THE NATION'S
URANIUM PROCESSING FACILITY

American Nuclear Society
Rejuvenate Infrastructure

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NNSA/CNS Rejuvenate Infrastructure

Agenda

- UPF update video
- Establishing a Design Authority on the UPF project
- Design Authority Technical Oversight of Requirements
- Design Authority Role in V&V of Project Requirements
- Managing Project Data in a Data Centric Environment
- UPF Plant Lifecycle of Activities
- Single Execution Rule going Forward Updating in Data Centric Environment

CNS Enterprise Design Authority

Establishing a Design Authority and Safety Basis on the UPF project:

- Independent Design Authority (DA) including Safety Basis (SB) establishes engineering requirements and verifies that the engineering design and end product meet the mission, functional, operational requirements and design integrates SB requirements.
- DA and SB role includes serving as owner's agent as directed by NNSA for oversight of DOE/NNSA 3rd party contractors and tenant entities engaged in CNS site activities.
  - Design, review, and testing work may be delegated or sub-contracted, but the **Design Authority retains ultimate responsibility for the technical baseline.**
  - Serves as the **ultimate technical authority for any and all technical issues** associated with form, fit, or function of the SSCs, and oversight of design activities and deliverables.
  - **Oversee establishing and maintaining the design basis and design requirements**, ensuring that design requirements reflected in design output documents appropriately and accurately reflect the design basis, and ensuring the end products incorporate and satisfy end user needs.
  - **Validates that design basis and design requirements** are consistent with the applicable federal regulations, national consensus codes and standards, and DOE orders as specified in the CNS contract requirements.
  - Oversee establishing, implementing, and enforcing engineering processes and procedures (e.g., conduct of engineering) necessary to establish**, maintain, and preserve the design basis and design requirements.**
  - Ensures the **design basis is accurately translated into technically correct outputs-activities** that result in products that meet specifications; and perform in service as designed and expected.
  - **Provides conflict resolution and interpretation** of design requirements and oversight of design activities.

CNS Enterprise Design Authority Model

Why include roles other in DA?

- Technical Authorities
  - Contractor AHJs
  - IBC Building Code Official
  - Chief Engineers*
  - Owner's Inspector
  - Engineered Equipment Technical Authorities*

