Preparing for Implementation of DOE 0435.1 at Hanford

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200
Fluor Hanford, Inc.
P.O. Box 1000
Richland, Washington

Copyright License
By acceptance of this article, the publisher and/or recipient acknowledges the U.S. Government's right to retain a nonexclusive, royalty-free license in and to any copyright covering this paper.
Preparing for Implementation of DOE O 435.1 at Hanford

Don W. Fritz
Fluor Hanford

Date Published
February 2000

To Be Presented at
Waste Management Symposium 2K
University of Arizona, ANS, ASME
Tucson, AZ
02/27/2000 - 03/02/2000

Published in
Waste Management Symposium 2K

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Fluor Hanford, Inc.
P.O. Box 1000
Richland, Washington

Copyright License
By acceptance of this article, the publisher and/or recipient acknowledges the U.S. Government's right to retain a nonexclusive, royalty-free license in and to any copyright covering this paper.

Approved for public release; further dissemination unlimited
LEGAL DISCLAIMER
This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference therein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy.

Printed in the United States of America
ABSTRACT
Implementation of a new DOE Order at a complex site like Hanford is not as simple as just stating that the Order is to be followed. There are contractual changes, interface adjustments and institutional obstacles to overcome that all must be properly analyzed and dealt with before the actual physical changes embodied in the new requirements can be put into practice. In planning for these changes associated with the new DOE O 435.1 “Radioactive Waste Management”, the Richland Operations Office (RL) of the U.S. Department of Energy is attempting to make an orderly and efficient transition to the new Order requirements. In so doing, RL is tasking the Management and Integration contractor for the Project Hanford Management Contract (PHMC) held by Fluor Daniel Hanford (FDH) to coordinate the planning and integration efforts necessary to ensure that resources needed to implement the new requirements are identified and plans for implementation completed within the first year after issuance of the Order.

Implementation at Hanford is complicated not only by the relatively complex contract situation with the PHMC under FDH and its major subcontractors, the Environmental Remediation Contract (under Bechtel), and the Pacific Northwest National Laboratory (run by Battelle), but also by the newly created Office of River Protection (ORP) which reports directly to EM-1, and not to the Hanford site RL Manager. Despite the obstacles, however, Hanford is making a concerted effort to effectively implement the new requirements, while maximizing use of existing systems, processes and documentation. This paper describes the process and experiences Hanford has developed to accomplish this objective.

The interested audience will include others involved in implementation of new DOE Order 435.1 and others interested in the workings of large federal installations such as Hanford. This paper concludes that through use of planning, communications and participation of involved parties, complex new requirements can be appropriately evaluated, analyzed and approaches for their implementation developed and successfully put into place. The approach taken by Hanford to accomplish this mission is set forth in this paper, and lessons learned along the way are described.

INTRODUCTION
Some Hanford personnel have participated in the development of revised radioactive waste management orders from before the inception of activities aimed at improving the old Order 5820.2A by revision to 5820.2B to the resolution of Defense Nuclear Facilities Safety Review Board (DNFSB) finding 94-2 which culminated in issuance of U.S. Department of Energy (DOE) Order 435.1. Revisions to DOE Order 5820.2A were being discussed before DNFSB finding 94-2 was issued, and Hanford personnel were involved in the complex-wide steering committee commissioned to develop the revisions. Our personnel also participated in the complex-wide review of waste management practices that grew out of the efforts to resolve
DNSFB 94-2, the identification and validation of perceived vulnerabilities, and reviews of the many drafts of the new Order as it evolved.

As a result of this close participation with DOE Headquarters over the past several years, Hanford personnel have developed some insights into the complexities and difficulties inherent in promulgating an Order meant to apply somewhat universally across the entire DOE complex. Now that the new Order has been issued, DOE's Richland Operations Office (RL), Office of River Protection (ORP), and the various Hanford contractors hope to take advantage of the insights gained through that participation to enable its efficient and effective implementation.

