U.S. Department of Energy
Office of River Protection
P.O. Box 450
Richland, Washington 99352

03-ESQ-009

MAR 2 8 2003

Mr. E. S. Aromi, President
and General Manager
CH2M HILL Hanford Group, Inc.
Richland, Washington 99352

Dear Mr. Aromi:

CONTRACT NO. DE-AC27-99RL14047 – CH2M HILL HANFORD GROUP, INC. (CHG) RADIOLOGICAL CONTROL SELF-ASSESSMENT PROGRAM, ASSESSMENT REPORT A-03-RADCON-CHG-001, NOVEMBER 12, 2002, THROUGH JANUARY 13, 2003

This letter forwards the results of the subject assessment. The assessment team concluded CHG was implementing the Radiological Control Self-Assessment Program required by Title 10 Code of Federal Regulations (CFR) Part 835.102, "Internal Audits," but improvements are required to comply with all regulatory requirements. Four Findings and two Observations were noted. The Enclosure (A-03-RADCON-CHG-001) documents the details of the assessment.

The Positive Observation noted the proactive evaluation by CHG of its records system following a U.S. Department of Energy (DOE), Richland Operations Office-sponsored audit of another Hanford Site contractor.

The Findings dealt with failure to incorporate all 10 CFR 835 requirements into implementing documents; inadequate training and qualification of staff members performing assessments; records not demonstrating self-assessments of the requirements; and inadequate guidance for staff members performing self-assessments.

The Observation involved Lines of Inquiry on self-assessment cards that were not robust.

By May 1, 2003, CHG shall provide a response to each Finding, including:

- Actions taken or planned to identify any similar Findings in other programs or activities.
- Evaluation of the underlying causes for each Finding.
- Actions taken or planned to correct the underlying cause(s) for each Finding.
- Actions planned to verify the effectiveness of the corrective actions.

While a written response is not required for an Observation, it represents an opportunity for CHG to improve its self-assessment process.

When corrective actions for the Findings have been completed, please notify the DOE Office of River Protection.

If you have any questions, please contact me, or your staff may contact Larry McKay, Radiological Control Manager, (509) 376-7120.

Sincerely,

Roy J. Schepens
Manager

ESQ:LRM

Enclosure

cc w/encl:
K. W. Gray, CHG
J. W. Hobbs, CHG
B. M. Pangborn, RL

Enclosure
03-ESQ-009
A-03-RADCON-CHG-001

U.S. DEPARTMENT OF ENERGY
Office of River Protection
Office of Environmental Safety and Quality

ASSESSMENT:	CH2M HILL Hanford Group, Inc. Self-Assessment Program
REPORT NO.:	A-03-RADCON-CHG-001
FACILITY:	Tank Farms
LOCATION:	Hanford Site
DATES:	November 12, 2002 - January 13, 2003
ASSESSORS:	L. R. McKay, U.S. Department of Energy Office of River Protection, Assessment Lead
	B. M. Pangborn, U.S. Department of Energy Richland Operations Office

This page intentionally left blank.

EXECUTIVE SUMMARY

INTRODUCTION

The U.S. Department of Energy, Office of River Protection (ORP) assessment team (the team) evaluated CH2M HILL Hanford Group, Inc. (CHG) implementation of Title 10 CFR 835, "Occupational Radiation Protection," Section 102, "Internal Audits," that requires the Contractor to conduct "Internal audits of all functional elements of the radiation protection program ... no less frequently than every 3 years and shall include program content and implementation." The team reviewed CHG self-assessment implementing procedures and evaluated the effectiveness of CHG's Radiological Control Self-Assessment Program in identifying and correcting deficiencies.

FINDINGS, OBSERVATIONS, AND CONCLUSIONS

The team concluded that the CHG Radiological Control Self-Assessment Program satisfied most of the requirements of 10 CFR 835. The team identified the following four Findings and two Observations:

Findings:

- The CHG Radiation Protection Program (RPP) or Tank Farms Radiological Control Manual (TFRCM) did not incorporate all 10 CFR 835 requirements (**Finding A-03-RADCON-CHG-001-F-01**, Section 1.2).
  - The CHG RPP did not incorporate two requirements ("shall" statements) in 10 CFR 835.2 Definitions.
  - The Policy and Commitment Basis of the CHG RPP incompletely addressed 10 CFR 835.601(c), Posting & Labeling – General Requirements.
  - The Policy and Commitment Basis of the CHG RPP incompletely addressed 10 CFR 835.1001(a) Design and Control requirements.
  - Some RPP commitments did not flow down into the TFRCM.
  - CHG's self-assessment in this area was inadequate to identify these deficiencies.
- The current training and qualification program for RadCon Self-Assessment Program did not implement fully the requirements of 10 CFR 830, "Nuclear Safety Management," Section 122, "Quality Assurance Criteria," to ensure that staff members who perform self-assessments were trained and qualified to be capable of performing their assigned work (**Finding A-03-RADCON-CHG-001-F-02**, Section 1.3).

- The conduct of the CHG RadCon Self-Assessment Program did not meet all 10 CFR 835, Section 102 and Section 104, requirements:

  - Self-assessment records did not demonstrate full compliance with 10 CFR 835.102: some records failed to demonstrate self-assessment of implementation of the requirements (**Finding A-03-RADCON-CHG-001-F-03**, Section 1.4).

  - CHG procedures for performing radiological self-assessments did not provide adequate guidance, commensurate with the education, training, and skills of the individuals who performed the assessments (**Finding A-03-RADCON-CHG-001-F-04**, Section 1.5).

Observations:

- Some Lines of Inquiry in the RadCon Self-Assessment Cards were not robust (**A-03-RADCON-CHG-001-O-01**, Section 1.6 [Negative Observation]).

- CHG used the assessment results from a U.S. Department of Energy, Richland Operations Office, audit of another Hanford Site contractor to evaluate proactively its records program for similar deficiencies (**A-03-RADCON-CHG-PO-01**, Section 1.7 [Positive Observation]).

Based on these Findings and Observations, ORP will continue oversight of the CHG Radiological Control Program at current planned levels.

Table of Contents

SELF-ASSESSMENT PROGRAM ASSESSMENT REPORT FOR THE PERIOD OF NOVEMBER 12, 2002, THROUGH JANUARY 13, 2003

1.0 REPORT DETAILS

1.1 Introduction

During this assessment, the CH2M HILL Hanford Group, Inc. (CHG) was conducting a self-assessment of its Radiation Protection Program (RPP) in accordance with the requirements of 10 CFR 835, "Occupational Radiation Protection," Subpart A, Section 102, "Internal Audits," which specifies that "Internal audits of all functional elements of the radiation protection program shall be conducted no less frequently than every 3 years and shall include program content and implementation."

The U.S. Department of Energy (DOE), Office of River Protection (ORP) assessment team (the team) reviewed CHG's self-assessment implementing procedures for compliance with 10 CFR 835.102 requirements and evaluated the effectiveness of CHG's Self-Assessment Program in identifying and correcting Radiological Control (RadCon) Program deficiencies. The team based its conclusions on observations of CHG's self-assessor; reviews of procedures and supporting documentation; and interviews with managers and self-assessors responsible for the assessment program.

1.2 Non-Compliance of Radiation Protection Program with 10 CFR 835 Requirements

1.2.1 Assessment Scope

The team reviewed CHG's RPP and Tank Farms Radiological Control Manual (TFRCM) against the associated 10 CFR 835 requirements to verify accuracy and completeness, and compared its results with CHG's self-assessment of Organization and Administration.

1.2.2 Assessment Results

Non-Compliance with Regulatory Requirements

CHG's RPP did not address or inadequately addressed some of the requirements of 10 CFR 835.101(e) that specify, "The content of the RPP shall address, but shall not necessarily be limited to, each requirement in this part."

The team identified the following deficiencies

- CHG did not incorporate the following two 10 CFR 835.2 Definitions requirements ("shall" statements) in their RPP:
  - *Quality Factor* (i), "When spectral data are insufficient to identify the energy of the neutrons, a quality factor of 10 shall be used."

- *Quality Factor* (ii), under the table caption "Quality Factor for Neutrons," "Where the neutron energy falls between listed values, the more restrictive mean quality factor shall be used."

- The Policy and Commitment Basis of the CHG RPP incompletely addressed the requirements in 10 CFR 835.601(c), Posting & Labeling – General Requirements.