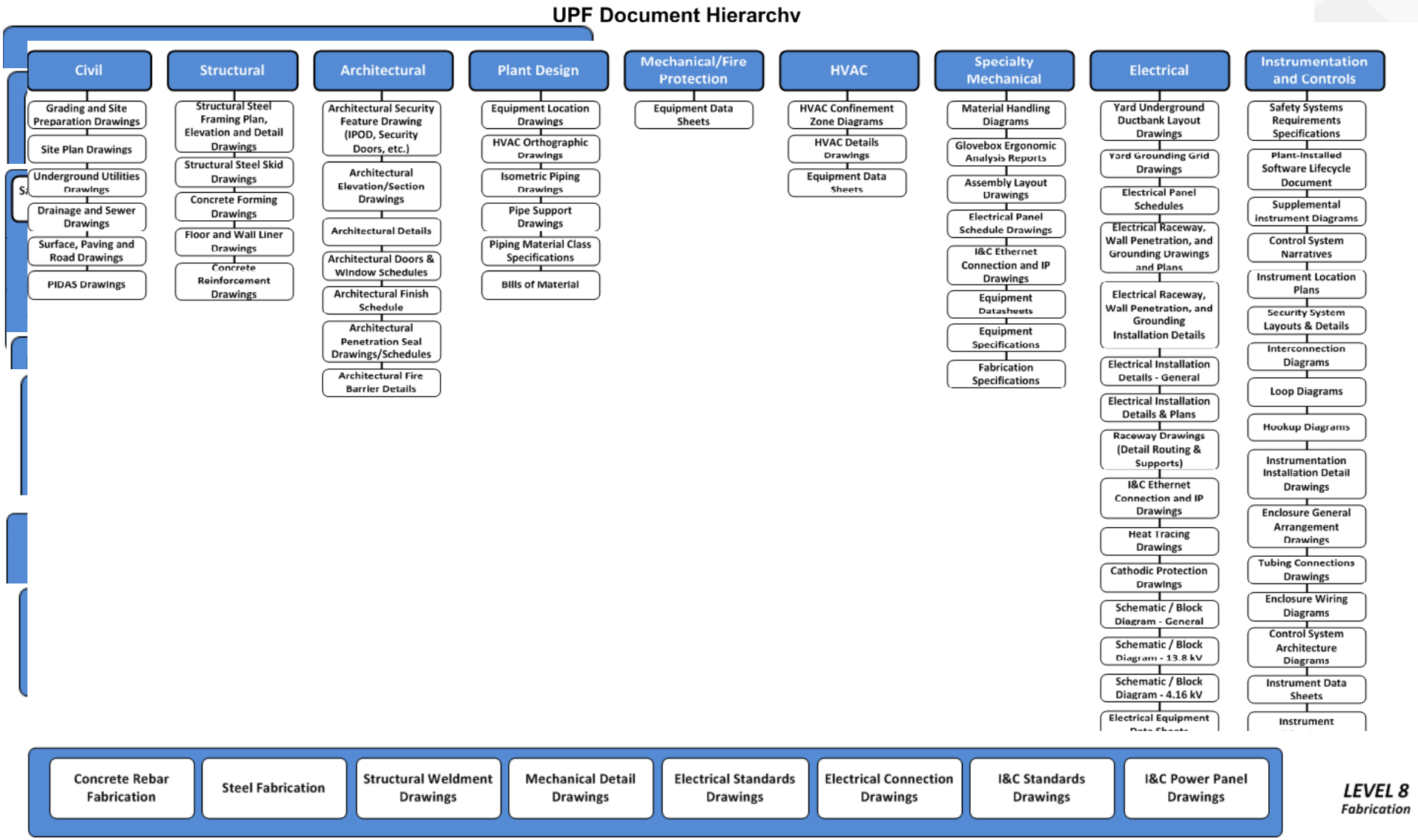
Design Authority is responsible for providing the technical authority with appropriate specialized knowledge and expertise to address the breath of technical responsibilities.

- Requirements Management
  - Systems Engineering
  - TCCB Chairman
  - SDIT Chairman
  - USQ like screening

Design Authority responsible for maintaining design technical baseline; ensuring the integration of Safety Basis and Design requirements to verify consistency with applicable federal regulations, national consensus codes and standards, and DOE orders.

