Enclosure 2

Presentations and Handouts Discussed during the
July 14, 2016 ROP WG Public Meeting

Dated July 28, 2016

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Inspection Report Improvement Initiative

NRR/DIRS/IRIB

Goals

PHASE 1

- Create a simplified report format requiring less direct effort on the part of inspectors to generate and supervisors to review and approve.
- Improve the report organization, plain language usage, and messaging for the knowledgeable reader.

PHASE 2

- Develop a Reactor Program Systems (RPS) module to establish an automated Inspection Report writing program to enable fast and efficient report writing.

Criteria

- Support SECY-16-0009 recommendations to create efficiencies in ROP inspection report writing process.
- Increase readability by conforming to plain language initiatives (e.g., NRC Style Guide alignment, eliminate redundancy, streamline, reduce boilerplate language, and standardized communication)
- Adhere to principles of good regulation (ICORE) and ROP objectives and principles (Transparency, Openness, Predictability, Understandability).
- Compliance with Legal/Congressional mandates and requirements (e.g., adherence to record keeping requirements)
- Ensure effective integration into replacement RPS

Notable Planned Enhancements

- Eliminated Redundancy
- Minimize NRC Jargon
- Streamline Organization – tabular format replaces long narrative paragraphs and summary follows report order.
- Eliminate Majority of Boilerplate.

Future Report Vision

Assumption – Those attending this meeting are knowledgeable report readers and are familiar with current reports.

Microsoft Word Document

Illustrative Fictitious Notional Report

General Schedule

- ~January 2017 Pilot Reports
- ~April 2017 Auto Generate Reports
- ~January 2018 Enhanced Auto Generated Product

Feedback & Questions

Chris Cauffman

NRR/DIRS/IRIB

301-415-8416

ccc2@nrc.gov

U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

IMC 0609 Appendix M Revision

Public Meeting

July 14, 2016

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

IMC 609 Appendix M Revision

- Background Information
- Preliminary Draft Document Publicly Available (ADAMS ML16188A010)
- Next Steps

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Background Information

- SDP Business Process Initiative 2014 Recommendation (ML14318A512)
  - Clarify entry conditions
  - Determine how Appendix M should be used in conjunction with other SDP appendices
  - Develop a **framework that takes the inputs and arrives at an integrated risk-informed decision**

Background Information

- Commission Staff Requirements Memoranda
  - SRM on SECY 2013-0137 directs the staff to "evaluate the need to provide additional **clarity on the use of qualitative factors** for operating reactors to provide more transparency and predictability to the process"
  - SRM-M150806B (ADAMS ML15231A108), "Strategic Programmatic Overview of the Operating Reactors Business Line," tasked the staff to "pilot the revisions and hold public meetings or workshops to **clarify their approach to risk-informing the [significance determination] process**"
  - SRM-M160602B (ADAMS ML16176A078), "Briefing on Results of the Agency Action Review Meeting," states that "Proposed significant changes or pilot programs related to the ROP and SDP should be provided to the Commission, accompanied by **thorough, data-driven analysis that clearly identifies the program performance issues that need to be addressed**"

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Preliminary Draft Document

- Presentation of Preliminary Draft
  - Zachary Hollcraft, DIRS/IPAB

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Next Steps

- Public Workshop in September, 2016
  - External Stakeholder comments
  - "Table Top Exercises"
- Additional public meetings and/or workshops in November, 2016?

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

IMC 0609 Appendix M Revision

See-Meng Wong, NRR/DRA
Zack Hollcraft, NRR/DIRS
Brandon Hartle, NRR/DRA

Purpose

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Communicate with external stakeholders
  - Content
  - Use
  - Structure
- Provide NRC staff's vision for revising IMC 609 Appendix M
- Receive any initial industry comments

Goals

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Provide clear and concise entry conditions for the use of IMC 609 Appendix M
- Identify the set of key decision attributes that is relevant for each specific entry condition
- Develop guidance to establish the relative importance of each decision attribute
- Provide a formal Integrated Risk-Informed Decision Making (IRIDM) tool for use in the SDP

Revised Appendix M Draft – Overview of Enhancements

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- New revision will contain clear and concise Entry Conditions for usage

  If the defined Entry Conditions are not met, Appendix M will direct the staff to use the appropriate SDP tool