Title 10 CFR 835 specifies: "The posting and labeling requirements in this subpart may be modified to reflect the special considerations of DOE activities conducted at private residences or businesses. Such modifications shall provide the same level of protection to individuals as the existing provisions in this subpart" (emphasis added). CHG's RPP, Section VII Requirements Matrix, Requirements 124 and 125, cited a TFRCM, "Article 231.13 (excerpt modified) 'Such modifications shall [835.601(c)] provide the same level of protection to individuals as the existing provisions in 10 CFR 835'." However, Article 231.13 applies only to posting; there is no comparable implementing statement in the RPP for labeling, so the 10 CFR 835.601(c) requirement is incompletely addressed.

The Policy and Commitment Basis statement for RPP Requirement 124 specifies, "For the following specific subject areas, the radiological requirements of 10 CFR 835 may be modified by the limited application of the provisions of Article 113.3.10. Posting of privately owned and adjacent property." Article 113.3, which describes the Technical Equivalency Determination process, is for non-regulatory requirements, and cannot be applied to modify 10 CFR 835 requirements. 10 CFR 835.601(c) provides for modification of posting requirements for DOE activities "conducted at private residences or businesses." But 10 CFR 835 does not recognize the term "adjacent property," and CHG has no exemption on file that demonstrates the DOE has approved this modification of the 10 CFR 835 posting requirements.

- The Policy and Commitment Basis of the CHG RPP incompletely addressed 10 CFR 835.1001(a) Design and Control requirements.

Title 10 CFR 835.1001(a) specifies, "Measures shall be taken to maintain radiation exposure in controlled areas ALARA ...." Requirement 207 of the CHG RPP added a modifier to the 10 CFR 835 requirement while not fully committing to implementation: it limited application of the requirement to "general employees" or "personnel" instead of to all individuals. The term "individuals" is intentionally used in 10 CFR 835 to extend the coverage of the requirements to all individuals, not just DOE or DOE-contractor workers. Further, the definition of ALARA in 10 CFR 835.2 Definitions includes "... to manage and control exposures ... to the work force and to the general public to as low as is reasonable ...." (emphasis added), so the use of "general employees" and "personnel" is not appropriate.

In May 2002, CHG assessed its compliance with 10 CFR 835.101(e) and identified no deficiencies (7B800-02-070, *Triennial Assessment - Organization and Administration* [TF-RC-2002-005], dated June 19, 2002). The team reviewed the assessment report and found that it referenced a statement in the RPP that it addressed each 10 CFR 835 requirement. This statement alone was used as the basis of compliance. However, there is no evidence that the self-assessor reviewed any objective quality evidence, such as the Requirements Matrix in the RPP, compared to 10 CFR 835, to verify the RPP did, in fact, address each requirement in the regulation.

RPP Contains Conflicting Data

CHG's RPP Policy and Commitment Basis for 10 CFR 835.206(b) contained conflicting data because a DOE Implementation Guide had been misapplied.

CHG's RPP Requirement 60 states, "CHG will apply the guidance of DOE G 441.1-6, 'Evaluation and Control of Radiation Dose to the Embryo/Fetus Guide', of 04/29/99, Section 4.2 guideline statement to maintain declared pregnant worker fetus dose below 50 mrem per month." However, DOE G 441.1-6 does not contain this statement. It does describe a process for limiting substantial variation of dose based on the dose of the fetus at the time of declaration of pregnancy, but the guidance for using 50 mrem per month is contained instead in the DOE RadCon Standard, DOE-STD-1098-99.

Since the team did not perform a complete review of CHG's RPP, other RPP deficiencies, not identified above, may exist.

TFRCM Inconsistencies with 10 CFR 835 and the RPP

Contrary to the requirements of 10 CFR 835.101(a) and 835.104, the TFRCM contained inconsistencies with 10 CFR 835 and the RPP

The team reviewed CHG's RPP, TFRCM, and the Lines of Inquiry's (LOI) for performing self-assessments of 10 CFR 835 and identified the following examples of deficiencies in the TFRCM:

- Some RPP commitments did not flow down into the TFRCM.

CHG's RPP Requirement 33 specifies, "CHG assessment program functional elements were organized based on sub-part titles B-N inclusive of 10 CFR 835. The CHG Assessment Program content includes all elements listed in DOE G 441.1, 'Management and Administration of Radiation Programs Guide' of March 1999, section 4.2."

