

# DIABLO CANYON POWER PLANT PROCESS PROTECTION SYSTEM REPLACEMENT Third Phase 0 Meeting February 3, 2011



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# Agenda

- Introduction
- ISG-06 Update
- Project Plan and Schedule
- LAR Discussion
- Technical Topics
- Factory Acceptance Test
- Questions (NRC Staff)
- Closing Comments/Adjourn

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# ISG 6 Update

- NRC Status
- PG&E Progress
- ISG 6 Matrix - Vendor and PG&E documents
- ISG 6 and Cyber Requirements (NRC)

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# NRC Status

- ISG 6 Revision was issued on 1/19/2011
- Vendor Topical Report Review
  - Tricon v10
  - ALS
  - Forecast for approval dates
- Diversity Defense-in-Depth Approval Status

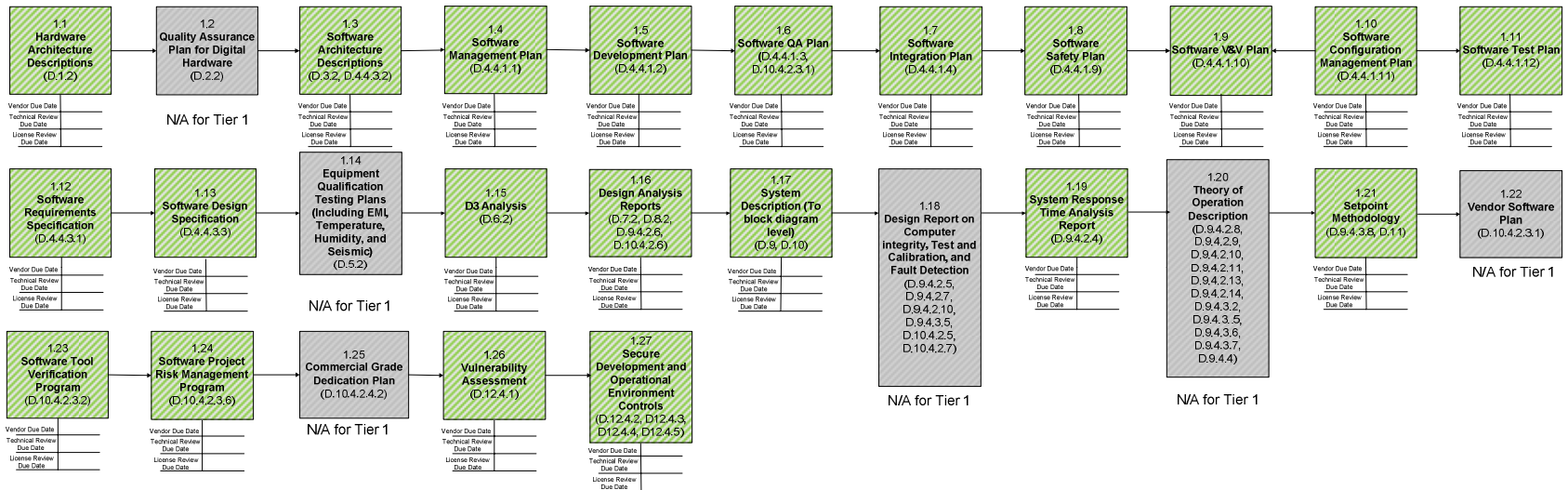
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# PG&E Progress

- Completed Conceptual Design Document
- Completed Revision 2 of the Functional Requirement and Interface Requirement Specifications
  - Including the Logic Diagrams and IO List
- Project Plan is near complete
- SQAP is near complete
- Contracts to vendors for ISG 6 Phase 1 documents

