Implementing a Configuration Management Program at the Nevada National Security Site

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Outline

1. Drivers to Implement the CM Program at the NNSS
2. Phased Approach to CM Program Implementation
3. Overview of the NNSS CM Program
4. OPTIX—Where to Find CM Documents
5. Best Practices

1: Drivers to Implement a CM Program at the NNSS

- **NNSA Nevada Site Office**
  - DOE Orders and Standards
  - Chief, Defense Nuclear Safety findings from 2008
  - Mandate that a formal CM Program be established
  - Historical lack of configuration control at the NNSS
  - Multiple NSO Findings on CM based SSO assessments
- **M&O Contractor, National Security Technologies**
  - Manage and operate more effectively
  - Worker protection and life safety
  - Consistent application of processes
  - Successful readiness reviews at nuclear facilities
  - Establish CM baseline throughout the NNSS for nuclear and nonnuclear facilities and infrastructure

2: Phased Approach to CM Program Implementation

Phase I (~ FY2008–2009)

- Assessed existing nuclear and higher-risk facility's individual CM and change control process, Configuration Management Implementation Plans (CMIPs), procedures, etc.
- Developed and issued Company Directive CD-ENGR.002, Configuration Management for Facilities and Infrastructure (*Initial issue: 12/09*)
- Developed and enhanced, legacy electronic document repository, OPTIX (approximately *400,000 records*) to support the requirements and principles of CM and DOE-STD-1073-2003.

2: Phased Approach to CM Program Implementation

Phase II (FY2010–2011)

- **Refine and Implement CD-ENGR.002**
  - Implement chartered configuration control boards
  - Standardize individual facility CMIPs (via template)
  - Implement company wide process to establish and maintain facility technical baselines
  - Implement company wide facility change control process and forms
  - Graded approach (risk-based) for nuclear and nonnuclear facilities

2: Phased Approach to CM Program Implementation

Phase II (FY2010-2011)

- **JASPER Facility Adopts/Implements CM Program**
  - Startup of JASPER hazard category 3 nuclear facility helping to refine and validate the CM Program and procedures
  - Other nuclear and nonnuclear facilities are following
- **Refine and Implement Supporting CM Processes and Procedures**
  - Component labeling and numbering
  - Master Equipment List (MEL)
  - MAXIMO Computerized Maintenance Management System (CMMS)
  - Temporary modifications
  - Replacement Item Evaluation (RIE) and others

2: Phased Approach to CM Program Implementation

Phase III (FY2011–2012)

- **CM Program Becoming a Credited Company Wide SMP**
  - The site wide CM Safety Management Program will be used by the individual nuclear facility's DSA as appropriate

3: Overview of the NSTec CM Program

CD-ENGR.002, Configuration Management for Facilities and Infrastructure

- Maintains relationship between design requirements, physical configuration, and documentation through implementation of the 5 elements of DOE-STD-1073-2003:
  - Design Requirements
  - Change Control
  - Work Control
  - Document Control
  - Assessments
- Implements requirements of DOE O 420.1B and DOE-STD-1073-2003 and specifically supports the System Engineer Program
- Establishes configuration control boards and authorities responsible for establishing and maintaining CM

3: Overview of the NSTec CM Program (continued)

CD-ENGR.002, Configuration Management for Facilities and Infrastructure

- Risk-based approach for nuclear and nonnuclear facilities that establishes minimum required set of CM documents
- Establishes a company wide Facility Change Control process
- Design Authorities (DAs) own and maintain the technical baseline

Per DOE-STD-1073-2003…

  - DA is responsible for the change control package
  - Changes that affect the design basis require a design analysis by the DA
  - Revisions to the safety basis require DA review and input
  - Accordingly, these roles are reflected in CD-ENGR.002

3: Overview of the NSTec CM Program (continued)

CD-ENGR.002, Configuration Management for Facilities and Infrastructure

- Facility Managers and DAs work together to establish each facility's technical baseline to determine what is configuration-controlled
- Once established, maintain control over configuration-controlled items by implementing change control processes and assessments
- Provides guidance on how to identify configuration items and technical baseline documents
- Creates Configuration Identification Document (CID)