Contrary to this requirement, TFRCM Article 134.2 listed functional elements that should be included in the assessment program that are inconsistent with DOE G 441.1. Important functional areas such as Management and Administrative Requirements (10 CFR 835, Subpart B) and Radiological Work Planning were not included in the TFRCM functional element list.

- The TFRCM did not incorporate fully the requirements of 10 CFR 835.601(c).

See Section 1.2.2.

The team did not perform a complete review of the TFRCM for compliance with 10 CFR 835 and the CHG RPP. There may be additional deficiencies in the flow down of these requirements into TFRCM.

- CHG's self-assessment in this area was inadequate to identify these deficiencies.

In May 2002, CHG performed an assessment of the flow down of RPP requirements into implementing procedures (7B800-02-070, *Triennial Assessment - Organization and Administration* [TF-RC-2002-005], dated June 19, 2002). The assessment included a statement that compliance was "... validated through the Validation and Verification Process ...." performed on the RPP. This requirement was not assessed through objective quality evidence during the CHG self-assessment.

1.2.3 Conclusions

Finding A-03-RADCON-CHG-001-F-01 The CHG RPP or TFRCM did not incorporate all 10 CFR 835 requirements.

CHG did not incorporate the following two 10 CFR 835.2 Definitions requirements ("shall" statements) in their RPP.

The Policy and Commitment Basis of the CHG RPP incompletely addressed 10 CFR 835.601(c), Posting & Labeling – General Requirements.

The Policy and Commitment Basis of the CHG RPP incompletely addressed 10 CFR 835.1001(a) Design and Control requirements.

Some 10 CFR 835 and RPP requirements did not flow down into the TFRCM.

The TFRCM did not incorporate fully the requirements of 10 CFR 835.601(c), Posting & Labeling – General Requirements.

Additionally, CHG's self-assessment in this area was inadequate to identify these deficiencies.

1.3 Qualification and Training of Self-Assessment Staff

1.3.1 Assessment Scope

The team reviewed training and qualification procedures for self-assessors; interviewed RadCon management and one self-assessor; and evaluated training summaries and resumes for individuals conducting, or anticipated to conduct, assessments.

1.3.2 Assessment Results

The current training and qualification program for RadCon self-assessors did not implement fully the requirements of 10 CFR 830.122.

10 CFR 830.122, Quality Assurance Criteria, requires that Quality Assurance Plans address:

"(b) Criterion 2 – Management/Personnel Training and Qualification: (1) Train and qualify personnel to be capable of performing their assigned work."

A training and qualification program existed for CHG RadCon professional staff members (RPP-7788, *Tank Farms Contractor (TFC) Radiological Control Functional Analysis for Facility Technical Authority Functions, Radiological Control Manager and Technical Staff*, Revision 1, dated February 25, 2002). However, a review of the resumes of individuals conducting, or anticipated to conduct self-assessments (according to an interview with the RadCon Director) revealed that Knowledge, Skills, and Abilities were not identified in the training and qualification program.

In addition, no required reading was specified; the program did not address specific technical competencies required; and the qualifications are not function-specific. An individual qualified under the program may perform any of the self-assessments, even though advanced technical knowledge may be required to properly perform the assessment (for example, a technical specialist may be needed to properly assess the Internal Dosimetry Program).

Based on a review of staff member resumes, at least two individuals did not technically meet the education requirement specified in RPP-7788, Revision 1 for a "Baccalaureate in science, health physics or engineering." The process by which equivalency is determined and documented was not obvious (for example, how an individual without a college degree can be qualified to perform self-assessments).

In accordance with Management Plan TFC-PLN-010, *Assessment Program Plan*, Revision A, dated August 23, 2002, a series of assessment courses had been administered to CHG RadCon self-assessors. However, based on a review of the lesson plans, these courses failed to provide adequate guidance on how to perform a triennial review of the RadCon Program against the requirements of 10 CFR 835.

The team reviewed the training records of 11 individuals who had performed, or who were scheduled to perform, RadCon self-assessments, against the Program Plan. Only two individuals had completed Course No. 350322, "Assessment Techniques – Initial." (The CHG RadCon Director stated this was the best available assessment course.) While the individual designated Lead Assessor had completed more assessment courses than anyone else on the list, he had no documented evidence of having completed this course. One individual had no documented evidence of having completed any assessment course.