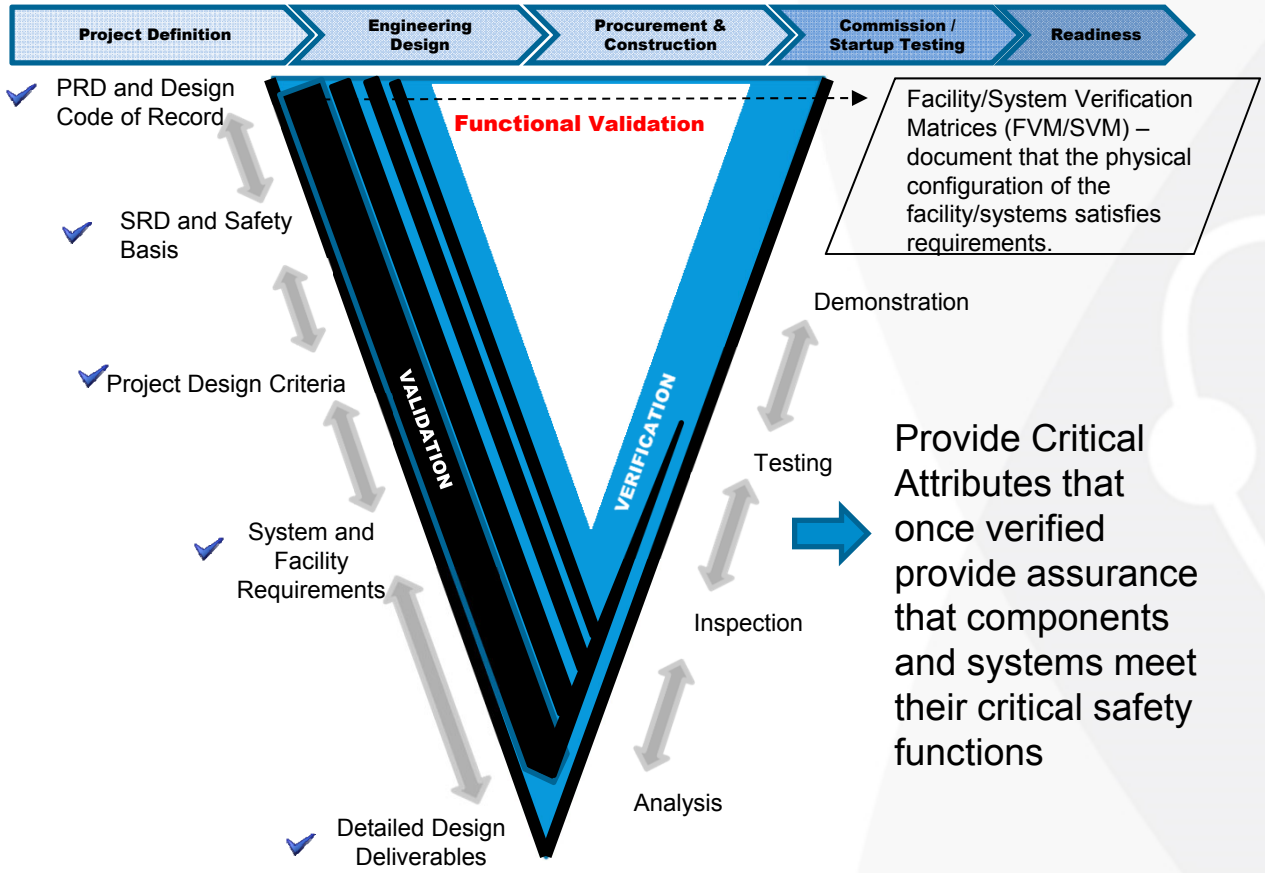
* Will be matrixed to the unified DA organization to provide technical expertise as needed.

Requirement Management - UPF Example



DA Role in V&V of Project Requirements:

All Phases: Requirements Flowdown & Verification Discussion



CDX

Component **D**ata e**X**plorer

Find the data you need now!

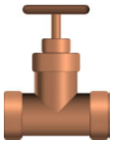
All your data accessible from one application.

Example Data Management

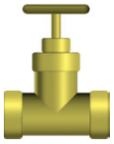
EPC Component Data Segregation

Design Data (Who Am I)
- Tag
- Operating Function
- Status

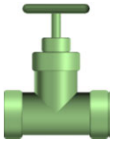
Spatial Data (Where Am I)
- Location
- Relationships
- Status