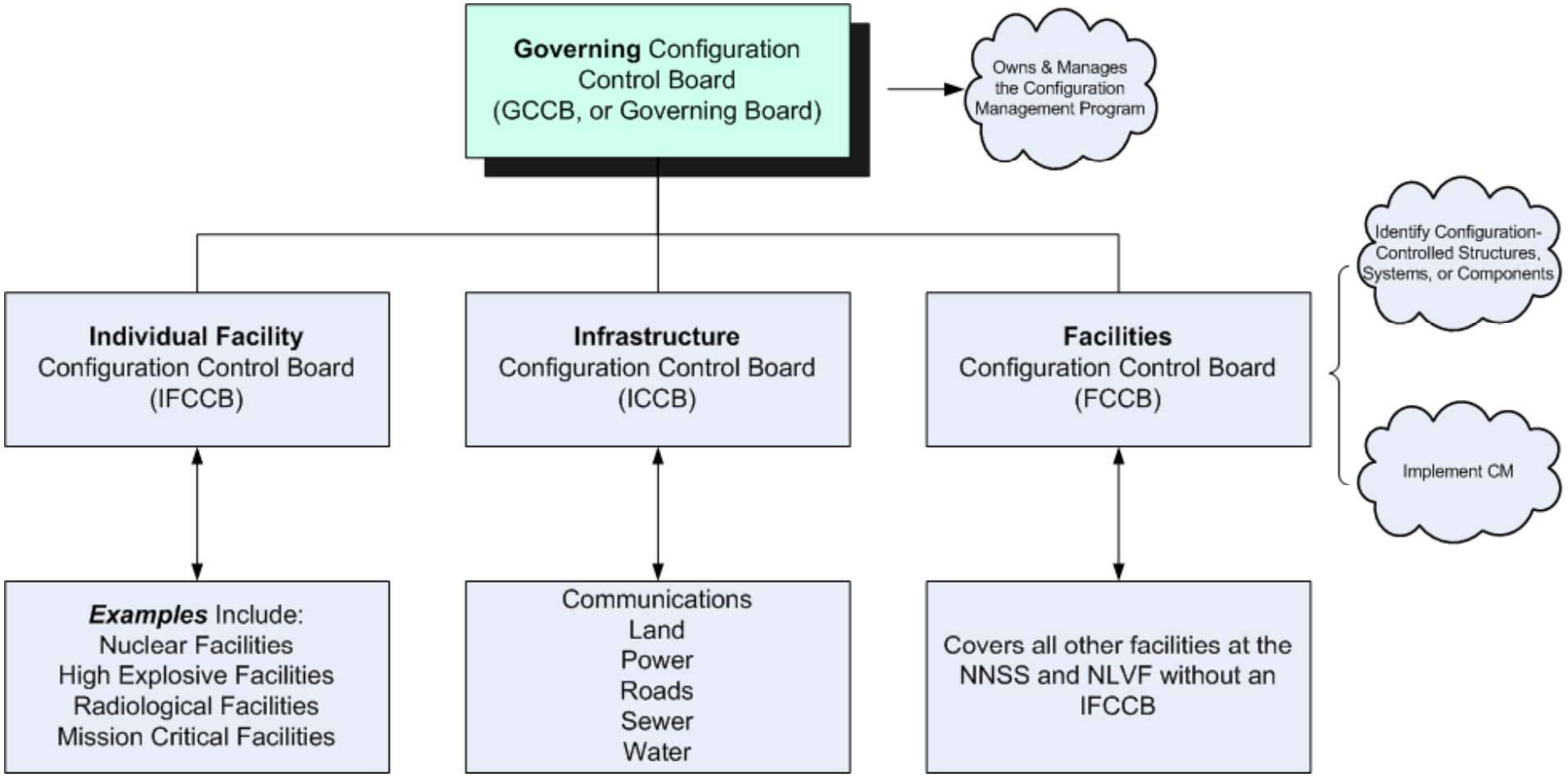
3: Overview of the NSTec CM Program (continued)