1.3.3 Conclusions

Finding A-03-RADCON-CHG-001-F-02

The current training and qualification program for RadCon Self-Assessment Program did not implement fully the requirements of 10 CFR 830, "Nuclear Safety Management," Section 122, "Quality Assurance Criteria" to ensure that staff members who perform self-assessments

were trained and qualified to be capable of performing their assigned work.

1.4 Records

1.4.1 Assessment Scope

The team reviewed three and one half years of CHG triennial RadCon self-assessments to verify records adequately demonstrated compliance with 10 CFR 835.102.

1.4.2 Assessment Results

Records of Assessment of Implementation of 10 CFR 835

CHG is meeting the requirements of 10 CFR 835.102, which specifies, "Internal audits of the radiation protection program, including examination of program content and implementation, shall be conducted through a process that ensures that all functional elements are reviewed no less frequently than every 36 months."

Some records did not demonstrate full compliance with 10 CFR 835.701(a), which specifies, "Records shall be maintained to document compliance with this part and with the radiation protection program required by § 835.101."

Examples included:

7B800-02-069, *Triennial Assessment – Contamination Control (TF-RC-2002-004)*, dated June 18, 2002. Twenty-two percent (15 out of 68) of the LOIs for implementation of requirements either referenced the procedure as the basis for compliance or stated what CHG did, without identifying the basis for indicating the requirement was being adequately implemented. Fifteen percent (10 out of 68) indicated compliance based on an interview (no objective quality evidence). Forty-eight percent of the LOIs either did not identify sample sizes or identified sample sizes that are not statistically significant. As an example, an observation of four individuals' frisking at a single location constituted the basis for compliance. The self-assessor wrote a finding for non-compliance with a number of requirements for frisking, but the team reviewed the LOIs and found that all of the non-compliances were attributed to one of the four individuals observed.

7B800-02-078, *Triennial Assessment – Radioactive Material Labeling and Control (TF-RC-2002-006)*, dated July 15, 2002. Fifty-three percent (18 out of 34) of the LOIs for implementation of requirements either referenced the procedure as the basis for compliance, referenced workers were trained to implement the requirement or stated what CHG did, without identifying the basis for indicating the requirement was being adequately implemented. Six percent (two out of 34) indicated compliance based on an interview. Eighteen percent (six out of 34) of the LOIs either did not identify sample sizes or identified sample sizes that are not statistically significant. Examples include observation of only two Radioactive Material Areas and review of the record of approval for only one Radioactive Material Area. CHG staff

indicated there were approximately 100 Radioactive Material Areas established at the Tank Farms, so the sample size was very small.

7B800-02-054, *Triennial Assessment – Transportation and Receipt of Radioactive Material (TF-RC-2002-003)*, dated May 20, 2002. Referencing the procedure (program content, not implementation) was used to assess 35 percent (six out of 17) of the LOIs for program implementation. Interviews alone (no objective quality evidence) were used to assess 29 percent (five out of 17) of the LOIs for program implementation. The remaining LOIs for implementation were assessed by observing one radioactive shipment (not a statistically significant sample size).

Although these examples are from recent self-assessments, the team reviewed assessments completed during the past three and one half years and identified similar deficiencies.

Other Record Deficiencies

For most of 2001, CHG's self-assessment reports identified neither the self-assessor, nor the duration of the self-assessment. This deficiency has since been corrected.

1.4.3 Conclusion

Finding A-03-RADCON-CHG-001-F-03 Self-assessment records did not demonstrate full compliance with 10 CFR 835.102: some records failed to demonstrate self-assessment of implementation of the requirements.

1.5 Procedures for Performing Self-assessments

1.5.1 Assessment Scope

The team reviewed the CHG procedures and plans to verify compliance with 10 CFR 835.

1.5.2 Assessment Results

CHG procedures for performing radiological self-assessments did not provide adequate guidance, commensurate with the education, training, and skills of the individuals performing the assessments, as specified in 10 CFR 835.104:

> "Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazards created by the activity and consistent with the education, training, and skills of the individuals exposed to those hazards."

Guidance on performing assessments can either be communicated through training programs, procedures, or direct oversight. As previously discussed in Section 1.3, no training program adequately communicated CHG guidance for conducting self-assessments. Additionally, team observation of CHG's self-assessment of radiological instruments revealed the self-assessor was the Lead Assessor and planned and executed the self-assessment. This section looks at the quality of the CHG procedures.

