Constellation

Limerick Generating Station

Digital Modernization Project

LAR Pre-submittal Meeting

NRC Pre-submittal Meeting
March 31, 2022

Introductions – Constellation Project Team

- Licensing
  - Dave Helker, Licensing Manager
  - Frank Mascitelli, Licensing Lead
  - Laura Lynch, LGS Regulatory Assurance Manager
  - George Budock, LGS Regulatory Assurance
  - Pareez Golub, Digital Licensing SME

- Engineering
  - John Connelly, Central Design Organization (CDO) Manager
  - Mark Samselski, CDO - Lead Responsible Engineer
  - George Bonanni, CDO - Senior Staff Engineer
  - Mike Foote, CDO - Senior Staff Engineer
  - Scott Schumacher, Systems Engineering

Introductions – Constellation Project Team

- Project Management
  - Steve Hesse, Project Director
  - Dave Molteni, Senior Manager and Station Lead
  - Jerry Segner, Principal Project Manager
  - Kayla Marriner, Project Manager
- Operations
  - Paul Krueger, Senior Operations Specialist
  - Matt Jones, Operations Shift Supervisor
- Nuclear Oversight
  - Dave Peiffer, Performance and Assessment Lead
- PRA Support
  - Jeffrey Stone, Director, Corporate Engineering PRA
  - Suzanne Loyd, Senior Manager, Engineering Risk Management

Introductions – Westinghouse Project Team

- Project Management
  - Dominic Mocello, Project Manager
  - Boyan Setchenski, Program Manager
  - Tom Pietryka, Program Manager

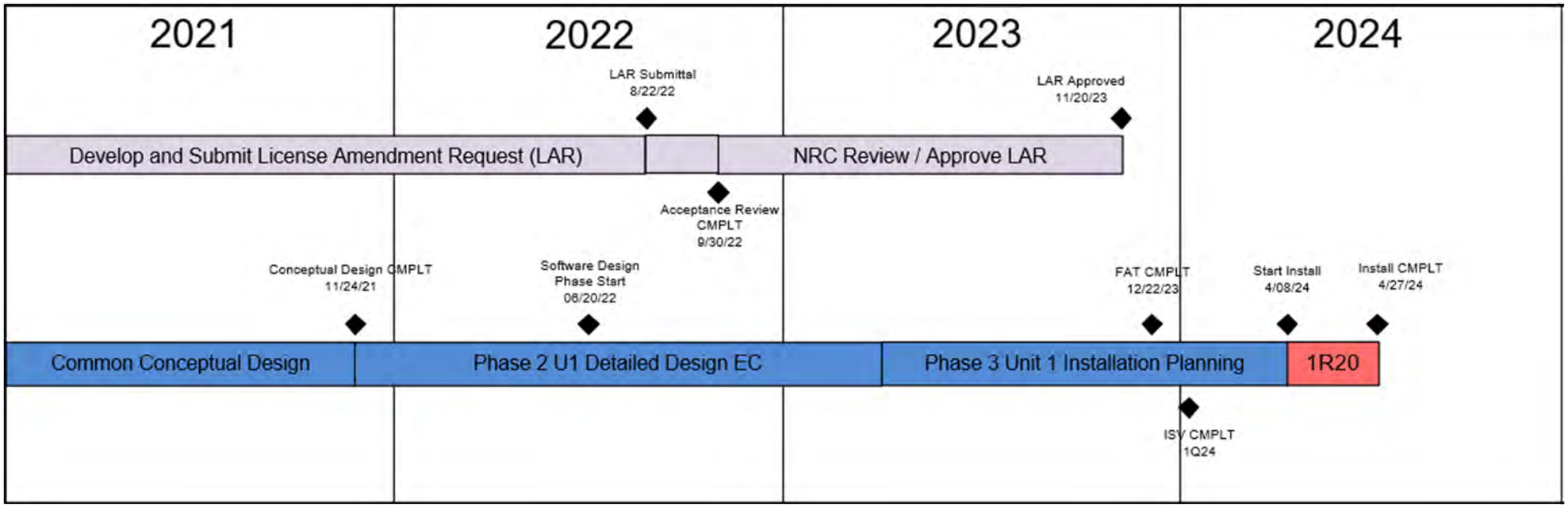
- Engineering
  - Terry Tuite, PPS Lead – Engineering
  - Dan Zenger, DCS Lead - Engineering
  - Warren Odess-Gillett, Lead – Licensing
  - Steve Seaman, System Integration Lead
  - Cal Tang, BWR Technical Advisor

