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# DEVELOPMENT AND MAINTENANCE OF THE HANFORD SITE RADIOLOGICAL CONTROL MANUAL

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## DISCLAIMER





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## INTRODUCTION

In June 1992 the U.S. Department of Energy (DOE) issued DOE N5480.6, Radiological Control, which set forth DOE's Radiological Control Program and established the framework for its implementation at sites nationwide. Accompanying the Order was the DOE Radiological Control Manual (DOE RCM), which provided the detailed requirements for the program. The Order also mandated Field Office issuance of site-specific radiological control manuals by December 1, 1992. This paper presents the approach taken to develop, review, approve, implement, and subsequently maintain the site-specific manual for the DOE Richland Field Office (RL) at Hanford Site.

## BACKGROUND

Article 114 of the DOE RCM requires that sites having multiple prime contractors issue a common manual, with facility-, contractor-, or building-specific guidance to accommodate unique considerations – all endorsed by each contractor's Senior Site Executive. Hanford Site currently has four prime contractors, uses many subcontractors, and employs about 15,000 people. An environmental restoration contractor and a laundry contractor are also expected to be authorized soon.

Because of the large size of the site (c. 560 square miles), its number of contractors, and its diverse activities housed in over 100 facilities, DOE-RL determined that a single site radiological control manual would indeed be most effective in establishing the radiation protection criteria and standards. The development of a unified program for the Hanford Site also had to address the fact that some contractor activities are licensed by the State of Washington. Therefore, DOE-RL requested that the four major contractors collaborate in developing the site-specific radiological control manual for Hanford.

## MANUAL DEVELOPMENT TEAM

To assist the contractors in preparing the site-specific manual in the limited time available, DOE-RL established a manual development team, whose goal was to review, adopt, or rewrite each article of the DOE RCM for inclusion in the Hanford Site Radiological Control Manual (HSRCM). The HSRCM would establish and define the Hanford Site radiological control program in accordance with the requirements of the DOE RCM.

The development team included a steering committee, project coordination group, topical experts, various ad hoc working groups, and production support staff, including an editor and text processor/secretary. The steering committee consisted of a representative from DOE-RL and each major contractor. Each contractor representative was a senior member of the respective radiation protection organization and had thorough knowledge of the contractor's

radiation protection program, the current radiation protection requirements, and the contractor activities that support the site mission. These individuals could speak authoritatively about their contractor's needs and limitations in implementing changes resulting from development of the site-specific manual. They also relayed information about the changing requirements to their senior management and provided clear guidance on contractor requirements to the rest of the development team members, usually through the project coordination group.

The three members of the project coordination group served as the project management team and lead authors. They coordinated all production details, including the activities of the topical experts and editing and text processing support staff. They also provided technical expertise in writing, revising, and expanding major portions of the text, and they reviewed and incorporated written input from topical experts and ad hoc writing groups. Finally, they presented material to contractor representatives for consideration and acceptance and served as the communication link between the steering committee and the rest of the team.

In addition to what was written by the project coordinators, specific areas were identified for development by topical experts or ad hoc writing groups composed of various contractor staff. These areas included internal dosimetry, external dosimetry, instrumentation and calibration, release survey methodology, posting and labeling specifications, training, and radiological records.

## DEVELOPMENT PROCESS

The project development team set up a process for preparing the site-specific manual that included the following major elements:

- weekly meetings of the steering committee to review draft articles and develop a site consensus on the approach for implementing the manual
- extensive involvement of the project coordination team to serve as indicated previously
- any meetings necessary to resolve problem areas and evaluate their effects on contractor radiation protection programs, etc.
- consensus approval of the final product, section by section
- preparation of the final document for contractor review and signature by the Senior Site Executives.

Typically, throughout the development process, the intercontractor groups of topical experts reviewed, enhanced, and expanded the DOE RCM articles to address the mission at Hanford Site. In most instances, this process added significant detail and control to the framework that was provided in the DOE RCM. For example, based on Hanford Site experience with radiation-generating devices, site-specific requirements and controls were incorporated into Article 365. Detailed requirements and guidance for bioassay monitoring for process operations and environmental restoration were also added to Chapter 5.

In other cases, appendixes were added to provide further guidance in specific technical areas.

The steering committee also identified several opportunities to improve the manual and to standardize some practices at Hanford. For example, 1) a Summary of Responsibility section was developed and inserted at the beginning of each chapter of the HSRCM to assist users in determining their specific responsibilities with respect to the manual; and 2) a number of contractor-specific forms (like the Radiation Work Permit form) were consolidated into a single form for sitewide use. The steering committee also carefully reviewed the DOE RCM to determine if any "Exceptions" to it were necessary in the HSRCM. They subsequently determined that no exceptions to any of the "shall" requirements would be needed.