**SYSTEMATIC APPROACH**

Because of the sweeping applicability of the new Order 435.1 to all activities that generate, treat, store, handle or manage any radioactive waste, systematic approaches to assessment of changes necessitated by the new regulations are required. This assessment of required changes to come into compliance with the new Order is complicated at the Hanford site by the numbers of entities involved. The relatively recent creation by Congress of the Office of River Protection (ORP) as autonomous from DOE's Richland Operations Office (RL) means that there are now two DOE offices involved in implementation of the Order at Hanford. This adds a layer of complexity not only in ensuring consistency between approaches, but also in division of responsibilities for the actual management of the wastes produced by ORP contractors and treated, disposed or stored by RL contractors. Prior to creation of ORP, the Hanford site was operated for RL under a Management and Integration (M&I) contract called the Project Hanford Management Contract (PHMC). Fluor Daniel Hanford (FDH) was named as the integrating contractor, and their main subcontractor team consisted of Waste Management Federal Services of Hanford (WMH), Babcock and Wilcox Hanford (B&W), Lockheed Martin Hanford, Inc. (LMH), Dyncorp Tri-Cities Services (DYN), Duke Engineering and Services Hanford (DESH), Numatec Hanford Company (NHC) and Protection Technology Hanford (PTH). These subcontractors were given specific responsibilities across the Hanford site for various activities that would now fall under the jurisdiction of 435.1. Beside the PHMC, RL managed the Environmental Remediation Management Contract (ERMAC) held by Bechtel Hanford and its subcontractors, and the Pacific Northwest National Laboratory (PNNL) run for RL by Battelle Northwest. With the recent division of responsibilities between ORP and RL, ORP has selected CH2M HILL Hanford to replace Lockheed Martin Hanford (LMH) as its main operating contractor for the River Protection Program (RPP), and the privatization contractor BNFL with its subcontractor team to manage design, construction and operation of a vitrification facility for glassifying the waste in the High-Level Waste (HLW) tanks at Hanford. The PHMC organizational structure has been recently simplified somewhat under the restructured Fluor Hanford Inc. (FHI), but most of the foregoing listed companies still have some responsibilities at Hanford that fall within the jurisdiction of 435.1. As can be readily recognized, bringing consistency of approach and a common management theme to this conglomerate of entities in implementing a complex new Order represents somewhat of a challenge.

To make the effort of identifying changes needed to implement 435.1 tractable, the committee of representatives from the various interested and involved parties which had been organized somewhat informally during the review and comment phases of the development of 435.1 was again convened to discuss approaches and means to efficiently and effectively implement the
new Order. It was recognized that because of the diversity of waste types, organizations, processes and procedures, a thorough and systematic approach would have to be developed to enable proper recognition and understanding of the changes needed for compliance. It was felt that placing responsibility for recognition of needed changes on the individual companies and facilities at Hanford would be the most effective way of determining the actual gaps between current practices and the requirements of 435.1. Additionally, with the relatively short one year implementation schedule mandated by the new Order, it was further recognized that a formal schedule and plan were essential for (1) identification of these gaps, (2) development of required changes in procedures and policies, and (3) development of an implementation plan for resolution of any gaps that could not efficiently or practically be in place by July 2000. It was felt that this approach would also provide ownership and buy-in from the various facilities and organizations for the resolutions and implementation activities identified.

GAP ANALYSIS
Accordingly, a gap analysis was commissioned through the respective contracting officers to the involved parties. A uniform, consistent format was desired to allow consolidation of all the gaps identified into an accessible and understandable document to enable proper management and resolution of the issues identified. In addition to the gap analysis, the involved parties were asked to identify preliminary estimates of the magnitudes and costs of the required changes, and begin to develop implementation schedules that could be rolled up into a site-wide implementation plan consistent with the published implementation requirements in 435.1. The gap analysis format that was selected is illustrated in Table 1. It consists basically of the various requirements contained in the Manual 435.1, with columns for assessment of the status of current compliance and any changes needed for full compliance. The individual gap analysis forms were filled out by all involved facilities and activities, and were consolidated for review by the implementation committee. It was recognized that some facilities would identify what they felt were gaps that would be resolved by different functions of facilities. This necessitated the committee review of the gaps to ensure that the various entities involved recognized and accepted responsibility for the identified gaps.

Resources for performing the gap analysis included the published Order, Manual and Guidance documents, and the “crosswalk” and basis documents prepared by Headquarters during the Order revision process. One of the key ingredients in performing the gap analysis was to clearly identify all enabling assumptions made by each facility and organization filling out the forms. Listing the assumptions allowed the committee to ensure that there were no major gaps caused by differing levels of assumptions of responsibilities. During the gap analysis process, the committee began initiating contacts with other sites in the DOE complex to determine approaches being taken elsewhere, the types of gaps identified, and methods developed for resolution of issues. This complex-wide cooperation and coordination is seen as crucial to accomplishment of the overall goals of the DOE in promulgating the new Order, and is continuing as the deadline for compliance approaches.

