

DOCUMENT CONTROL AND CONDUCT OF OPERATIONS

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Abstract

Department of Energy (DOE) Order 5480.19, Conduct of Operations, places stringent requirements on a wide range of activities at DOE facilities. These requirements directly affect personnel at the Advanced Test Reactor (ATR), which is located in the Test Reactor Area of the Idaho National Engineering Laboratory and operated for DOE by EG&G Idaho, Inc. In order for the ATR to comply with 5480.19, the very personality of the reactor facility's document control unit has had to undergo a major change.

The Facility and Administrative Support Unit (FAS) is charged with maintenance of ATR's controlled documents—thousands of operating and administrative procedures. Prior to the imposition of 5480.19, FAS was content to operate in a clerical support mode, seldom questioning or seeking to improve. This manner of doing business is inappropriate within the framework of DOE 5480.19 and is also at odds with the approach to Total Quality Management (TQM) promulgated by EG&G Idaho.

To comply with the requirements of 5480.19, FAS has

- Actively applied TQM principles.
- Empowered personnel to improve operations through the establishment of a team approach.
- Begun an automation process that is already paying large dividends in terms of improved procedure accuracy and compliance. A state-of-the-art text retrieval system is already in place. We are vigorously pursuing fully automated document tracking and document management.

This paper describes in detail the steps taken to date, the improvements realized, and the lessons learned. It also discusses plans for the future that will enable FAS to support the ATR in increasing its responsiveness to the Conduct of Operations Order.

INTRODUCTION

Document control is a key requirement of Department of Energy (DOE) Order 5480.19, Conduct of Operations. This paper describes efforts to make document control at the DOE's Advanced Test Reactor (ATR) more responsive to the Order.

EG&G Idaho, Inc. is the prime Management and Operations contractor for the DOE at the Idaho National Engineering Laboratory (INEL). Among other responsibilities, EG&G Idaho operates the ATR, which is located at the Test Reactor Area (TRA), 50 miles west of Idaho Falls.

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The ATR, which is part of the Power Reactor Programs (PRP) Department, is used to irradiate materials, especially fuels. Due to its unique design, the effects of radiation over years in a power reactor can be duplicated in months or weeks in the ATR.

Like other DOE facilities, the ATR has had to undergo major adjustments to comply with DOE Order 5480.19. The Order, of course, most directly affects ATR operations personnel. In response to the Order, though, the very personality of the ATR's Document Control Unit has had to undergo a major change.

*Properly controlled and readily available procedures promote use and ensure that operational activities will be conducted in the manner intended. **

ATR Document Control

ATR Document Control involves final preparation, release, and distribution of operating procedures and other controlled documents. The Facility and Administrative Support Unit (FAS) controls the issuance of documents, including changes, and assures that documents, including changes, are reviewed for adequacy and approved for release. FAS maintains ATR's controlled documents—thousands of operating and administrative procedures.

Document Control personnel must respond rapidly and accurately to constantly changing requirements. Personnel must therefore have an overall understanding of operational requirements and plant systems and processes.

Impacts of 5480.19

Prior to 5480.19, FAS was content to operate in a clerical support mode, seldom questioning or seeking to improve. This manner of doing business is inappropriate within the framework of 5480.19, and is also at odds with the approach to Total Quality Management (TQM) promulgated by EG&G Idaho.

FAS was reorganized under the PRP Department Manager to provide

. . . appropriate attention . . . to writing, reviewing, and monitoring operational procedures to ensure the content is technically correct and the wording and format are clear and concise.

To comply with the requirements of 5480.19, FAS has actively applied TQM principles, proactively sought involvement in procedure planning, empowered personnel to improve document processes through the establishment of a team approach, and begun an automation process that is paying dividends in terms of improved procedure accuracy and compliance.

When FAS evaluated its responsibilities against the Order, four requirements became apparent:

*Text displayed in italic type is quoted from DOE Order 5480.19 Chapter XVI.

- Procedures must be clear, concise, and valid
- The change control system must be accurate and timely, so personnel will not be tempted to ignore it
- Procedures must be available at the point of use and must be current
- Procedure information must be readily retrievable to facilitate revision when required.