The need to deal with additional differences between articles in the DOE RCM and the HSRCM was also addressed. For articles in the HSRCM that do not exactly match the DOE RCM article, a Technical Equivalency Determination (TED) form was completed. This form identified the subject for which equivalency is evaluated, the DOE RCM article number, the requirement, the HSRCM alternative, and discussion of equivalency. The TEDs were reviewed by the contractor representatives to achieve consensus agreement. The TEDs were also part of the signature package prepared for each contractor Senior Site Executive.

With open communication between all team members in working groups and in meetings and through the concerted and cooperative efforts of the development team members, the HSRCM was issued by the deadline of December 1, 1992. The collaborative effort involved more than 4000 person hours from initiation of the work in June 1992 through issuance of the manual in December. Upon issuance, the HSRCM was placed into the Hanford information database system (HANINFO) on the Hanford Local Area Network (HLAN) to provide wide access to the document and promote its use.

## MANUAL REVISION AND MAINTENANCE

Once the HSRCM was issued, miscellaneous errors and omissions noted in it indicated a need for it to be revised. In addition to editorial revisions, some definitions and appendixes need to be added to clarify requirements in the manual. The number of changes needed is expected to decrease as the minor errors are corrected and clarifications are provided to increase the users' understanding of the manual.

New and significant changes made in DOE RCM also affect requirements set forth in the site manual. DOE Headquarters indicated that changes in the DOE RCM could be expected until field users identified all areas requiring clarification. Changes in the DOE RCM will most likely require changes in the HSRCM. In time, changes in site contractors and site missions could also require additional revisions.

### Responsibilities

Clearly a system for regular maintenance of the HSRCM was needed to respond to regulatory changes and keep the manual current. Therefore, DOE-RL extended

the role and responsibilities of the HSRCM project coordination group (or Project Group) to providing technical and management support for regular follow-on maintenance of the HSRCM. The actual responsibility for maintaining the manual was assigned to the Hanford Radiation Protection Forum (HRPF).

The HRPF is a long-standing Hanford organization, consisting of radiation protection representatives from each Hanford contractor. It has historically provided a working platform for the discussion of radiation protection concerns. Making the HRPF responsible for manual maintenance ensures active participation by Hanford Site contractors and other organizations directly involved in radiation protection at the site.

To accommodate the new HSRCM maintenance role, the charter of the HRPF was revised to state that the Forum will provide an opportunity for the various Hanford contractors to do the following:

- Interface with the HSRCM Project Group (PG) to discuss revisions and changes to the DOE RCM, including effects on and required changes to the HSRCM.
- Work with the HSRCM PG to prepare mutually acceptable revisions to the HSRCM.
- Ensure that substantive revisions and changes to the HSRCM are approved by the contractor Senior Site Executives.
- Provide technical basis documentation and information for any future "Exceptions" to the DOE RCM requirements that are requested of DOE.
- Provide technical basis documentation as justification for alternative approaches to the DOE RCM recommendations indicated in text by the use of "should."
- Resolve common problems involving radiological safety.
- Discuss interpretations of DOE Rules, Orders, Implementation Guides, and Technical Guides pertaining to radiological safety and arrive at consensus.
- Formulate resolutions supported by all contractors concerning the above-listed topics.

## Methods

Regularly scheduled meetings of the HRPF provide a forum for discussing necessary changes to the HSRCM, their effects on contractor radiation protection programs, and distribution of proposed revisions to the manual to correct the problem areas. Typically, potential improvements, errors, and problem areas in the HSRCM are identified by users and transmitted to the HRPF through the contractor representatives who serve on the Forum. Depending upon the topic and the extent of the problem, it is handled in one of two ways. The item is either 1) added to the agenda for the next meeting, or 2) the HSRCM PG or whoever identifies the problem develops possible corrections and

solutions for distribution to the HRPF members for their consideration. In either case, Forum members review, discuss, and approve the final resolution of the problem.

All potential revisions to the manual, however slight, are first reviewed by contractor representatives on the HRPF to reach consensus on an acceptable resolution. After consensus is achieved, each contractor representative is responsible for ensuring that his/her respective Senior Site Executive is briefed on the proposed revisions. To minimize the involvement of the contractors' Senior Site Executive, miscellaneous revisions are accumulated and a change package for signature is prepared about quarterly. After receiving signed approval by all of the Senior Site Executives, the HSRCM is revised, both electronically in the edition of the document on the HLAN and in hard-copy form for distribution to holders of controlled copies of the manual.

Distribution of controlled copies is coordinated by a single contractor document control organization. The contractors agreed that the one document control organization would be responsible for providing control for both the DOE RCM and the HSRCM.

## CONCLUSION

So far the manual development and maintenance process has been effective in achieving the level of effort and cooperation necessary to 1) develop a site-specific radiological control manual that adequately addresses the diverse and changing mission at Hanford within the time constraints, and 2) provide a forum for contractor presentation of real and potential problems, while maintaining a current site manual that complies with DOE requirements.

# END

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