The CHG RadCon Self-Assessment Program was described in procedure HNF-IP-0842, Revision 0b, *Radiation Protection Self-Assessment*, effective date February 5, 2002. The team reviewed the procedure and found that it did not compensate for the lack of training and qualification of personnel performing assessments. The CHG procedure did not define expectations for adequate statistical sampling using any standard, such as MIL-STD 105. The procedure did not provide guidance on the use of objective quality evidence. There was no guidance on how to audit both program content and implementation. There was no guidance on records required to demonstrate compliance with 10 CFR 835.102, or to demonstrate CHG has implemented a robust, rigorous, credible self-assessment program in radiation protection. The procedure was not consistent with the education, training, and skills of personnel assigned to perform radiological assessments.

The CHG procedure for independent assessments, TFC-ESHQ-AP-C-02, Revision A, *Independent Assessment Program*, effective date September 2, 2002, had some rigor to it. The procedure included the basic procedural steps for performing an assessment, including the development of an assessment plan. However, this procedure did not include the type of guidance described above.

The team reviewed records of radiological assessments, reviewed the procedure, interviewed personnel performing self-assessments, and observed the performance of the self-assessment of radiological instruments, and concluded that no self-assessment plans were prepared. The LOIs, which did not identify how the self-assessor would assess the requirement, was the only planning tool available. During the self-assessment of radiological instruments, the team observed the self-assessor determine how to evaluate each LOI during the conduct of the assessment (no advance plan).

1.5.3 Conclusion

Finding A-03-RADCON-CHG-001-F-04 CHG procedures for performing RadCon self-assessments did not provide adequate guidance, commensurate with the education, training, and skills of the individuals performing the assessments.

1.6 Lines of Inquiry for Performing Self-Assessments

1.6.1 Assessment Scope

The team reviewed CHG's LOIs for performing self-assessments to verify the procedures were compliant with the requirements of 10 CFR 835 and CHG's RPP.

1.6.2 Assessment Results

CHG's LOIs for radiological assessment did not cover all of 10 CFR 835 requirements, the CHG RPP contained some errors, and the LOIs were shallow in evaluating some areas. While the LOIs provided an assessment program compliant with 10 CFR 835, the LOIs were not robust as specified in DOE P 450.5, "Key Elements of Line ES&H Oversight Process," include, "1. A robust, rigorous, and credible contractor ES&H self-assessment program ...."

- The LOIs did not cover all 10 CFR 835 and RPP requirements.

Some LOIs paraphrased the requirements with the effect that the LOIs did not include the full RPP requirement. Examples included:

Title 10 CFR 835.103 specifies: "Individuals responsible for developing and implementing measures necessary for ensuring compliance with the requirements of this part shall have the appropriate education, training, and skills to discharge these responsibilities."

The CHG RPP identified a number of positions where 10 CFR 835.103 applies. However, the LOIs assessed only some of the positions or only part of the CFR requirement for other positions. For example, the LOIs did not assess education, training, and skills of RadCon self-assessors, RWP preparers, source custodians, or containment installers and/or inspectors, and only partially assessed education, training, and skills of RadCon technical staff, work planners, managers, and As Low As Reasonably Achievable (ALARA) technical support personnel.

The LOIs only addressed compliance with the total effective dose equivalent limit, and not the 10 percent of occupational dose limits, as specified in 10 CFR 835.207:

> "The dose equivalent limits for minors occupationally exposed to radiation and/or radioactive materials at a DOE activity are 0.1 rem (0.001 sievert) total effective dose equivalent in a year and 10% of the occupational dose limits specified at § 835.202(a)(3) and (a)(4)."

Title 10 CFR 835.1002(d) specifies: "The design or modification of a facility and the selection of materials shall include features that facilitate operations, maintenance, decontamination, and decommissioning." The LOIs specified, "For materials used in facility construction and modifications, is the design objective to select materials that facilitate operations, maintenance decontamination and decommissioning?" This question did not address the first half of the requirement, that the design or modification itself include features that facilitate operations, maintenance, decontamination, and decommissioning.

The LOIs were not consistent with the CHG RPP, which asked, "Are calibrations performed in accordance with ANSI N323?" because the CHG RPP stated, "CHG uses ANSI N323A (Rev. 1997) for portable instruments, and uses ANSI N323 (Rev. 1978) as guidance for other types of monitoring equipment."