CD-ENGR.002, Configuration Management for Facilities and Infrastructure

- Resolution of Discrepancy (ROD) between as-found field condition and drawing
  - *The approved drawing shall be considered correct unless proven otherwise!*
  - A technical review is required to determine whether the physical, as-found configuration is correct (in accordance with the currently-approved design baseline) or whether the design documentation is correct (the physical configuration is not correct)
  - Results of the technical review are documented on the ROD

3: Overview of the NSTec CM Program (continued)

CCB Hierarchy



3: Overview of the NSTec CM Program (continued)

Configuration Control Boards

- Created to implement CM such that configuration-controlled structures, systems, and components (SSC) are more consistently identified, controlled, and maintained
- Company Level CCB—*Governing Board* g35
  - Owns the CM processes, policies, and procedures
  - Chief Engineer is chair
  - Approves all other CCB charters and CMIPs
  - Select representatives from facilities management, nuclear engineering, nuclear safety, engineering, work control, emergency response
  - Also attended by representatives of the other chartered CCBs

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g35 If emphasis necessary, be consistent

glanzd, 4/5/2011

3: Overview of the NSTec CM Program (continued)

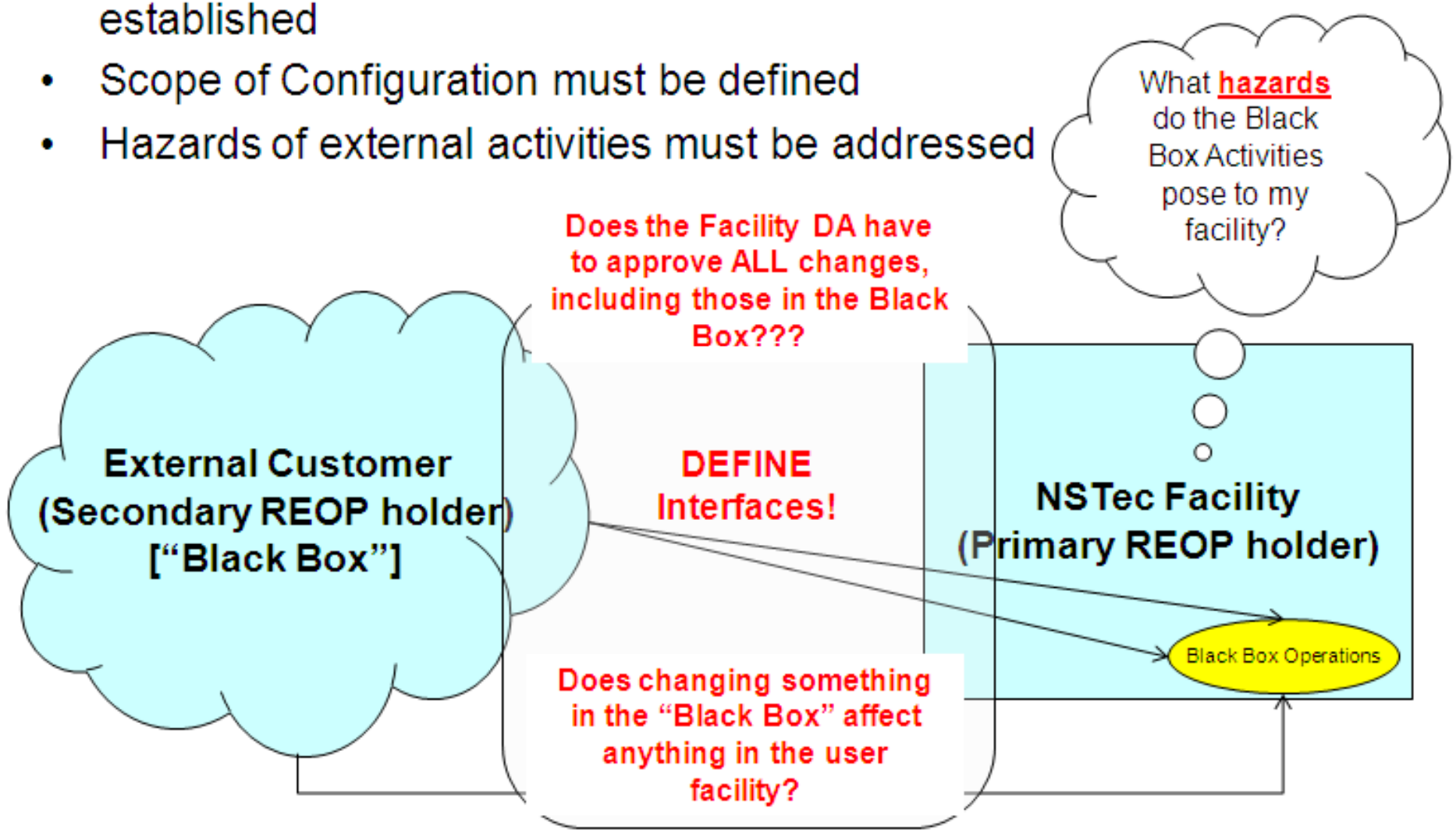
Configuration Identification Document (CID)