Agenda / Opening Remarks

- Open / Public Session
  - Introductions
  - Project Update/schedule
  - License Amendment Request (LAR) Content
  - Technical Specifications
  - Regulatory Commitments
- Closed Session
  - Methodology for calculating RAW for D3 Analysis Position 4 Primary and Secondary Containment Isolations
  - DPS/RRCS Architecture
  - Sensor Consolidation
  - Reliability Analysis
  - Human Factors Engineering Evaluation Details
  - LGS Plant Power Distribution
  - PPS Cabinet Power Distribution
  - Risk-Informed Completion Times (RICT) Update
  - Defense-in-Depth and Diversity (D3) Feedback

Project Update/Schedule

Project Schedule



LAR Contents

LAR Submittal Contents

- Cover letter
- Required information per DI&C-ISG-06 Enclosure B, Alternate Review Process
- Description and reason for the proposed TS changes
- Technical Specification markups and clean pages
- Technical Specification Bases markups (Info only)
- TS Descriptions of Change (DOCs)
- Outage Installation Strategy
- Conceptual FSAR Mark-ups (Info Only)
- VOP Summary

LAR Submittal Contents

- Licensing Technical Report (LTR) Proprietary and Non-proprietary versions
  - RRCS re-classification per 10 CFR 50.62 justification
- LGS PPS FMEA to support TS SR eliminations (FMEDA is in WEC WCAP 18461-P and addressed in LTR)
- Initial Equipment Qualification Summary Report (EQSR)
- PPS System Requirements Specification (SyRS)
- PPS System Design Specification (SyDS)
- CIM Diversity Analysis
- HFE Plan (details in slides to follow)
- D3 analysis *(already submitted to NRC)*
- Regulatory Commitments

Post LAR Supplements / Submittals

- Post LAR submittal Supplements will include the following:
  - Equipment Qualification Summary Report (EQSR)
  - HFE NUREG-0711 Elements (Procedure / Training Impacts, V&V)
  - Separate Risk-Informed Completion Time (RICT) LAR

Documents Complete at Time of LAR Submittal

Available for Audit:

- Project Management Plan for the Limerick Generating Station Plant Protection System
- PPS Software Development Plan
- Digital Modernization Project Configuration Management Plan
- PPS Reliability Analysis
- PPS Response Time Analysis
- PPS Preliminary Software Hazard Analysis
- Control & Information System Engineering System Quality Assurance Plan

Technical Specifications

Technical Specifications Update

- At the December 7, 2021 presubmittal meeting, we stated that the LGS TS Section 2.2.1, "Limiting Safety System Settings," would be retained but that the table of functions would be moved to instrumentation section of the TS.
  - After further review, we determined that the Section 2.2.1 wording would require extensive modification to be consistent with the new requirements and the better presentation was to remove Section 2.2.1, consistent with the Standard Technical Specifications (NUREG-1433).

Technical Specifications Update

- At the December 7, 2021 presubmittal meeting, we stated that Specification 3.3.1, "Plant Protection System Instrumentation Channels," would not have Actions based on the actuated system. The NRC staff questioned that approach.
  - We considered the NRC staff comments and agree that some Actions based on the actuated system were desirable. We modified the TS 3.3.1 table format to accommodate some existing Actions based on the actuated system.

Technical Specifications Update

- In the LAR, we would like to qualify that the retyped, proposed TS are technically correct, but not “publication ready.” That means that page numbers, page breaks, insertion of “intentionally blank” pages, indenting, table column spacing, etc., may change in the final TS. In addition, there are open LARs that affect some of the affected TS pages. Constellation will submit final, “publication ready” pages prior to LAR approval, consistent with the practice of providing final pages for other LARs.

- We would like to use this approach because the changes to Section 3.3 are significant (multiple specifications removed and new ones inserted) and the LGS TS use continuous page numbers within a Section. In addition, the LGS TS use double-sided pages with specifications and tables beginning on left-facing pages, requiring the use of “intentionally blank” pages. Therefore, it would be most efficient to make any changes related to resolution of NRC RAIs before creating the final TS.