Procurement Data (What Am I)
- PO Number
- Delivery Date
- Status

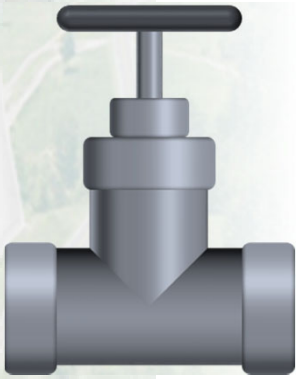


InfoWorks (My Story)
- Drawings
- Change Notices
- Vendor Submittals



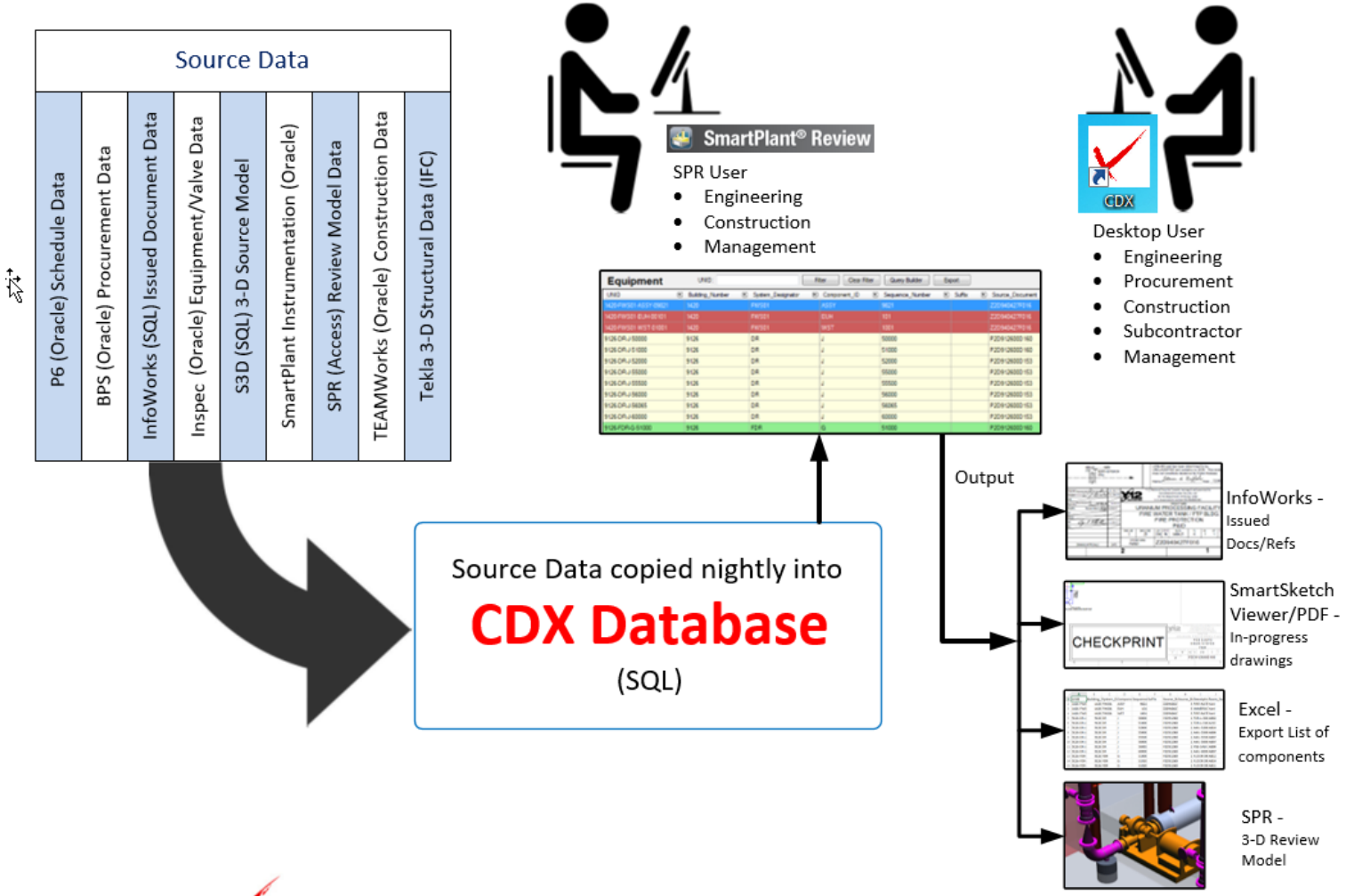
Construction Data (Am I?)
- Work Package
- Installation Date
- Status