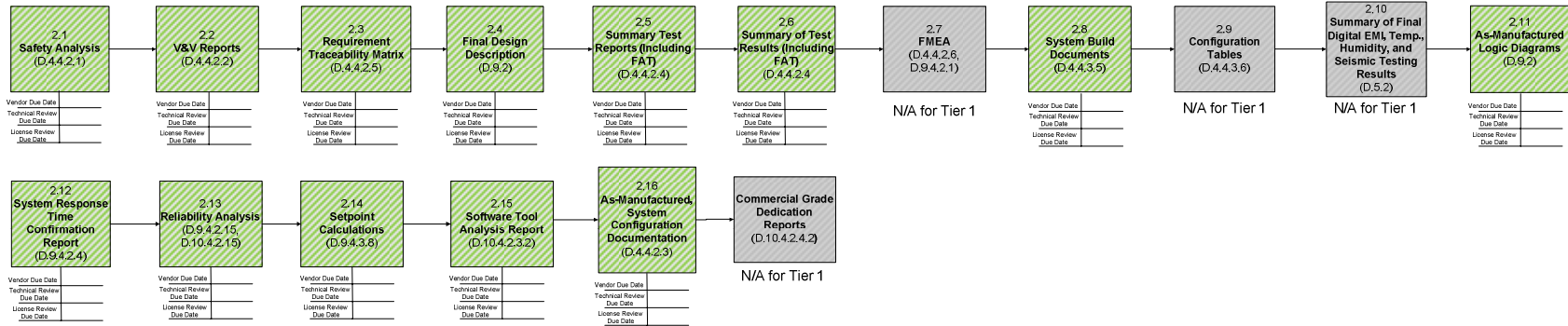
# Phase 1 Documentation to be Submitted

## Phase 1 – Submitted with LAR

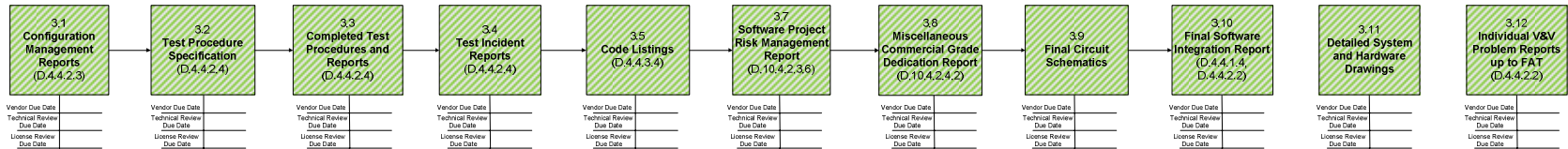


# Phase 2 Submitted and Available for Audit

## Phase 2 – Submitted 12 months prior to requested approval

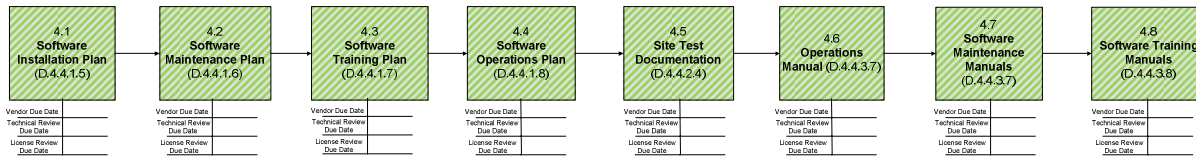


## Phase 2 – Available for Audit 12 months prior to requested approval



# Phase 3 Available for Inspection

## Phase 3 – Available for Inspection after Approval





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# Cyber Security

- Diablo Canyon is responsible to ensure compliance with the applicable cyber security regulations and guidance during all life cycle phases of the plant upgrade following 10 CFR 73.54, Regulatory Guide 1.152 Rev. 2 and ISG-01.
- Applicable to:
  - Vendor equipment software development
  - Diablo Canyon responsible departments