Other TS changes

- Other TS changes will be needed to support the installation of the PPS system (outage installation strategy) or in addition to the PPS digital modification:
  - The RRCS system will be required to be removed from service two to three weeks prior to start of the outage for demolition
    - A one-time TS AOT extension to both trains of RRCS equipment being inoperable
  - Implement a section of TSTF-582 (Reactor Pressure Vessel Water Inventory Control Enhancements) that had not been previously adopted for Limerick
    - Allows for core alterations during outage conditions
    - Removes automatic operation of Emergency Diesel Generators on unit in OPCON 5 (Refueling) to facilitate instrumentation/logic changes
  - One-time temporary modification to TS to facilitate Reactor Mode Switch wiring (provide actions to allow movement of rods with a full scram inserted with the plant in OPCON 5 during the mod installation work on RPS and the Reactor Mode Switch)
  - Separate TS LAR to include RICTs with applicable revised TS from the PPS digital LAR (more discussion in closed portion)

Regulatory Commitments

Regulatory Commitments

- Regulatory Commitments for:
  - Site Acceptance Test (Per Plant Specific Action Item #5 per WCAP-16097, *Common Qualified Platform Topical Report*)
- License Condition for completion of the Integrated System Validation in accordance with the License Amendment Request (LAR)

Closed Portion

RAW Methodology

RAW Methodology for Limerick Analysis

- Risk Achievement Worth (RAW) was calculated by taking the risk increase ratio between the quantification of the base model using only each PCIV 'Failed open' and the base PRA results in the Full Power Internal Events (FPIE) PRA in both Core Damage and Large Early Release Analysis.
- Not all containment penetrations or isolation valves are modeled for isolation function.
- For penetrations not screened, additional screening is applied to containment isolation valves determined to be risk significant based on pipe diameter, where small leak failures of containment were risk insignificant.

DPS/RRCS Architecture

DPS/RRCS Architecture

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RRCS/DPS Inputs and Outputs

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Sensor Consolidation

Original Crosswalk Table

Transmitter	DIV	Function	Reactor Vessel High Pressure Scram	Primary Containment High Pressure Scram	Reactor Low Level Scram	CS - Reactor Vessel Lo-Lo Level	CS-Drywell High Pressure	CS-Reactor Vessel Low Pressure Permissive	LPCI - Reactor Vessel Low Water Level (LPCI Loop Selection &LPCI Initiation)	LPCI - Drywell High Pressure(LPCI Initiation)	LPCI - Reactor Vessel Low Pressure(Valve Opening Permissiv	HPCI - Reactor Vessel Low Pressure(Valve Opening Permissiv	HPCI - Reactor Vessel Low Water Level	HPCI - Drywell High Pressure	ADS - Reactor Vessel Low Water Level Confirmatory	ADS - Drywell High Pressure	RCIC - Reactor Vessel Low Water Level	RCIC - Reactor Vessel high Water Level Turbine Trip	NSSSS - Reactor Vessel Low Water Level (LVL 1)	NSSSS - Drywell High Pressure (LVL2)	RG 1.97
LT-*N080A	A1	CH A NR WTR LVL			A																
LT-*N080B	B1	CH B NR WTR LVL			B																
LT-*N080C	A2	CH C NR WTR LVL			C																
LT-*N080D	B2	CH D NR WTR LVL			D																
LT-*N081A	A1	CH AWR WTR LVL																A	A		
LT-*N081B	B1	CH B WR WTR LVL																B	B		
LT-*N081C	A2	CH C WR WTR LVL																C	C		
LT-*N081D	B2	CH D WR WTR LVL																D	D		
PT-*N078A	A1	CH A RX Vessel Pressure	A																		
PT-*N078B	B1	CH B RX Vessel Pressure	B																		
PT-*N078C	A2	CH C RX Vessel Pressure	C																		
PT-*N078D	B2	CH D RX Vessel Pressure	D																		
PT-*N050A	A1	CH A Drywell Pressure		A																A	
PT-*N050B	B1	CH B Drywell Pressure		B																B	
PT-*N050C	A2	CH C Drywell Pressure		C																C	
PT-*N050D	B2	CH D Drywell Pressure		D																D	
LT-*N091A	1	CH A WR Rx Level			A			A								A	A				
LT-*N091E	1	CH E WR Rx Level			E			E								E	E				
LT-*N091B	2	CH B WR Rx Level			B			B				B		B							
LT-*N091F	2	CH F WR Rx Level			F			F				F		F							
LT-*N091C	3	CH C WR WTR LVL			C			C													
LT-*N091G	3	CH G WR WTR LVL			G			G													
LT-*N091D	4	CH D WR WTR LVL			D			D						D							
LT-*N091H	4	CH H WR WTR LVL			H			H						H							
LT-*N095A	1	CH A NR Rx Level													A						
LT-*N095C	3	CH C NR Rx Level													C						
LT-*N097A	1	CH A WR Rx Level														A	A				
LT-*N097E	1	CH E WR Rx Level														E	E				