Schedule Data (When am I?)
- Dates
- P6 ID's



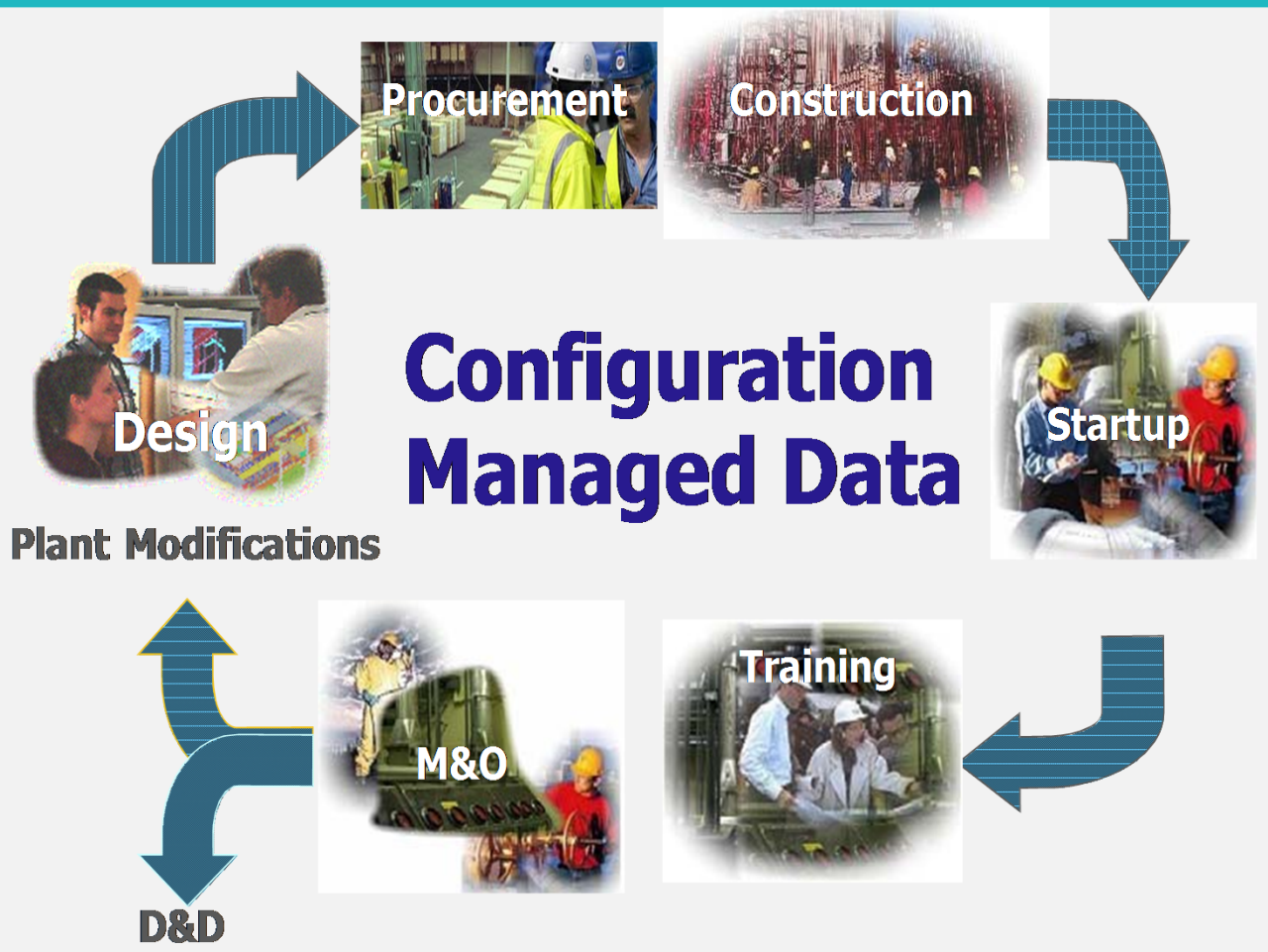
I Am:
- HV-20003 – Isolation Valve
- I have operating parameters
- 1st Floor MPB West – Rm P170
- I'm on line PCW-PCW-1"-20003
- I was Purchased on 02/02/2018
- I was Delivered on 05/30/2018
- I was Installed on 07/31/2018
- Here is my documentation

Data Flow through CDX Database



CDX Data Flow Diagram

UPF Plant Lifecycle Activities



Single Execution Rule going Forward Updating in Data Centric Environment

Revise the DATA, NOT THE DOCUMENT

- Data is the single source to produce UPF documents
- Data is enter or changed once/ used many places
- Preventing data quality will yield return on the investment on Plant Lifecycle Activities
- Maintaining data will preserve data synchronization

" Maintaining data is a paradigm shift/behavior change/transformation in our requirements outlining how we execute work reliably delivering repeatable and predictable results."