- Documents scope, attributes and/or performance requirements to configure
- Can be applied to a System or Component
- Can be used to specify what SSCs on a drawing are configured
- Provides description and rigor of method used to validate
- Approved by FM and DA after redline markups are incorporated into the CM drawing!
- Attached to CM Drawing

3: Overview of the NSTec CM Program (continued)

Defining External Interfaces

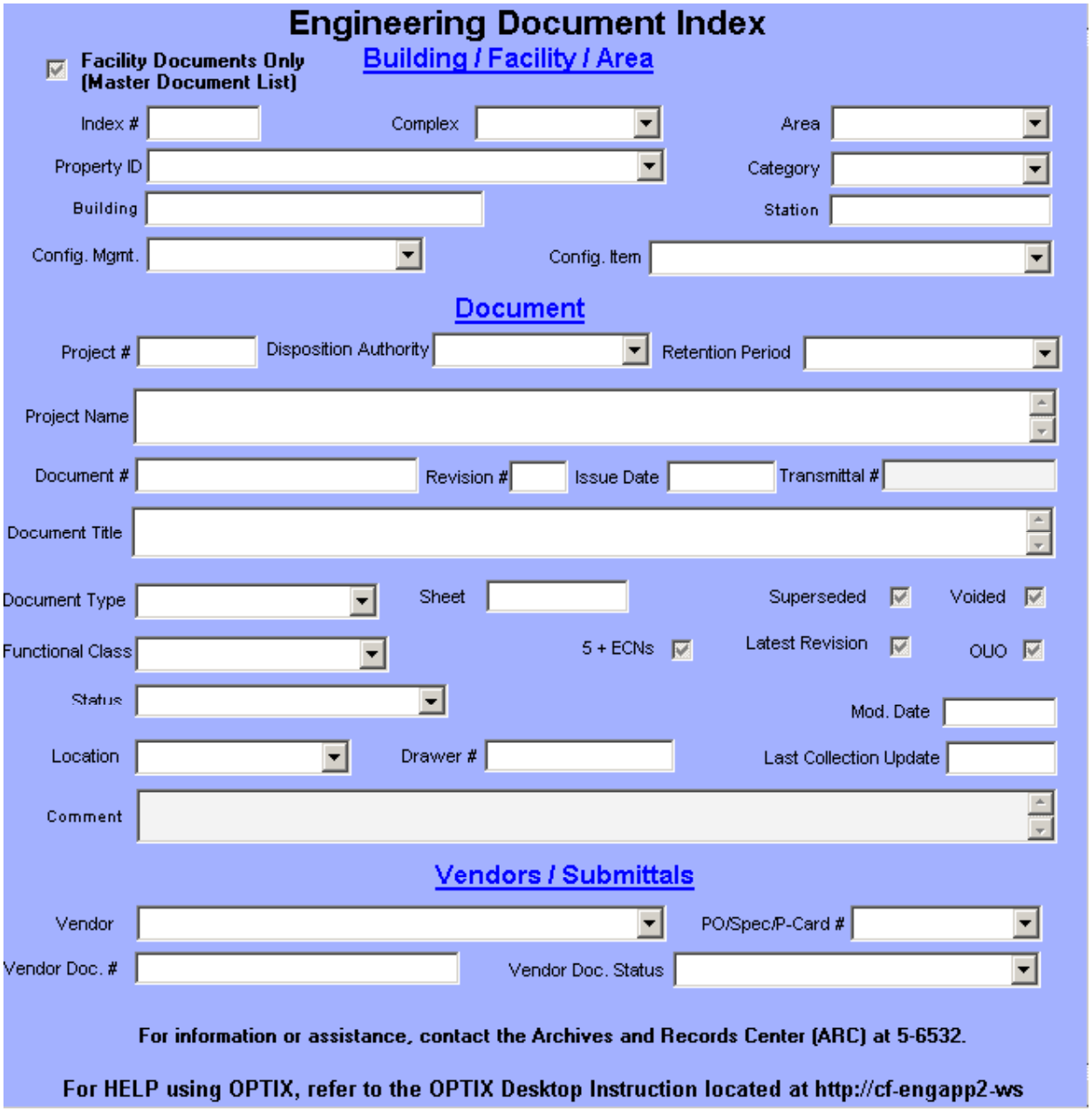
- When multiple Design Authorities exist, clear boundaries must be established
- Scope of Configuration must be defined
- Hazards of external activities must be addressed