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# Cyber Security Summary

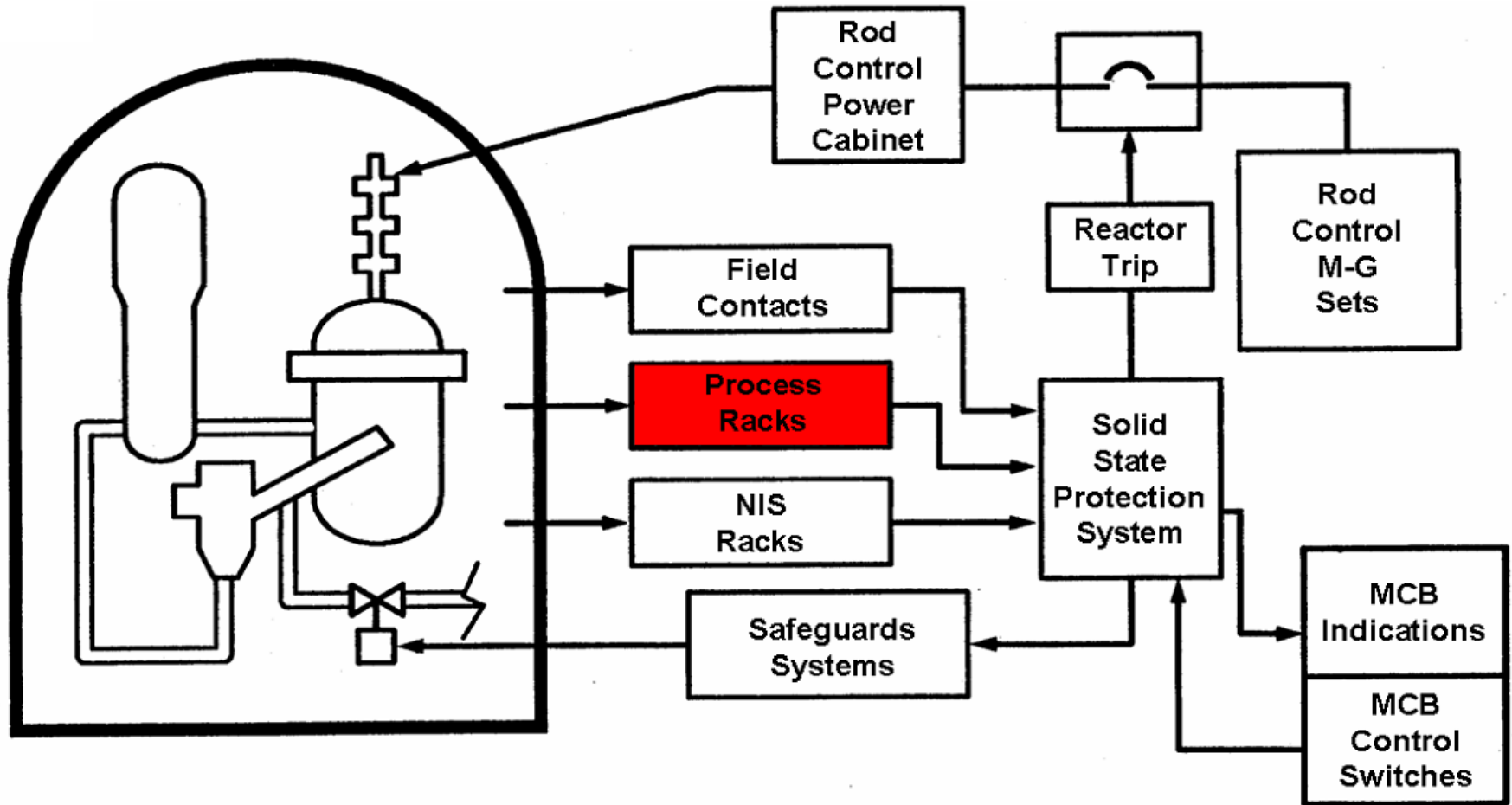
- Diablo Canyon will comply fully with the applicable guidance on cyber security both for the vendor design program (offsite) and the onsite installation, testing and later phases as called for in NRC Reg. Guide 1.152, ISG-01 and the applicable Regulations.
- Discuss interface to cyber security program