Transmitter	DIV	Function	Reactor Vessel High Pressure Scram	Primary Containment High Pressure Scram	Reactor Low Level Scram	CS - Reactor Vessel Lo-Lo Level	CS-Drywell High Pressure	CS-Reactor Vessel Low Pressure Permissive	LPCI - Reactor Vessel Low Water Level (LPCI Loop Selection &LPCI Initiation)	LPCI - Drywell High Pressure(LPCI Initiation)	LPCI - Reactor Vessel Low Pressure(Valve Opening Permissiv	HPCI - Reactor Vessel high Water Level Turbine Trip	HPCI - Reactor Vessel Low Water Level	HPCI - Drywell High Pressure	ADS - Reactor Vessel Low Water Level Confirmatory	ADS - Drywell High Pressure	RCIC - Reactor Vessel Low Water Level	RCIC - Reactor Vessel high Water Level Turbine Trip	NSSSS - Reactor Vessel Low Water Level (LVL 1)	NSSSS - Reactor Vessel Low Water Level (LVL2)	RG 1.97
PT-*N090A	1	CH A RX Vessel Pressure						A			A										
PT-*N090E	1	CH E RX Vessel Pressure						E			E										
PT-*N090B	2	CH B RX Vessel Pressure						B			B										
PT-*N090F	2	CH F RX Vessel Pressure						F			F										
PT-*N090C	3	CH C RX Vessel Pressure						C			C										
PT-*N090G	3	CH G RX Vessel Pressure						G			G										
PT-*N090D	4	CH D RX Vessel Pressure						D			D										
PT-*N090H	4	CH H RX Vessel Pressure						H			H										
PT-*N090J	1	CH J RX Vessel Pressure						J													
PT-*N090N	1	CH N RX Vessel Pressure						N													
PT-*N090K	2	CH K RX Vessel Pressure						K													
PT-*N090P	2	CH P RX Vessel Pressure						P													
PT-*N094A	1	CH A Drywell Pressure					A			A						A					
PT-*N094E	1	CH E Drywell Pressure					E			E						E					
PT-*N094B	2	CH B Drywell Pressure					B			B				B							
PT-*N094F	2	CH F Drywell Pressure					F			F				F							
PT-*N094C	3	CH C Drywell Pressure					C			C						C					
PT-*N094G	3	CH G Drywell Pressure					G			G						G					
PT-*N094D	4	CH D Drywell Pressure					D			D				D							
PT-*N094H	4	CH H Drywell Pressure					H			H				H							
LT-*N085A	1	CH A FZ Level																			A
LT-*N085B	2	CH B FZ Level																			B
LT-*15A	1	WR Indication																			A
LT-*15B	2	WR Indication																			B
PT-*03A	3	CH A ADS Pressure																			A
PT-*03B	4	CH B ADS Pressure																			B