- New revised document will provide
  - a structured tool to integrate results into a predictable and objective decision outcome
  - the set of factors and criteria to be assessed for each decision attribute

Entry Conditions

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

a. A quantitative SDP tool is not available and therefore, the significance assessment of the performance deficiency is not amenable to quantitative assessments for risk-informed decision making

Entry Conditions

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

b. The available quantitative SDP tools are not adequate to provide a preliminary significance determination due to complexities that affect a timely quantitative assessment (e.g., large uncertainties of PRA modeling and other influential assumptions),

Entry Conditions

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

c. Additional SDP tools that involve extensive resources are needed to assess significance of inspection findings of unique complexities (e.g. findings associated with natural hazards).

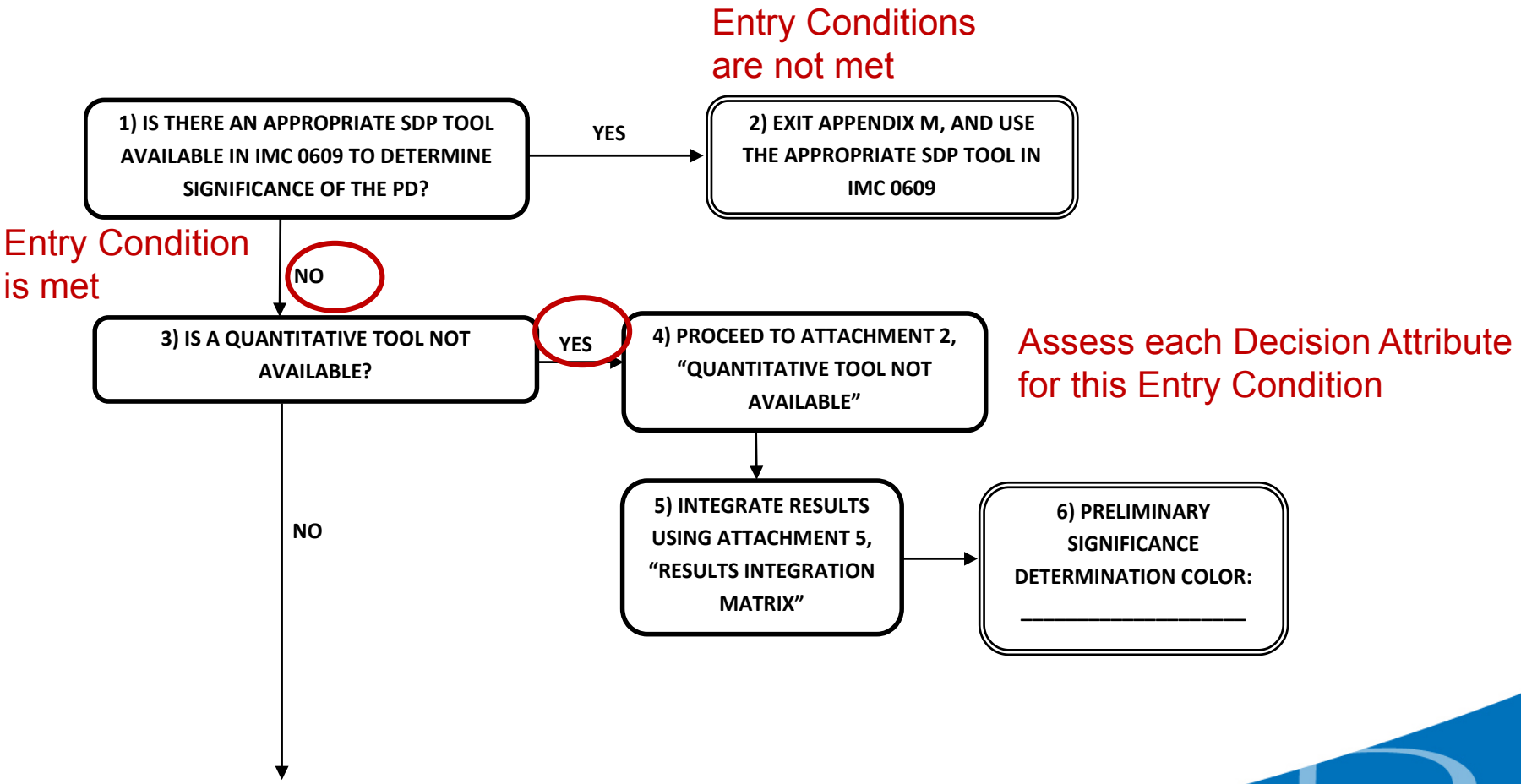
Revised Appendix M Draft – Proposed Structure