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# Project Plan and Schedule

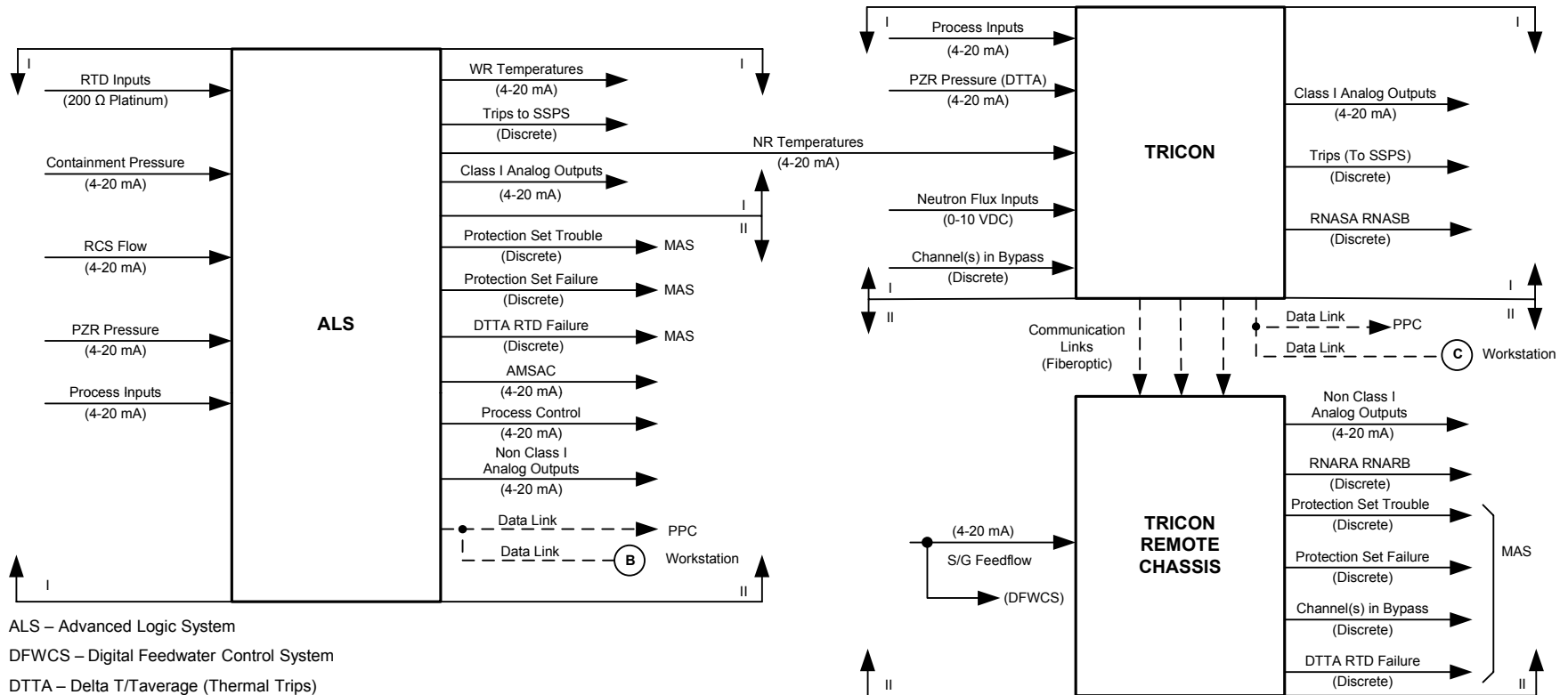
- Project Scope
- Replacement PPS Concept
- Milestone Schedule
- Lifecycle Document Flow