Consolidated Sensor Crosswalk Table

Transmitter	DIV	Function	Reactor Vessel High Pressure	Primary Containment High Pressure	Reactor Low Level Scram	CS - Reactor Vessel Lo-Lo Level	CS-Drywell High Pressure	CS-Reactor Vessel Low Pressure Permissive	LPCI - Reactor Vessel Low Water Level (LPCI Loop Selection & LPCI Initiation)	LPCI - Drywell High Pressure(LPCI Initiation)	LPCI - Reactor Vessel Low Pressure(Valve Opening Permissive)	HPCI - Reactor Vessel Low Pressure permissive	HPCI - Reactor Vessel high Water Level Turbine Trip	HPCI - Drywell High Pressure	ADS - Reactor Vessel Low Water Level	ADS - Drywell High Pressure	RCIC - Reactor Vessel Low Water Level Confirmatory	RCIC - Reactor Vessel Low Water Level	NSSSS - Reactor Vessel high Water Level Turbine Trip	NSSSS - Reactor Vessel Low Water Level (LVL 1)	NSSSS - Drywell High Pressure (LVL2)	RG 1.97
LT-*N080A	1,2,3,4	CH A NR WTR LVL			A										A							
LT-*N080B	1,2,3,4	CH B NR WTR LVL			B										B							
LT-*N080C	1,2,3,4	CH C NR WTR LVL			C										C							
LT-*N080D	1,2,3,4	CH D NR WTR LVL			D										D							
LT-*N081A	1,2,3,4	CH AWR WTR LVL				A			A				A	A				A	A	A	A			
LT-*N081B	1,2,3,4	CH B WR WTR LVL				B			B				B	B				B	B	B	B			
LT-*N081C	1,2,3,4	CH C WR WTR LVL				C			C				C	C				C	C	C	C			
LT-*N081D	1,2,3,4	CH D WR WTR LVL				D			D				D	D				D	D	D	D			
PT-*N078A	1,2,3,4	CH A RX Vessel Pressure	A					A			A	A												
PT-*N078B	1,2,3,4	CH B RX Vessel Pressure	B					B			B	B												
PT-*N078C	1,2,3,4	CH C RX Vessel Pressure	C					C			C	C												
PT-*N078D	1,2,3,4	CH D RX Vessel Pressure	D					D			D	D												
PT-*N050A	1,2,3,4	CH A Drywell Pressure		A			A			A					A		A					A		
PT-*N050B	1,2,3,4	CH B Drywell Pressure		B			B			B					B		B					B		
PT-*N050C	1,2,3,4	CH C Drywell Pressure		C			C			C					C		C					C		
PT-*N050D	1,2,3,4	CH D Drywell Pressure		D			D			D					D		D					D		
LT-*N085A	1	CH A FZ Level																						A
LT-*N085B	2	CH B FZ Level																						B
LT-*15A	1	WR Indication																						A
LT-*15B	2	WR Indication																						B
PT-*03A	3	CH A ADS Pressure																						A
PT-*03B	4	CH B ADS Pressure																						B

Reliability Analysis

Reliability Target

- Limerick UFSAR and GE (OEM) design specifications do not contain explicit target values
- GE NEDO-10139 provides the existing systems reliability goals
  - NEDO-10139 addresses reliability for ECCS & NSSSS
    - ECCS - the reliability of the control system is compatible with the controlled equipment so that the overall system reliability is not limited by controls for core cooling systems
    - NSSSS - the reliability of the isolation control system is compatible with and higher by at least an order of magnitude than the reliability of the actuated equipment (valves)
- Technical Evaluation Report: A Review Of Reactor Trip System Availability Analysis For Generic Letter 83-28, Item 4.5.3, Resolution
  - Establishes Reactor Trip System unavailability value

Reliability Target

- Using the reliability goals as guidance from NEDO-10139 along with the dominate reliability values for controlled equipment and NSSSS isolation valves logic
- Use of Generic Component Failure Data Base For Light Water and Liquid Sodium Reactors PRAs (EGG-SSRE-8875) was used to provide
  - ECCS dominant failure - pump and turbine failures – 3E-03 /demand
  - NSSSS dominant failure - solenoid valves failures – 3E-03 /demand
  - NEDO-10139 reliability goal is an order of magnitude greater for the target reliability for NSSSS
- Technical Evaluation Report: A Review Of Reactor Trip System Availability Analysis For Generic Letter 83-28, Item 4.5.3, Resolution provided a base failure frequency of RPS (RTS) as 3E-06 per demand

PPS Unreliability Requirements	
System	Failures Per Demand
RPS	3E-06
ECCS	3E-04
NSSSS	3E-04