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- The proposed IRIDM process will use currently approved and vetted methodology and structure found in Reg. Guide 1.174 and LIC-504

- If the Entry Conditions to use Appendix M are met, the staff will follow a flowchart through a 5-Step IRIDM Process
  - Characterize the Finding
  - Define Effect on Each Decision Attribute
  - Perform Assessment of Each Decision Attribute
  - Integrate Assessment Results
  - Document the Decision

Revised Appendix M Draft – Proposed Structure (Cont)

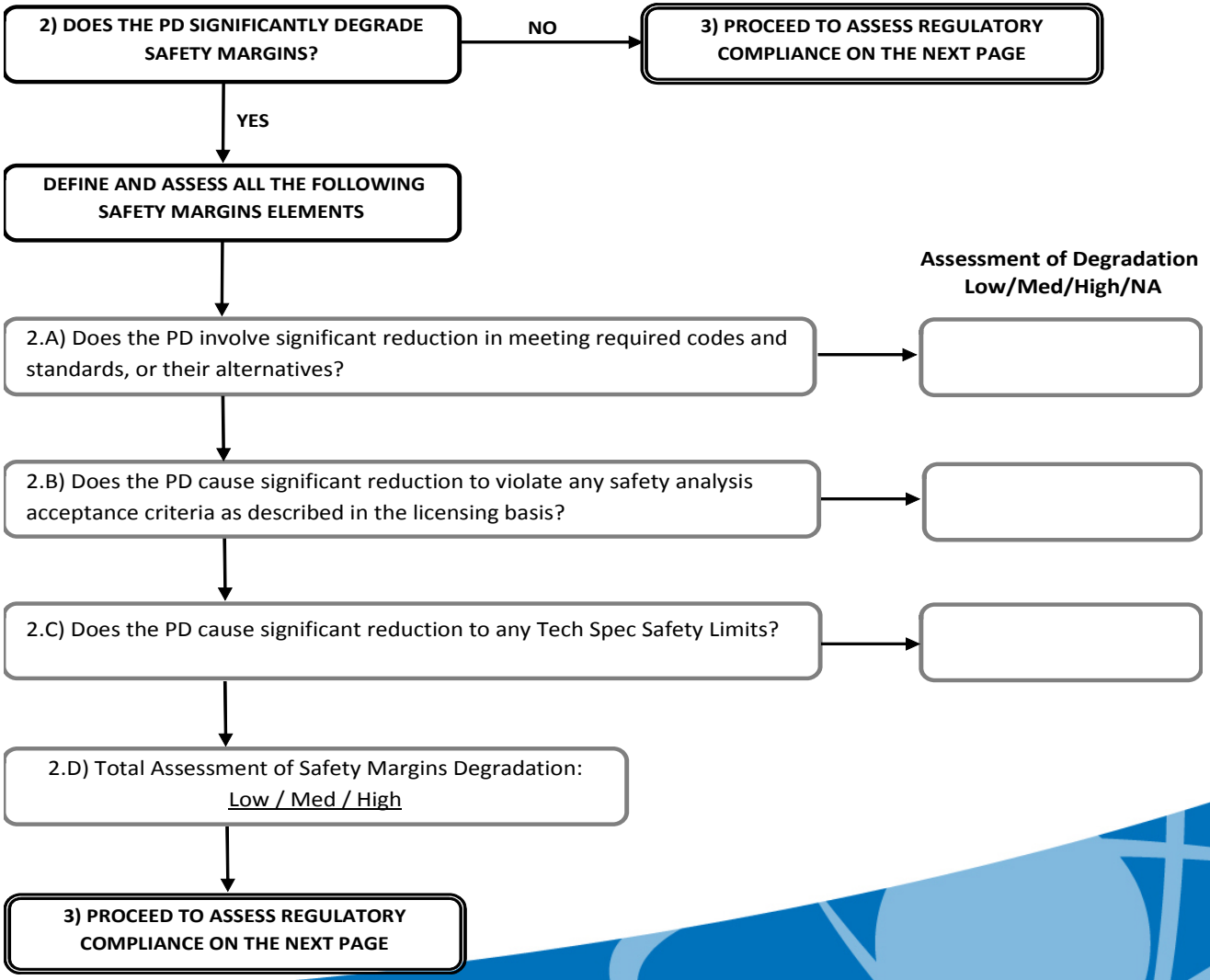


Revised Appendix M Draft – Defined Decision Attributes

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Decision attributes are what decision makers use to make a risk-informed decision
- Each Entry Condition will contain its own set of well defined decision attributes
- The decision maker will assess how the performance deficiency (PD) affects each decision attribute
- The decision maker(s) will integrate these results to determine a preliminary significance