Many improvements have been initiated. Among them:

- A Document Review Committee has been established
- Document Control is involved in procedure planning
- A Quality Improvement Team evaluated procedure organization and formats
- FAS has used available technology, including
 - Extensive application of local area network and word processing automation capabilities
 - A state-of-the-art text retrieval system
 - An automated document tracking system, which is being implemented to complement internally developed tracking tools.

Document Review Committee

... Procedures that affect safety-related equipment and emergency procedures should be reviewed by the facility safety review committee or by another appropriate review mechanism.

... Procedures should be reviewed prior to issuance and at periodic intervals to ensure that the information and instructions are technically accurate.

The Document Review Committee (DRC) includes representatives from each of the organizations located at TRA. Since its formation two years ago, the DRC has markedly decreased technical line management independent review/approval time for documents and improved document accuracy, resulting in fewer downstream changes to correct initial errors.

Procedure Planning

Improvement includes incorporation of Conduct of Operations requirements in the PRP requirements document for document control, and inclusion of FAS in procedure planning. Processes have been reviewed to ensure they are efficient and productive, and that they meet requirements.

Consistency in procedure format, content, and wording is essential to achieve a uniformly high standard of operator performance.

A Quality Improvement Team reviewed procedure formats. The team found our formats were left over from typewriter days and not easy to understand. The team suggested major changes which are now being implemented. These changes include incorporation of guidance from the draft DOE Writers' Guide for Operations Procedures.

Procedures should be developed with consideration for the human-factor aspects of their intended use.

Changes include use of a more readable font, step sign-offs on the right rather than left, sectioning of procedure steps, and more emphasis on warnings, cautions and notes.

Important factors (such as operating limits, warnings, cautions, etc.) should be highlighted.

A long-term plan is being developed to ensure heightened consistency and compliance of procedures.

Technical Improvements

Technical improvements include use of software capabilities for redline-strikeout to make changes easily identifiable, implementation of automatic tape backup of electronic records to ensure no electronic procedures are lost, use of separate file server directories and multi-level access control to protect original documents, and use of macros for procedure formats.

FAS has put on-line a text retrieval system that enables us to accurately identify all procedures associated with an equipment item or process. PRP used to have to rely on long-time employees, who could (theoretically) identify all related documents when the need arose. Our text retrieval tool allowed us to identify all procedures (more than 1000) affected by a major reactor upgrade which is now taking place.

An example of a search conducted using our retrieval tool is shown in the accompanying figure. The search depicted was one in a series of searches used to identify documents affected by the reactor upgrade project. A review by technical personnel confirmed that the retrieval was complete and accurate. The retrieval tool paid for itself many times over in identifying these documents and has subsequently been successfully used to identify procedures relating to many other plant systems and pieces of equipment.

FAS is putting on-line a fully automated document tracking system as a further means to achieve compliance with the Order. The system was obtained from a DOE contractor at Oak Ridge. Even the simple act of data entry has allowed us to clean up our "database," removing duplicate entries and identifying personnel who are no longer on the roster. We are in the process of ensuring that controlled manuals are in fact assigned to active employees.

These beginning steps in automation have aided FAS in meeting the requirements of the Order. However, much more remains to accomplish.

FAS is evaluating document management systems so when funding is available, we will be ready to implement such a system. System capabilities needed include automatic cross-referencing for rapid and complete reference updates:

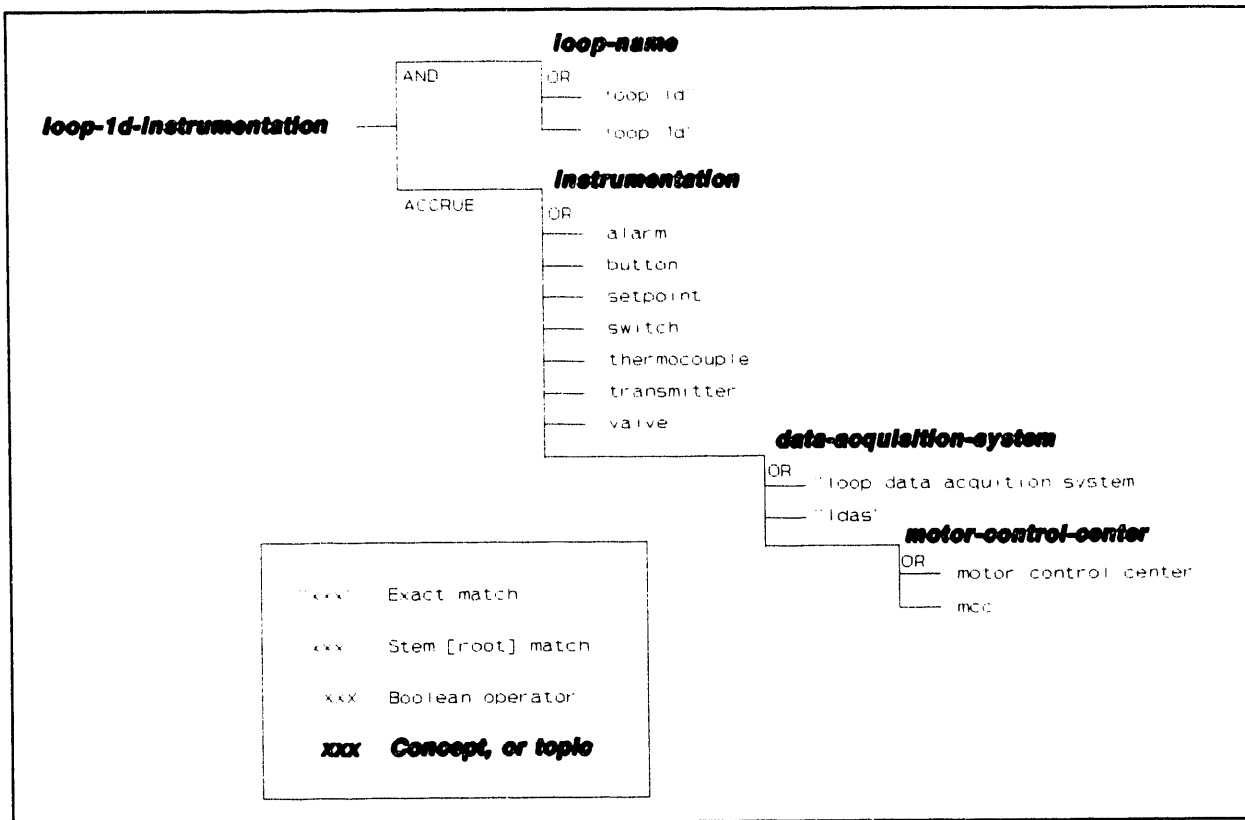


Figure. A concept, or topic tree, used to identify documentation affected by an ATR upgrade.

Procedures should incorporate appropriate information from applicable source documents. . . .

. . . Referenced documents should be correctly identified.

Planned system capabilities include automated tools for administration of required interval reviews, document scheduling, a document owner database, document revision and approval status, document tracking through barcoding, and the ability to perform global administrative changes. Procedure graphic reproduction will also be improved. These tools will ensure more rapid and accurate procedure preparation and revision and will simultaneously reduce labor requirements. The long-term goal is to provide on-line procedures, which will simplify the entire process and ensure

. . . that outdated procedures are not used by mistake and that working copies are replaced.

Lessons Learned

Lessons learned include:

- Modern technology must be used to ensure a vast number of procedure changes can be made rapidly and accurately.
- Personnel must be empowered and taught how to improve the processes they implement.
- Processes must be reengineered by performing personnel before automation can be effective; computerization provides very little benefit unless the process being computerized is right.
- ***The bottom line:*** Document control is often perceived as a clerical function, but for maximum compliance with DOE 5480.19 must be an integral part of operations.

The document control goal is to continuously improve, to change faster, and to document better.

Operations activities should recognize that . . . safety, and productivity are compatible goals.

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