# Project Scope

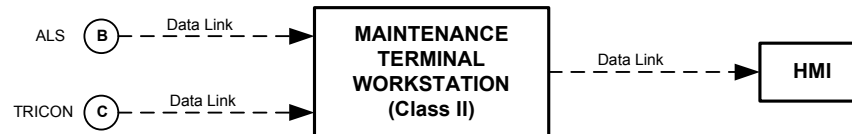


# Replacement PPS Concept (ALS Provides Diverse Front-End Isolation and Actuation)

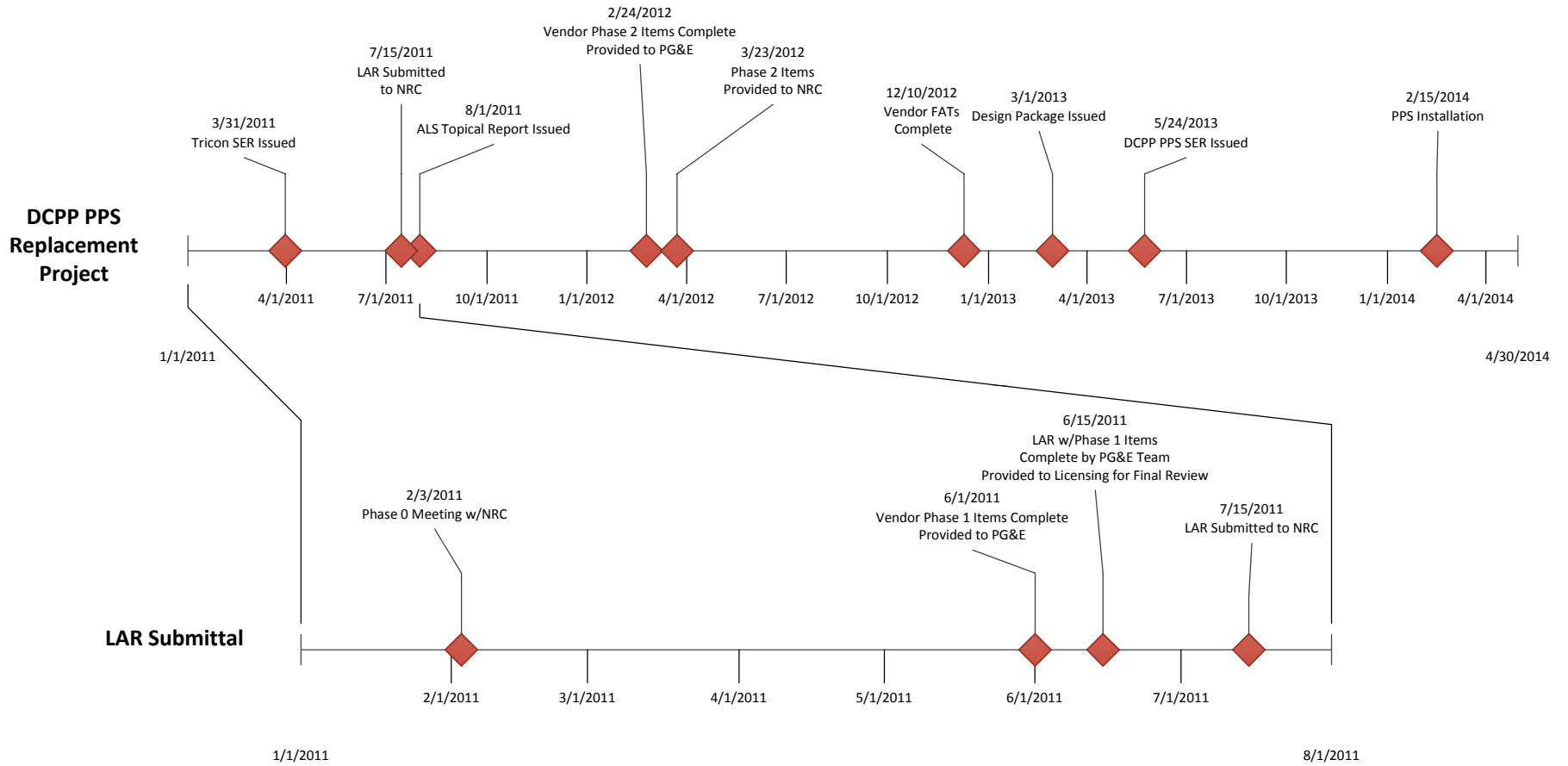
Note: SSPS & AMSAC are original equipment; not being replaced.



- ALS – Advanced Logic System
- DFWCS – Digital Feedwater Control System
- DTTA – Delta T/Taverage (Thermal Trips)
- HMI – Human Machine Interface
- PPC – Plant Process Computer
- PZR – Pressurizer
- RNARA/RNARB – Auxiliary Relay Cabinets
- RTD – Resistance Temperature Detector
- RCS – Reactor Cooling System
- SSPS – Solid State Protection System
- WR – Wide Range