Revised Appendix M Draft – Defined Decision Attributes (Cont)



Revised Appendix M Draft – Integration Matrix (Sample)

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

TABLE 1 ELEMENTS FROM ATTACHMENT 2, "QUANTITATIVE TOOL NOT AVAILABLE"		
ELEMENT	**DEGREE OF DEGRADATION (Low/Med/High/NA)**	**JUSTIFICATION**
Defense-in-Depth		
Safety Margins	**LOW**	**Element 2.A, 2.B, and 2.C are LOW**
Regulatory Compliance		
Performance Monitoring		
Extent of Condition		
Degree of Degradation		
Exposure Time		
Recovery Actions		
Cross-Cutting Issues		
Additional Relevant Elements		
RESULTS (Number of Low/Med/High)	**COLOR DETERMINATION**	**JUSTIFICATION**

- Work is needed to determine how to integrate the decision attributes into a preliminary decision

Next Steps

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Draft IMC 609 Appendix M revision has been provided
  - It is very DRAFT
  - External stakeholders are encouraged to review the draft document and provide feedback on missing attributes
  - A second workshop will be scheduled in September 2016 to discuss feedback from external stakeholders and staff progress

Thank you

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Questions?

AP1000 Safety Performance Verification Matrix **Revision 1**
July 14, 2016

Objective: Compile the key attributes of the AP1000 Structures, Systems and Components (SSCs) and use that information to determine areas of the ROP that need to be enhanced to accommodate the AP1000 design. The ROP areas to be focused on are performance indicators (IE and MS only), baseline inspections and significance determination process. This will ensure that potential causes and effects of challenges to these SSCs are well-understood so that – consistent with its stated mission - the ROP can:

- Collect information about licensee performance
- Assess the information for its safety significance
- Provide an appropriate licensee and NRC response

The AP1000 Safety Performance Verification Matrix below was developed to present the key attributes and how they will be evaluated and assessed in the ROP. The staff will engage affected internal and external stakeholders during the development and validation (e.g., tabletops, pilots, etc.) of the methodology and approach. To further define and frame the baseline inspection program for the AP1000, the staff envisions developing a Risk Information Matrix similar to those developed for the original ROP as included in SECY-99-007, Attachment III.

Table Description:

AP1000 Systems: A system that warrants regulatory oversight (within the ROP) due to its importance to safety. Three letter designators match the nomenclature specified in the AP1000 Design Control Document (DCD). Reference: AP1000 DCD. Source of SSCs: AP1000 DCD Chapter 17.4, Reliability Assurance Program (RAP) List. System boundaries and interfaces are not explicitly considered.

RTNSS: This is the Regulatory Treatment of Non-Safety related SSCs (RTNSS) which is required for passive plants. RTNSS SSCs are active and non-safety related systems relied on for defense-in-depth and necessary to meet passive-ALWR-plant safety goals and investment protection goals. The RTNSS SSCs were identified in the AP1000 DCD 16.3, Investment Protection Short-Term Availability Controls Program.

IMPORTANCE: Risk importance or significance of each system. The risk importance information in IMC 2519 was agreed upon by industry and NRC staff during the development of the construction ROP. It categorizes plant systems into High (>1E-4), Intermediate (1E-4 to 1E-5), Low (1E-5 to 1E-6), and Very Low (<1E-6) Risk based on the mean core damage frequency (CDF) if the SSC is assumed to be completely unavailable. The SSCs were compared with the DCD risk importance results and they were very similar. Source: IMC 2519 - cROP program document, Appendix A-10.

KEY SSC FUNCTIONS: Risk-significant functions performed by the SSC.