IDENTIFIED GAPS AND PRELIMINARY CONCLUSIONS OF THE GAP ANALYSIS
As anticipated during the review period for the new Order 435.1, the draft gap analysis underway at Hanford tentatively identified several areas of ambiguity or lack of clarity that require DOE interpretation. These include questions as to what constitutes a “new” activity or facility, and
what is “newly-generated” waste, especially in the context of Environmental Remediation activities cleaning up old contaminated areas. Related questions arise concerning clear definitions of when a waste is considered as being generated, when the various “clocks” imposing storage limitations in the new Order are to start, and whether intermediate activities with the wastes reset the respective clocks. Another related issue is the new requirement to obtain DOE approval before waste with no path forward to disposal is generated. In the case of cleanup of contaminated areas, a question arises as to whether or not the “waste” already exists, or if the new Order requires some additional forms of approval before proceeding with cleanup activities, even if cleanup will produce some waste packages that currently have no available disposal method. There are also some possible budgetary issues associated with the new prohibition on storing LLW with a known disposal path for longer than one year. The current budget cycle is based on a three-year threshold. Some situations could occur where costs for disposal of wastes that will be (or have been) generated have not been allocated for the same fiscal year as the generation of the waste. Compliance will then require adjustments to planned work activities or obtaining waivers to the prohibition requirements.

Citation in 435.1 of several (approximately 20) other new series Orders, not all of which have been incorporated into existing contracts causes questions of compliance with 435.1 if the other Orders cited are not specifically implemented. Section 2 of the Order states:

“2. CANCELLATION. This Order cancels DOE 5820.2A, RADIOACTIVE WASTE MANAGEMENT, dated 9-26-88. Cancellation of that Order does not, by itself, modify or otherwise affect any contractual obligation to comply with the Order. The provisions of this canceled Order which have been incorporated by reference in a contract shall remain in effect until the contract is modified.”

Despite the caveats in this section of the Order about applicability only subsequent to contract modification, the status of compliance with 435.1 without contractual modification to include the other cited Orders remains unclear.

Other typical finding to date from the gap analysis include the need for better formalization of required waste management plans to provide the evidence of systematic planning, execution and evaluation of activities associated with generation, management, storage, treatment and disposal of radioactive wastes. The new Order specifies documentation of the processes used to identify, monitor and analyze data needs for proper characterization of wastes and assessment of the impacts of its management on the public, workers and the environment. More formalization of life cycle planning will also require elaboration in the implementation plans for this Order. Even applying the philosophy of maximizing utilization of existing processes and information sources, more specific documentation concerning the methods of compliance with the new Order requirements will have to be prepared.

The lack of any specific language in 435.1 concerning “grandfathering” existing wastes or arrangements will necessitate obtaining waivers or exemptions for some situations. That is, as stated in Section 4 of the Manual: “IMPLEMENTATION. The requirements of this Manual apply to all new and existing DOE radioactive waste management facilities, operations, and activities,” there is no acknowledgement of existing facilities that were not designed or operated to the new requirements. The necessary waivers or exemptions will include, for instance, use of
existing contracts for waste treatment at commercial non-DOE facilities, prohibited by the new Order, continued storage of waste that does not meet current characterization requirements, and designations of wastes arising from spent nuclear fuel activities. New requirements for contingency storage at existing treatment and storage facilities may necessitate capital modifications or waivers and exemptions that will have to be processed. Commingling of LLW and mixed waste is prohibited in the new Order, but specific criteria for interpreting this requirement is lacking. How it will be applied to existing storage facilities will require additional decisions and possible modifications to facilities or practices.