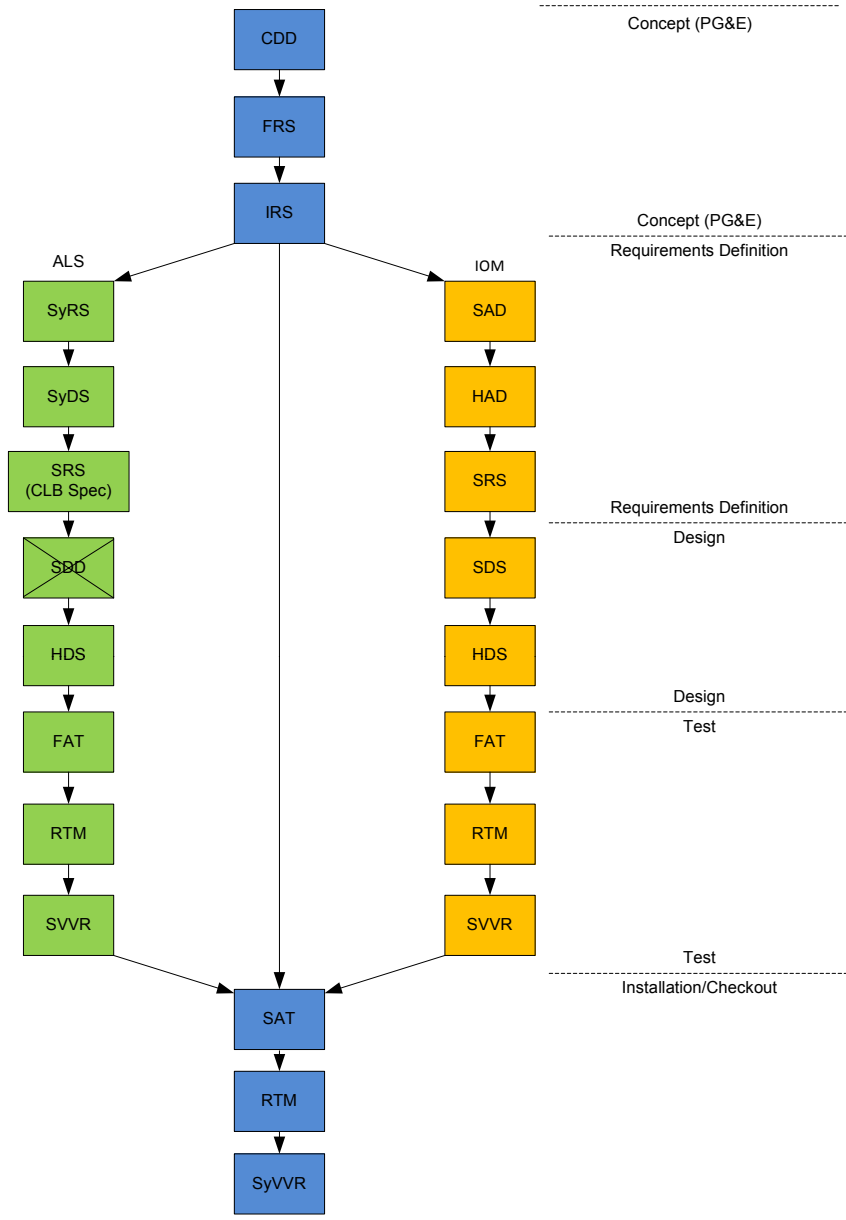


# Project Milestone Schedule



# Lifecycle Document Flow

- Glossary:
- CDD Conceptual Design Document
  - FRS Functional Requirements Specification
  - IRS Interface Requirements Specification
  - SAD Software Architecture Requirements
  - HAD Hardware Architecture Requirements
  - SyRS System Requirements Specification
  - SyDS System Design Specification
  - SRS Software Requirements Specification
  - HRS Hardware Requirements Specification
  - HDS Hardware Design Specification
  - SDD Software Design Description
  - SDS Software Design Specification
  - FAT Factory Acceptance Test
  - SAT Site Acceptance Test
  - DVT Design Verification Testing
  - RTM Requirements Traceability Matrix
  - SVVR Software Verification & Validation Report
  - SyVVR System Verification & Validation Report



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# LAR Discussion

- Format of LAR - with two vendors, how should the LAR be structured?
- LAR Submittal as a Tier 1 for Tricon and ALS with NRC acceptance tied to both vendor topical approval
  - Confirm review schedule
- NRC Resources – who and when will they be available for our review
- Submittal of High Level Documents first before the LAR for review



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# Technical Topics

- NRC's evaluation of ALS diversity approach – Risks? Challenges?
  - Maintenance Workstation Software (non-safety) - What review will the NRC do and what level of documentation is expected
    - Maintenance Workstation is SIL 1
  - Time Base Verification - can this be justified without periodic measurement of time base based on how it works (e.g. self-diagnostics)
  - Use of simple digital components like isolators, signal conditioners with respect to diversity and CCF's
  - RPS/ESFAS Application Software QA
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## Factory Acceptance Test (FAT)

## Site Acceptance Test (SAT)

- Two Separate FATs before SER
    - Each vendor will perform an FAT
    - How much time does the NRC need after the submittal of the FAT report to issue the SER?
  - Integrated SAT after SER
    - SAT to verify equipment after shipment and testing of any external interfaces at the Project Integration and Test (PIT) facility
  - Design Verification Test (DVT) before being placed in service
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# Questions

- NRC Staff
- PG&E
- Westinghouse
- Invensys

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# Closing Comments / Adjourn