Human Factors Engineering Evaluation

HFE Execution Summary, Status at LAR Submittal, and Expected Final Disposition

NUREG-0711 Element	Current Status	Final Disposition
Operating Experience Review	Complete	Results Summary Report (RSR) for LAR Submittal
Functional Analysis and Allocation	Workshop at Limerick Simulator (3/22-24/2022)	Combined RSR for LAR Submittal
Task Analysis	Workshop at INL Human Systems Simulation Laboratory (5/2-5/2022)	
Staffing & Quals	Implementation description in HFE Plan	RSR available post LAR Submittal
Treatment of Important Human Actions	Implementation description in HFE Plan	IP and RSR available post LAR Submittal
HSI Design	Implementation description in HFE Plan HSI Style Guide	• Development of initial Prototype HSIs and Control Room Layout • HSI Static/Dynamic workshops (at HSSL)

HFE Execution Summary, Status at LAR Submittal, and Expected Final Disposition

NUREG-0711 Element	Current Status	Final Disposition
Impacts to Procedures	Implementation description in HFE Plan	Combined RSR available post LAR Submittal
Impacts to Training	Implementation description in HFE Plan	
V&V (Task Support, Design Verification & Integrated System Validation)	Implementation description in HFE Plan	Combined RSR available post LAR Submittal
Design Implementation	Part of Constellation Engineering Change Package	Installed per the design and implementation process
Human Performance Monitoring	Implementation description in HFE Plan	Items are identified, post-installation, in CAP for evaluation and resolution

HFE Program HSI development: Execution and Verification / Validation

Activity	Current Status/Plan	Supports
Development of initial Prototype HSIs and Control Room Layout	In progress. Both to be presented in Function Analysis/Allocation and Task Support Workshops	Early input into Westinghouse HSI design
HSI Static/Dynamic workshops (at HSSL)	Iterative HSI design in coordination with Westinghouse/Constellation using simulators. Impacts both HSIs and procedures	Workshop results captured as inputs into HSI Design
Task Support Verification	Perform Task Verification using Westinghouse developed HSIs along with procedures	V&V RSR post LAR Submittal. Provide input from Task Verification to HSI Design
Design Verification	Perform Design Verification as part of WEC design process as supported by INL and Constellation per Vendor Oversight Plan	V&V RSR post LAR Submittal. Will summarize HFE Design verification efforts including Style Guide use.
Develop detailed ISV Implementation Plan	Implementation description in HFE Plan	Plan available for NRC Review
Perform ISV and Produce Report	Implementation description in HFE Plan	V&V RSR post LAR Submittal

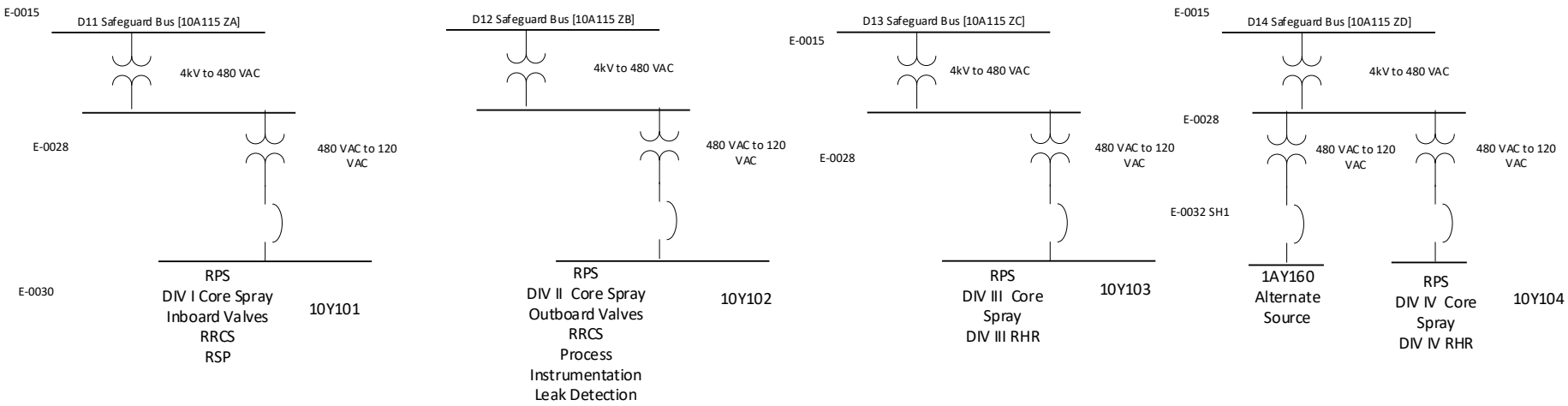
Integrated System Integration (ISV) Strategy