CONCLUSIONS
It has now been decided that there will be two Hanford implementation plans, one for RL and one for ORP. However, through the use of the committee approach that had all involved parties participate, it is hoped that there will still be the desired consistency in approaches, philosophies and methods. The interfaces between organizations have been identified and responsibilities assigned. The systematic approach used is an essential and effective way to manage the complex and difficult challenges associated with implementation of new DOE Order 435.1 at Hanford.
Table 1. Typical Format for Identification of Gaps between Current Practices and Requirements from DOE Manual 435.1

<table>
<thead>
<tr>
<th>Citation</th>
<th>435.1-1 Manual Requirements</th>
<th>Action/Plans (Gaps)</th>
<th>5820.2A related reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro. Para. 1</td>
<td>1. PURPOSE. This Manual further describes the requirements and establishes specific responsibilities for implementing DOE O 435.1, Radioactive Waste Management, for the management of DOE high-level waste, transuranic waste, low-level waste, and the radioactive component of mixed waste. The purpose of the Manual is to catalog those procedural requirements and existing practices that ensure that all DOE elements and contractors continue to manage DOE's radioactive waste in a manner that is protective of worker and public health and safety, and the environment.</td>
<td>NO ACTION REQUIRED – Statement of Purpose only</td>
<td></td>
</tr>
<tr>
<td>Intro. Para. 2</td>
<td>2. APPLICABILITY. The requirements set forth in this Manual apply to DOE elements and contractors as set forth in DOE O 435.1, Radioactive Waste Management.</td>
<td>NO ACTION REQUIRED</td>
<td></td>
</tr>
<tr>
<td>Intro. Para. 3</td>
<td>3. SUMMARY. This Manual is organized into four (4) chapters. Chapter I, General Requirements and Responsibilities, contains requirements and responsibilities which are applicable to all radioactive waste types and delineates responsibilities for radioactive waste management decision-making at the complex-wide and Field Element levels. Chapters II through IV contain those requirements that are applicable to high-level waste, transuranic waste, and low-level waste including the radioactive component of mixed low-level waste, respectively.</td>
<td>NO ACTION REQUIRED</td>
<td></td>
</tr>
</tbody>
</table>
INFORMATION CLEARANCE FORM

A. Information Category
- Abstract
- Journal Article
- Summary
- Internet
- Visual Aid
- Software
- Full Paper
- Report
- Other

B. Document Number
- HNF-5812-FP

C. Title
- Preparing for implementation of DOE 04351 at Hanford

D. Internet Address

E. Required Information
1. Is document potentially classified? [ ] No [ ] Yes (MANDATORY)
   - 01/25/00
     - Manager's Signature Required
   - If Yes, ADC Signature Required

2. Internal Review Required?
   - [ ] No [ ] Yes
   - Counsel ____________________________
   - Program ____________________________

3. References in the Information are Applied Technology
   - [ ] No [ ] Yes

4. Does Information Contain the Following: (MANDATORY)
   - a. New or Novel (Patentable) Subject Matter? [ ] No [ ] Yes
      - If "Yes", Disclosure No.:
   - b. Information Received in Confidence, Such as Proprietary and/or Inventions?
      - [ ] No [ ] Yes
      - If "Yes", Affix Appropriate Legends/Notices.
   - c. Copyrights? [ ] No [ ] Yes
   - d. Trademarks? [ ] No [ ] Yes
   - e. Trade Secrets? [ ] No [ ] Yes
   - f. Export Controlled Information? [ ] No [ ] Yes

5. Is Information requiring submission to OSTI? [ ] No [ ] Yes
   - If Yes UC- and BER-

6. Release Level? [ ] Public [ ] Limited

7. Charge Code

F. Complete for a Journal Article

1. Title of Journal

2. Title for Conference or Meeting
   - Waste Management Symposium 0K

3. Group Sponsoring
   - University of Arizona, NASA, WERC, OSTI

4. Date of Conference
   - Feb. 27 - March 2, 2000

5. Will Information be Published in Proceedings? [ ] No [ ] Yes

6. Will Material be Handled Out? [ ] No [ ] Yes

7. Author/Requestor
   - [ ] Yes
   - [ ] Print
   - [ ] Signature

8. Responsible Manager
   - [ ] Print

9. Reviewers
   - Yes Print
   - [ ] General Counsel
   - [ ] Office of External Affairs
   - [ ] DOE-RL
   - [ ] Other
   - [ ] Other

10. Information Clearance Approval
    - [ ] Applied Technology
    - [ ] Protected CRADA
    - [ ] Personal/Private
    - [ ] Export Controlled
    - [ ] Proprietary
    - [ ] Procurement-Sensitive
    - [ ] Business-Sensitive
    - [ ] Patentable
    - [ ] Precedential
    - [ ] Other (Specify)

11. K. If Additional Comments, Please Attach Separate Sheet