4: OPTIX—Where to Find Facility CM Documents

- OPTIX is the Electronic Records Management System where Facility and Infrastructure documents are indexed and stored
- CM documents can be retrieved for use by facility managers, engineers, emergency management personnel, work planners, and others that need access to reliable cm documents
- Documents are stored by:
  - Document Type (SDD, CALC, FCD, CGD, RIE, DRAWING)
  - System
  - Status (For Construction, Configured, For Review, etc.)
  - Master Document List and/or Technical Baseline
  - Latest Revision
  - Document Name/Number
  - Facility Number, etc.

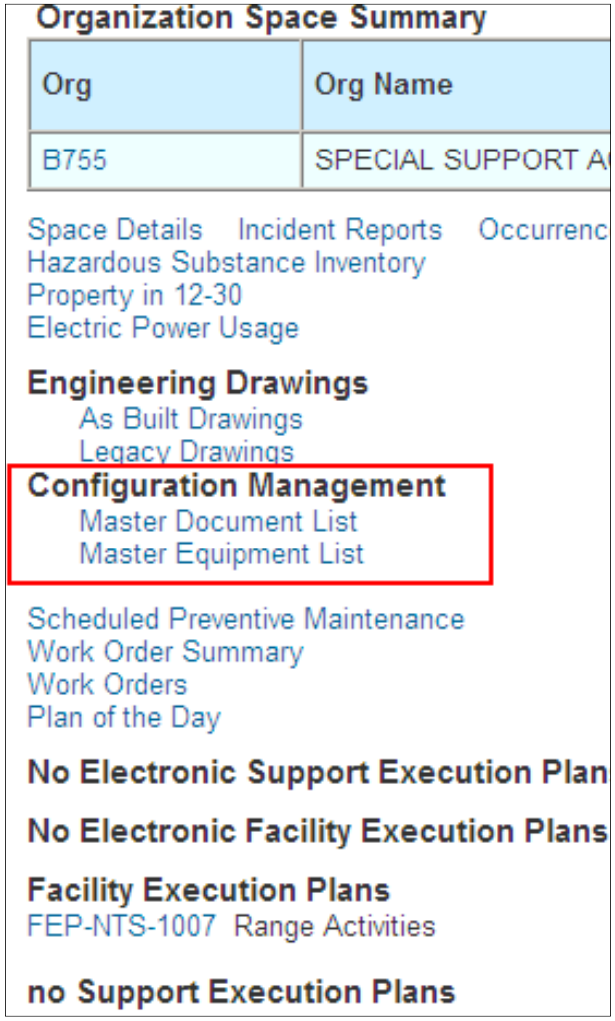
4: OPTIX—Where to Find Facility CM Documents (cont'd)



The OPTIX Search Screen has been improved in the following ways:

1. Facilities are indexed the same as FIMS.
2. Fields are drop lists with pre-defined values.
3. Vendor documents are integrated into one screen.
4. Fields specific to document control personnel are hidden.
5. Provides identification of Facility/Configuration Management documentation.