- LAR contents:
  - ISV Overall Strategy including:
    - Description of HSI development: Execution and Verification / Validation activities
    - Description of the proposed ISV Implementation Plan (IP)
  - License Condition to perform the ISV in accordance with the LAR
- Note that the ISV IP will be available for audit prior to ISV execution
- Note that the V&V RSR will be available for inspection prior to system installation
- Perform the ISV to close the License Condition

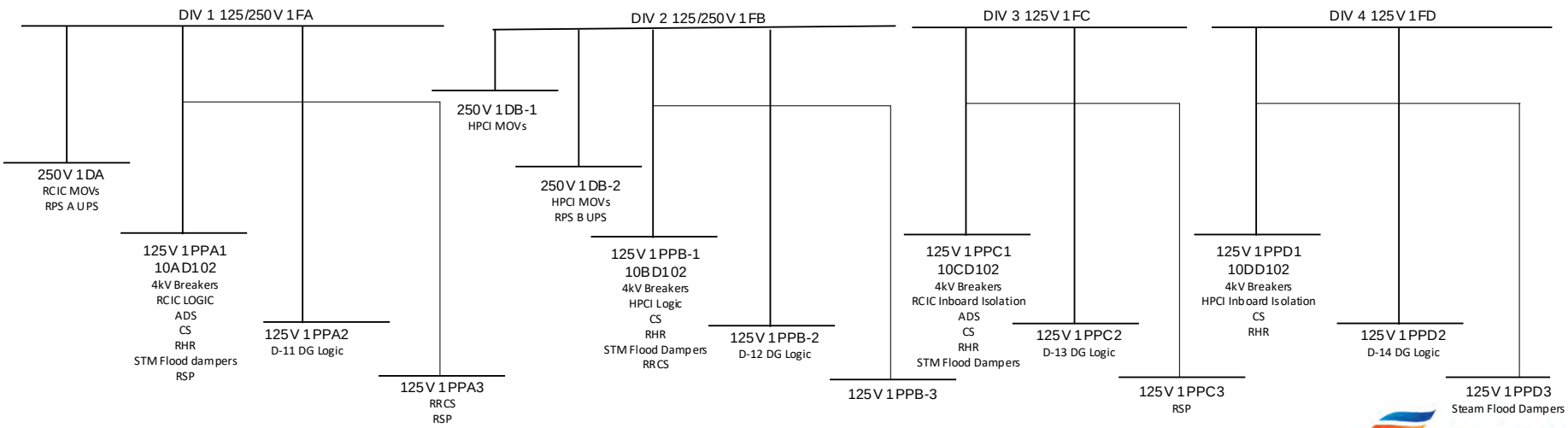
LGS Plant Power Distribution

LGS AC & DC Divisional Single Line Power

Safety AC Bus and Loads



Safety DC Bus and Loads



PPS Cabinet Power Distribution

PPS Cabinet Power Distribution

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MCR Safety Display (SD) Power Distribution

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Risk-Informed Completion Times (RICT) Update

RICT

- The Digital Modernization Project LAR will not contain Risk Informed Completion Times (RICTs).
- Existing RICTs will be removed from affected instrumentation Technical Specifications (TS).
- There are currently 19 existing RICTs that cover about 97 TS functions.
- Perform a subsequent separate RICT submittal to amend TS for RICTs.
  - Submit this after the Digital Modernization Project LAR Final Design is completed (April 2023)
  - Ask for six-to-nine-month NRC review period (December 2024) due to limited scope
  - PRA modeling can be done with mature design, eliminating multiple iterations of analyses and will provide a high quality RICT justification

RICT

- Final design is required which is forecasted for March 2023, approximately 7 months after the proposed LAR Submittal date.
- The RICT Submittal will be categorized as a Linked RLA (Requested Licensing Action (i.e., LAR) because of dependence on unapproved TS in previous digital LAR submittal.
- Normally a RLA should not be accepted for NRC review and approval until all prerequisite RLAs have been reviewed and approved by the NRC.
- Requesting NRC for discretion during Acceptance Review of the Linked RLAs.
- Asking PRA Branch to start review in earnest after Acceptance Review so that a six-to-nine-month review time is achieved.
- Limited scope LAR to update Modification-Impacted TSs to include RICT:
  - List of Revised Required Actions to Corresponding PRA Functions
  - Updated Baseline CDF and LERF due to the Modification
  - Key Assumptions and Sources of Uncertainty associated with the Modification
  - Risk Management Action Examples, if applicable