IMPORTANT ATTRIBUTES: In plain English, what features of the SSC provide assurance that the system performance (including reliability, and availability) will be acceptable? Significant Technical Specification testing requirements are identified. Also, specifics about each system is identified such as RTNSS, Post-72hour availability. Reference: AP1000 DCD.

VERIFY BY PI / VERIFY BY INSPECTION: The assumption is that inspections, tests, analyses, and acceptance criteria (ITAAC) and pre-operational/start-up testing (as verified by the construction inspection program) will provide reasonable assurance that initial SSC performance is acceptable. What tools (PIs, inspection, etc.) should be leveraged to ensure that systems important to plant safety are not degraded during operations?

TREATMENT BY SDP: Are there unique aspects to the SSC (e.g., passive cooling, digital I&C, RTNSS) that should be considered when evaluating inspection findings? Or that there isn't an SDP for? Could a low risk important system be screened to green?

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
Protection and Monitoring System (PMS)	Aux Bldg	HIGH	Uses Digital I&C which is likely to involve novel concepts; Detection of off-nominal conditions and actuation of appropriate safety-related functions necessary. In addition, it provides the equipment necessary to monitor the plant safety-related functions during and following an accident;	Safety Related; Functions with software, hardware and display panels; 4 Divisions available;			
Automatic Depressurization System (ADS)	Cont Bldg - Passive	HIGH	ADS valves open when actuated and remain open for the duration of an automatic depressurization event	Safety Related; ADS has 4 stages:- -Stages 1 to 3 each have 2 lines with 2 MOVs in series per line; MOVs have electrical DC motor operators; -Stage 4 has 4 lines with 1 Normally-Open MOV and 1 squib valve in series; Valves (DC Motors) are powered by Class 1E IDS; 10 year Full System Tech Specs Test			
Core Makeup Tanks (PXS)	Cont Bldg, Outside Secondary Shield Wall – Passive	INTERMEDIATE	2 CMTs maintained at RCS pressure Provide core decay heat removal during transients, accidents or whenever the normal heat removal paths are lost	Safety Related; 2 Normally-Open MOVs, 2 AOVs in parallel per line and in-line check valves; Tank is not insulated or heated; Location of tanks support maintenance and inspection; 10 year Full System Tech Specs Test			
Accumulators (PXS)	Cont Bldg, Outside Secondary Shield Wall – Passive	LOW	Safety injection from 2 accumulators into RCS via direct injection lines to provide adequate core cooling for all LOCA sizes	Safety Related; Nitrogen gas pressure; Tank is not insulated/heated; 2 Normally-Open MOVs and check valves in series; Location of tanks support maintenance and inspection; 10 year Full System Tech Specs Test			

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
In-Containment RWST (PXS) – PRHR Heat Sink Injection Mode	Cont Bldg – Passive	HIGH	PRHR Heat Sink: Support the PRHR heat exchanger operation as the heat sink; Houses the PRHR HX. Injection Mode: Post-LOCA Gravity feed RCS via DVI lines to flood containment for long term RCS cooling after RCS has been depressurized.	Safety Related; 2 IRWST screens for injection; 2 Containment screen for flooding recirculation; Tank has normally closed vents for pressure equalization with containment and prevent damage of the tank during both operating modes; 2 injection lines – each line has 1 Normally-Open MOV in series with 2 Squib valves in parallel and in-line check valves; Squib valves tested every 2 years (all get continuity test, 20% get full stroke); 10 year Full System Tech Specs Test			
Passive RHR (PXS)	Cont Bldg – Active	INTERMEDIATE	Non-LOCA events:- Transfers heat from RCS into IRWST via PRHR HX for long term decay heat removal; Redundant to non-safety-related normal RHR (RNS)	Safety Related; 1 Normally-Open MOV and 4 AOVs – 2 in parallel; Passive challenges to PRHR[1]: Cracked tubes; HX Fouling; High initial IRWST temp; Non-condensable gasses; Degraded insulation (lower thermal head); Thermal stratification; Bypass flow caused by leaking valve; Capability exists in control room to detect 500 gpm crack, the assumed limit to prevent rupture; Gutter system and corresponding valves return condensed water to IRWST, ensuring long-term availability of inventory; Actuated by redundant parallel AOVs that fail open on loss of air, PMS signal or 1E power 10 year Full System Tech Specs Test			
Passive Containment Cooling System (PCS)	Shield Bldg – Passive	LOW	Reduce containment temperature and pressure following a loss of coolant accident (LOCA) or main steam line break (MSLB) inside the containment;	Safety Related; Provides at least 72 hours of containment wetting; Passive containment cooling water storage tank is built into containment structure; 3 discharge lines from the tank 2 lines each have			

[1] These are generic to passive cooling systems that rely on thermal head. A specific list for each passive system could be developed, possibly with support from RES.

