

Best Practice #123

Best Practice Title: *Standardizing Configuration Item Designation/Re-designation Criteria*

Facility: Multiple

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Brief Description of Best Practice: Each DOE site, and many facilities and projects within each site, apply different processes for establishment and control of configuration baselines. Inconsistencies in facility configuration and historical operations led to differing methods to manage configuration baseline documents and drawings. Facilities in transition to deactivation and closure do not require the full configuration management documentation of an operating facility. Unneeded configuration documentation continues to be maintained through deactivation at several sites. Consistent definitions for configuration baseline documentation were developed by the *Engineering Practices Configuration Management Subgroup* to improve standardization and provide a basis to minimize the configuration documentation being kept through transition periods.

Standard drawing/configuration managed media definitions provide the basis to identify and categorize configuration management information to ensure configuration management activities are focused on documentation important to worker safety, facility safety and environmental compliance. The four recommended categories with their definitions are:

- **Essential** – Drawings depicting active systems, structures, and components (SSCs) that are necessary to support emergency response actions.
- **Support** – Drawings, in addition to Essential, that provide engineering, maintenance, and operations the details necessary for emergency response and plant operations.
- **Reference** – Drawings that supplement Essential and Support drawings, and provide construction, additional design, or historical information. Reference drawings are not kept current.
- **Archive** – Drawings removed from the active database and Dispositioned to the Site Records Holding Area.

To effectively manage these categories, especially at the beginning (construction) and end (decommissioning) of a facility design life, these categories should be controlled via the Site document control database (e.g. EDMS or equivalent), rather than drawn on the face of the drawing, to allow rapid update and control. The "Archive" category became important at facilities that were struggling with computer storage space and/or had many drawings that were so out of date as to be confusing. This category takes them out of the routine "search" functions, while maintaining them for historical records.

Why the best practice was used: More than one million drawings are in some form of maintenance at seven different sites. The engineering staffs at these sites are tasked with finding ways to reduce cost and schedule. At the start of cleanup, these facilities are normally Category II nuclear facilities with moderate to large source terms. The need is to maintain a level of configuration control required to transition the source term out and stabilize or transition to the Decontaminate and Decommission (D&D) phase. This best practice positions the sites to provide low cost, effective CM during this transition.

By reducing the number of documents/drawings designated as "essential" and "support," significant cost avoidances can be realized because only these documents should be maintained current. Other documents/drawings are classified as "reference" or "archive"

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category to reduce drawing costs. Consistent nomenclature also improves training and communications.

What are the benefits of the best practice: Implementation can significantly improve hazard identification and control while reducing CM costs. It also enables standardization of the multiple (site-by-site) methods being employed to categorize, maintain, designate, and re-designate design media throughout facility closure missions. Implementation also strives to maximize the utilization of knowledge from experienced personnel.

The potential cost avoidance was conservatively estimated at \$16M - \$21M per year across the sites. This estimate is based on an annual total of five transitioning facilities at three major clean-up sites (Hanford, Idaho, and Savannah River) and other laboratory and defense mission sites (Los Alamos, Lawrence Livermore, Y-12, and Nevada). Several major sites currently have more than one facility transitioning to closure each year. In addition, this estimate is based only on engineering efficiencies, and does not account for anticipated efficiency improvements in performing mission-related (e.g., planning, work control, operational D&D) work.

What problems/issues were associated with the best practice: For several sites, this was a change in the way they had performed business for many years. Several senior staff were used to allowing the engineering individuals to established criteria based on personal preferences versus defined criteria. Also making the changes was a challenge for sites with tens of thousands of documents which had hand printed categories on the face of the drawings. The process of re-categorizing required a driving force (usually budget driven during D&D activities or at the start of a new facility) to effect the change. Once established, the use of consistent definitions was effective at driving the changes needed.

How the success of the Best Practice was measured: A Value Engineering team utilizing the collective engineering experience and lessons learned from 12 DOE sites developed configuration management best practices for Facilities Transitioning to Closure in 2005. The Best Practice consists of four "best-in-class" standard drawing/CM media definitions, two initiatives, and 28 best practice recommendations. The full report can be found on the EFCOG Configuration Management Working Group Site: http://efcog.org/wg/ep_cm/docs/archive/CM%20VE%20Report-1.pdf.

Since that workshop several of the larger sites tracked their project progress in terms of re-categorizing drawings to the new definitions. This included reviewing the practice in 2012 to determine its continued efficacy.

Description of process experience using the Best Practice: Several large sites (Hanford, Savannah River Site) took the lead at applying the new definitions. At the Hanford Tank Farms, the drawings were re-categorized, resulting in a reduction of almost 80% of the drawings that were maintained (from over 36,000 to just over 5,000 drawings). Most of the drawings re-categorized as 'reference' had not been maintained well over the 50 year life of the facilities; however, as they could have some changes posted it lead to some thinking the drawings were updated, and overall reducing the confidence in the drawings. Reducing the set that was defined as being maintained, focused both the engineering and drafting staff in incorporating changes and overall increased the confidence in the drawings. The Central Plateau staff were effective at implementing these changes on facilities transitioning to closure, reducing the burden on both engineering and drafting staff. Savannah River site staff had similar successes implementing on older drawing sets and most recently in using the above definitions for defining what needed to be as built for the

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new Salt Waste Processing Facility. This Best Practice implements several elements of Integrated Safety Management: “performing work within controls” and “providing feedback and improvements”.