Diversity and Defense in Depth (D3) Feedback

Next Pre-submittal Meeting Topics

Closing Comments

Acronyms

ADS	Automatic Depressurization System	FMEDA	Failure Modes, Diagnostics, and Effects Analysis	PPS	Plant Protection System
AER	Auxiliary Equipment Room	FPGA	Field Programmable Gate Array	PSAI	Plant Specific Action Items
AOI	Advant Ovation Interface	FSAR	Final Safety Analysis Report	QA	Quality Assurance
ARI	Alternate Rod Injection	HFE	Human Factors Engineering	QMP	Quality Management Plan
ARP	Alternate Review Process	HPCI	High Pressure Core Injection	RAI	Request for Additional Information
ASAI	Application Specific Action Item	HSL	High Speed Link	RCIC	Reactor Core Isolation Cooling
ATWS	Anticipated Transient Without Scram	IBR	Incorporated by Reference	RHR	Residual Heat Removal
BPL	Bistable Protection Logic	ILP	Integrated Logic Processor	RPS	Reactor Protection System
BWR	Boiling Water Reactor	INL	Idaho National Labs	RPV	Reactor Pressure Vessel
CAP	Corrective Action Program	I/O	Input/Output	RRCS	Redundant Reactivity Control System
CCF	Common Cause Failure	ITAAC	Inspection, Test, Analysis, and Acceptance Criteria	RWCU	Reactor Water Cleanup
CDO	Central Design Organization	LAR	License Amendment Request	SER	Safety Evaluation Report
CRDR	Control Room Design Review	LCL	Local Coincidence Logic	SFMS	Supplier Fundamental Management System
CIM	Component Interface Module	LGS	Limerick Generating Station	SDC	Shutdown Cooling
CRADA	Cooperative Research and Development Agreement	LOOP	Loss of Offsite Power	SDV	Scram discharge volume
CPU	Central Processing Unit	LPCI	Low Pressure Coolant Injection	SLCS	Standby Liquid Control System
CS	Core Spray	LRA	Licensee Required Action	SPDS	Safety Parameter Display System
D3	Defense-in-Depth and Diversity	LTR	Licensing Technical Report	SPM	Software Program Manual
DCS	Distributed Control System	MCR	Main Control Room	SR	Safety-related
DDS	Data Display System	MPB	Manual Partial Bypass	SRNC	Safety Remote Node Controller
DEHC	Digital Electro-Hydraulic Control	MPT	Manual Partial Trip	SRV	Safety Relief Valve
DPS	Diverse Protection System	MSFIS	Main Steam and Feedwater Isolation System	SSE	Safe Shutdown Earthquake
ECCS	Emergency Core Cooling System	MSIV	Main Steam Isolation Valve	SyDS	System Design Specification
EDG	Emergency Diesel Generator	NSR	Nonsafety-related	SyRS	System Requirements Specification
EOP	Emergency Operating Procedures	NSSSS	Nuclear Steam Supply Shutoff System	TS	Technical Specifications
EQSR	Equipment Qualification Summary Report	OBE	Operating basis earthquake	TU	Trip Unit
ESFAS	Emergency Safety Function Actuation System	PC	Personal Computer	UFSAR	Updated Final Safety Analysis Report
FMEA	Failure Modes and Effects Analysis	PMS	Protection and Monitoring System	VOP	Vendor Oversight Plan
		PPC	Plant Process Computer	WEC	Westinghouse

Backup MCR Pictures

Current Main Control Room Configuration

General Arrangement for Main Control Room

Potential Arrangement with Monitor Visuals

Potential Arrangement with View from RO Console

Potential Arrangement with View from SRO Station

Approval Information

Author Approval Odess Gillett Warren Mar-17-2022 08:09:47
Reviewer Approval Shakun Matthew A Mar-17-2022 14:19:24
Approver Approval Harper Zachary S Mar-17-2022 14:28:33

Files approved on Mar-17-2022