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
			Transfers heat to the safety-related ultimate heat sink for other events resulting in a significant increase in containment pressure and temperature	an AOV and 1 line has an MOV for diversity; Water distribution bucket and weir system evenly deliver water to the containment outer shell; Air flow paths are provided with screens to move air through the containment side and out through the containment chimney for cooling the containment shell; Containment must be vented after 24 hours; PCS annulus drains inspected every 2 years; Key portions of the system are accessible during power operations or shutdown; PCS Water Makeup is Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements; 10 year Full System Tech Specs Test			
DC-1E (IDS)	Aux Bldg – Passive	HIGH	250VDC battery bank and 120VAC UPS buses power I&C and various valves needed for safe shutdown (both DC and AC, via inverters)	Safety Related; Four independent divisions of Class 1E 250VDC battery systems each with a UPS and battery charger, physical and electrical isolation important; A spare Class 1E battery system and charger is provided; two 24 hour and two 72 hour battery banks; No load shedding is required in the first 24 hours; Supports 72-hour operation;			
Main AC Power (ECS)	Annex Bldg - Active	LOW	Normal power source for reactor, turbine, and balance of plant auxiliary electrical loads; On loss of normal and preferred sources, ancillary diesel generators supply selected loads; Charges the Class 1E DC battery Safety-related reactor coolant pump breakers open to allow CMT operation;	Non-safety Related; Non-Class 1E system;			

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
Offsite Power ***RTNSS***	Switchyard	VERY LOW	Preferred power source when the normal power source (Main AC Power) is not available; Provides power during plant startup, shutdown, and maintenance, from the high-voltage switchyard via back feed using the main and auxiliary transformers;	Non-safety Related; AC power source not required; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			
DGs ***RTNSS*** **(includes both standby and ancillary diesels)**	Annex Bldg - Active	VERY LOW	The AP1000 design supports island mode if the main generator is still available during LOOP; Ancillary DGs: Provides long term Class-1E power supplies for Post Accident Monitoring (PAM), MCR lighting, MCR and I&C room ventilation, and power to refill the PCS water storage tank and spent fuel pool if no other sources of AC power are available; Standby DGs: Provide backup power source when the main generator, feedback from offsite power and maintenance power are not available;	Non-safety related; 2 Ancillary DGs and 2 Standby DGs; Ancillary DGs support post-72 hour actions such as lighting, cooling, tank refill and battery recharging; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			
DC POWER (EDS) ***RTNSS***	Annex Bldg - Active	INTERMEDIATE	The non-Class 1E 125VDC and UPS system (EDS) provides dc and uninterruptible ac power to non-safety-related loads including DAS to support ATWS mitigation and the Hydrogen igniters;	2 separate power supply trains; Each train will last 2 hours after loss of all AC; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
Normal RHR (RNS) ***RTNSS***	Aux Bldg - Active	LOW	Back-up for passive RHR system	Non-safety Related, apart from containment & RCS isolation functions; Long term post-accident containment inventory makeup; Typically powered by onsite standby DGs; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			
Service Water System (SWS) ***RTNSS***	Turbine Bldg – Active	LOW	Supplies cooling water to remove heat from the non-safety related component cooling water system heat exchangers in the turbine building, transferring it to the non-safety-related ultimate heat sink	Non-safety Related; 2 trains with one normally running and the other in standby and backed up by the onsite standby DGs; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			
Component Cooling Water System (CCS) ***RTNSS***	Turbine Bldg - Active	LOW	The component cooling water system is a non-safety related, closed loop cooling system that transfers heat from various components needed for plant operation and removes core decay heat and sensible heat for normal reactor shutdown and cooldown.	Non-safety Related; 2 trains with one pump each and backed up by the onsite standby DGs; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			
Diverse Actuation System (DAS) ***RTNSS***		LOW	It is a non-safety related, diverse system that provides an alternate means of initiating reactor trip and actuating selected engineered safety features, and providing plant information to the operator;	Non-safety Related; Backup to PMS with diversity in signals used; DAS Instrumentation is Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements; Included in Tech Specs with testing every 24 months;			
Containment Hydrogen Control System (VLS)	Containment Bldg	LOW	The containment hydrogen control system is provided to limit the hydrogen concentration in the	Non-safety Related: Hydrogen concentration monitoring;			