4: OPTIX—Where to Find Facility CM Documents (cont'd)



1. Configuration Management documents entered into OPTIX in the prescribed manner will automatically be presented in the Facility Data Warehouse by clicking on the "Master Document List" for each respective facility.

2. Protected areas within OPTIX will require a username/password to view documents that are sensitive, UCNI, or otherwise restricted.

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g33 Just FYI: Optix should be all uppercase. It isn't an acronym and the application is Initial case. Not critical and I know its uppercased in most everything so your choice.

glanzd, 4/5/2011

4: OPTIX—Where to Find Facility CM Documents (cont'd)

Configuration Management Documents

11 Configuration Management Documents for 12-30 -- CAFETERIA *

*OPTIX Categories included in search: All

FIRE PROTECTION

Drawing Number	IDX	Title	Funct Class	Doc Type	Status	Revision Date
012 030 OF 1001	290135	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 FIRE PROTECTION FLOOR PLAN		DRAWING	CONFIGURED	05/19/2009

* For information or assistance, contact the Archives and Records Center (ARC) at 5-6532.

MISCELLANEOUS DRAWINGS - ARCHITECTURAL

Drawing Number	IDX	Title	Funct Class	Doc Type	Status	Revision Date
012 030 OF 4001	290136	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 ENLARGED FLOOR PLAN AND DETAIL		DRAWING	CONFIGURED	05/19/2009

* For information or assistance, contact the Archives and Records Center (ARC) at 5-6532.

MISCELLANEOUS DRAWINGS - ELECTRICAL

Drawing Number	IDX	Title	Funct Class	Doc Type	Status	Revision Date
012 030 OE 0001	290126	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 ELECTRICAL LEGEND	GS	DRAWING	CONFIGURED	03/26/2009
012 030 OE 1001	290127	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 POWER PLAN	GS	DRAWING	CONFIGURED	03/28/2009
012 030 OE 1002	290128	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 LIGHTING PLAN	GS	DRAWING	CONFIGURED	03/26/2009
012 030 OE 6002	290131	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 A/C CONTROL DIAGRAM	GS	DRAWING	CONFIGURED	03/26/2009
012 030 OE 7001	290132	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 PANEL SCHEDULES	GS	DRAWING	CONFIGURED	03/26/2009
012 030 OE 7002	290133	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 PANEL SCHEDULES	GS	DRAWING	CONFIGURED	03/26/2009

* For information or assistance, contact the Archives and Records Center (ARC) at 5-6532.

SYSTEM, DISTRIBUTION - ELECTRIC POWER

Drawing Number	IDX	Title	Funct Class	Doc Type	Status	Revision Date
012 030 OE 6001	290129	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 ONE-LINE DIAGRAM	GS	DRAWING	CONFIGURED	03/26/2009
012 080 OE 2001	290134	NCCT - CM DRAWINGS - CAFETERIA FACILITY 12-30 POWER POLE BCU 8A	GS	DRAWING	CONFIGURED	03/26/2009

* For information or assistance, contact the Archives and Records Center (ARC) at 5-6532.

5: Best Practices

1. **Perform Assessments**
   - Program level assessments
   - Facility level assessments
   - Track issues and trends (assess more frequently where there are indicators).
2. **Establish a Single, Central Repository for Technical Documents**
   - A controlled document management system (for document input and retrieval) is paramount!
   - Establish controlled copies and do not duplicate (store) documents in multiple locations
   - Organize and separate engineering “For Construction” documentation vs. facility “Operational Documentation”

5: Best Practices (continued)

3. **Establish Common Terms and Definitions**
   - MEL
   - Like-for-Like vs. exact replacement
   - MDL vs. Technical Baseline
4. **Must Have Management Buy-in and Support**
5. **Realized Benefits**
   - Consistent, standardized facility assessments
   - Supports the system engineer program
   - Consistent readiness reviews
   - Clarity when modifying safety SSC
   - Safety basis and facility documents stored consistently
   - Less engineering time / lower costs