------NOTES---------- 1. All SDC pumps may be removed from operation for ≤ 15 minutes when switching from one train to another provided: a. The core outlet temperature is maintained >10 degrees F	LCO 3.9.5 The heat removal system shall be in the following status: a. Two SCS trains shall be OPERABLE and one SCS train shall be in operation. b. With REDUCED RCS INVENTORY, the containment spray pump in the same train as an operating SCS train shall be	1. For item 'a', APR1400 is more conservative. 2. For item 'b', this ensures forced circulation is available for decay heat removal if the operating SC pump becomes inoperable for any reason and improves a reliability of SC operation during	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	below saturation temperature, b. No operations are permitted that would cause introduction of coolant into the Reactor Coolant System with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1, and c. No draining operations to further reduce RCS water volume are permitted. 2. One required SDC loop may be inoperable for up to 2 hours for surveillance testing, provided that the other SDC loop is OPERABLE and in operation. ----------	OPERABLE.	reduced inventory operation.	
	REQUIRED ACTION B.1 Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet the boron concentration of LCO 3.9.1. None	REQUIRED ACTION B.1 Suspend operations involving a reduction in reactor coolant boron concentration. B.3 Initiate action to raise RCS level to > EL 38.7 m (127 ft) when in REDUCED RCS INVENTORY.	For B.1, APR1400 is more conservative. For B.3, this enhances safety and prevents boron dilution event during reduced inventory operation.	
	CONDITION None	CONDITION C. Containment spray pump in the same train as an operating	This ensures forced circulation is available for decay heat removal if the	

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		SCS train inoperable.	operating SC pump becomes inoperable for any reason and improves a reliability of SC operation during reduced inventory operation.	
	None	D. Required Action and Completion time of Item C.3 not met.		
	SURVEILLANCE None	SURVEILLANCE SR 3.9.5.3 Verify correct breaker alignment and indicated power available to the required CS pump.	This ensures forced circulation is available for decay heat removal if the operating SC pump becomes inoperable for any reason and improves a reliability of SC operation during reduced inventory operation.	
3.9.6 Refueling Water Level	APPLICABILITY: None During movement of [recently] irradiated fuel assemblies within containment.	APPLICABILITY: During CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts, During movement of irradiated fuel assemblies within containment.	The APPLICABILITY reflects APR1400 practice.	
	REQUIRED ACTION None A.1 Suspend movement of [recently] irradiated fuel assemblies within containment.	REQUIRED ACTION A.1 Suspend CORE ALTERATIONS AND A.2 Suspend movement of irradiated fuel assemblies within containment. AND	The REQUIRED ACTIONs reflect the APPLICABILITY change.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
	None	A.3 Initiate actions to restore refueling water level to within limits.		
4.0 DESIGN FEATURES				
4.1 Site Location	-	Same as NUREG-1432		
4.2 Reactor Core	-	Same as NUREG-1432	The items reflect APR1400 design.	
4.3 Fuel Storage	-	Same as NUREG-1432	The items reflect APR1400 design.	
5.0 ADMINISTRATIVE CONTROLS				
5.1 Responsibility	-	Same as NUREG-1432		
5.2 Organization	-	Same as NUREG-1432		
5.3 Unit Staff Qualifications	-	Same as NUREG-1432		
5.4 Procedures	-	Same as NUREG-1432		
5.5 Programs and Manuals	5.5.2 Primary Coolant Sources Outside Containment The systems include [Low Pressure Injection, Reactor Building Spray, Makeup and Purification, and Hydrogen Recombiner].	5.5.2 Primary Coolant Sources Outside Containment The systems include Containment Spray System, Safety Injection System, Chemical and Volume Control System, Gaseous Waste Management System, and Containment Hydrogen Control System.	APR1400 design is reflected.	
	5.5.9 Steam Generator (SG) Program b.2. ~ Leakage is not to exceed [1 gpm] per SG.	5.5.9 Steam Generator (SG) Program b.2. ~ Leakage is not to exceed 1.14 L/min (0.3 gpm) per SG.	APR1400 design is reflected.	

Number (NUREG-1432 Contents)	Standard Technical Specifications (NUREG-1432, Rev. 4)	APR1400 NRC DC Technical Specifications (Rev. 0)	Justification	Remark
5.6 Reporting Requirements	5.6.5 Post Accident Monitoring Report When a report is required by Condition B or F of LCO 3.3.[11], "Post Accident Monitoring (PAM) Instrumentation,	5.6.5 Accident Monitoring Report When a report is required by Condition B or F of LCO 3.3.11, "Accident Monitoring Instrumentation (AMI),	The name for the instrumentation is changed according to RG 1.97 Rev.4.	
5.7 High Radiation Area	-	Same as NUREG-1432		

3. CONCLUSIONS

The APR1400 Technical Specifications satisfies 10 CFR 50.36, “Technical specifications”. The APR1400 Technical Specifications are compared with NUREG-1432, Rev. 4.0, and the justifications for the deviation from NUREG-1432 are described in this report.

4. REFERENCE

[1] Title 10 Code of Federal Regulations Part 50.36, “Technical Specifications”

[2] NUREG-1432, “Standard Technical Specifications – Combustion Engineering Plants”, Vol.1, Rev. 4.0, April 2012