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
RTNSS			containment so that containment integrity is not endangered.	Hydrogen control during and following a degraded core or core melt scenarios (provided by hydrogen igniters); In addition, two non-safety related passive autocatalytic recombiners (PARs) are provided for defense-in-depth protection against the buildup of hydrogen following a loss of coolant accident; Hydrogen Ignitors are Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			
Main control room and I&C rooms B/C ancillary fans Nuclear Island Nonradioactive Ventilation System (VBS - FANS)		LOW	Isolates the HVAC penetrations in the main control room boundary on high-high particulate or iodine concentrations in the main control room supply air or on extended loss of ac power; Deliver the required air flow to the main control room to meet the ventilation and pressurization requirements for 72 hours; Provide passive heat sinks capable of limiting the temperature rise for the main control room, instrumentation and control rooms, and dc equipment rooms; Serves the main control room, technical control support center area, Class 1E dc equipment rooms, Class 1E instrumentation and control (I&C) rooms, Class 1E electrical penetration rooms, Class 1E battery rooms, remote shutdown room and the passive containment cooling system (PCS) valve room;	Safety Related; VBS MCR and I&C rooms B/C ancillary fans (VBS-MA-10A/B, -11, -12) are available to provide cooling of the MCR and the two I&C rooms (B/C) that provide post-accident monitoring; Included in the Short-Term Availability Controls Program with allowed outage times and surveillance requirements;			

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
Plant Control System (PLS)	Aux Bldg.	INTERMEDIATE	Provides the functions necessary for normal operation of the plant from cold shutdown through full power; Establish and maintain plant operating conditions within prescribed limits Minimize challenges to the protection systems	Non-safety related automatic and manual control of non-safety related equipment			
Reactor Coolant System (RCS)	Cont. Bldg.	HIGH	Transfers heat to the steam and power conversion system (during power operation as well as the initial phase of plant cooldown); Transfers heat produced during the subsequent phase of plant cooldown and cold shutdown to the normal residual heat removal system;	Safety Related;			
Chemical and Volume Control System (CVS)	Aux Bldg. – Active	VERY LOW	Maintain the required coolant inventory in the reactor coolant system including maintaining RCS purity and activity level within acceptable limits; Provide pressurizer auxiliary spray water for depressurization; Fill and pressure test the reactor coolant system (with connections for hydrostatic testing);	Non-safety Related; 2 trains with one pump and one letdown AOV isolation valve each; The chemical and volume control system (CVS) provides a safety-related means to terminate inadvertent RCS boron dilution and to preserve containment integrity by isolation of the CVS lines penetrating the containment;			
Steam Generator System (SGS)	Cont. Bldg.	VERY LOW	Remove heat from the reactor coolant system during power operation and anticipated transients as well as under natural	RCS Pressure Boundary portion is Safety Related; Heat transfer function and associated secondary water and steam system are not safety related;			

AP1000 System *Not comprehensive	Location / Active or Passive	IMPORTANCE (magnitude of CDF if SSC unavailable)	KEY SSC FUNCTIONS	IMPORTANT ATTRIBUTES	VERIFY BY PI?	VERIFY BY INSPECTION?	TREATMENT BY SDP
			circulation conditions				
Startup Feedwater System (FWS)	Turbine Bldg. – Active	VERY LOW	Supply feedwater to the steam generators during plant startup, hot standby and shutdown conditions, and during transients in the event of main feedwater system unavailability;	Non-safety Related; This capability provides an alternate core cooling mechanism to the PRHR heat exchangers for non-LOCA or steam generator tube ruptures			
Main Control Room Emergency Habitability System (VES)	Annex Bldg.	VERY LOW	Provides emergency ventilation and pressurization for the main control room after a loss of AC power; Also provides emergency passive heat sinks for the main control room, instrumentation and control rooms, and dc equipment rooms	Safety Related; Functions 10 mins after loss of AC; Included in Tech Specs 3.7.6			