Although CHG performed a review of the LOIs prior to performing the self-assessment of radiological instruments, it reviewed the LOIs against the requirements in the TFRCM, and thus did not identify inconsistencies between the LOIs and 10 CFR 835 and the CHG RPP.

- Some LOIs on the assessment cards had been paraphrased to the point that they were no longer accurate and complete.

Rewriting the requirement sometimes resulted in erroneous LOIs. Examples included:

LOI 3-2-1 specified: "Do RWPs or procedures consider ... relocation of the primary dosimeter when a radiological worker is likely to receive a lens of the eye dose of 1.5 rem or more in a year and the lens of the eye dose is the most limiting?" The primary dosimeter measures whole body dose. Lens of the eye dose is measured separately. It would be inappropriate to relocate the primary dosimeter to measure lens of the eye dose.

LOI 6-g-1-3 specified: "Do personnel hold the probe less than ½ inch from surface being surveyed for beta ...." The Hanford Site technical basis documents for appropriate surveying for beta radiation, based on the isotopic mix at Hanford and the instruments used, are based on the probe being ¼ inch from the surface, not ½ inch.

Several LOIs for the dosimetry program inappropriately applied a requirement to all dose limits, instead of those specified in 10 CFR 835. As an example, LOI 3-1-1 specified, "Are all occupational doses received during the current year, except for doses resulting from planned special exposures ... and emergency exposures ... included when demonstrating compliance with the dose limits?" This exception of doses resulting from planned special exposures and emergency exposures from the dose limit is not applicable to dose limits for the embryo/fetus of a declared pregnant worker. This generalization of the requirement made the LOI inaccurate.

- Some LOIs were shallow, not adequately evaluating the quality of the program.

Examples included:

LOI 1-2-7, for 10 CFR 835.102, Internal Audits, asked, "Does the RadCon Organization have an audit/assessment program to assess all functional elements of the Radiological Protection Program that are applicable, over a 36 month period?" and "Are the following functional elements included in the assessment program ...." The LOIs did not assess the quality of the program, the qualification of personnel performing assessments, the adequacy of procedures and LOIs, the adequacy of assessment records in demonstrating a robust self-assessment program, or the adequacy of the performance of self-assessments.

1.6.3 Conclusions

Observation A-03-RADCON-CHG-0-01 Some LOIs in the RadCon Self-Assessment Cards were not robust.

1.7 Using Lessons Learned From Assessments of Other Contractors

1.7.1 Assessment Scope

The team reviewed records of completed self-assessments.

1.7.2 Assessment Results

The team observed a good practice. CHG performed a review of their records program, following the release of a DOE Richland Operations Office (RL)-sponsored audit of the records program for another Hanford Contractor, looking for similar deficiencies within their program. This activity by CHG demonstrated a proactive stance and sensitivity to sitewide problems in the radiological control arena.

1.7.3 Conclusions

Observation A-03-RADCON-CHG-P0-01 CHG used the assessment results from a RL audit of another Hanford Site contractor to proactively evaluate their records program for similar deficiencies.

2.0 EXIT MEETING SUMMARY

The team presented the assessment results to members of CHG management at an exit meeting on January 13, 2003. CHG acknowledged the findings, observations, and conclusions presented and committed to provide a written response to the Findings.

3.0 REPORT BACKGROUND INFORMATION

3.1 Partial List of Persons Contacted

R. L. Brown, Radiological Assessments Manager
J. W. Hobbs, Radiological Control Director
S. F. Waters, Health Physicist (Lead Assessor)

3.2 List of Inspection Procedures Used

ORP PD 220.1-1, Revision 0, *Conduct of AMSQ Assessments*

3.3 List of Documents Reviewed

CHG Program Documents

HNF-5183, Revision 0, "Tank Farms Radiological Control Manual," dated July 19, 2000

HNF-MP-5184, Revision 2, "CH2M HILL Hanford Group, Inc. Radiation Protection Program," dated March 21, 2000

CHG Procedures Reviewed

HNF-IP-0842, Volume 7, Radiological Control, Section 11.11, Revision 0b, *Radiation Protection Self-Assessment*, dated February 5, 2002

TFC-POL-05, Revision A, *Management and Independent Assessments*, dated June 20, 2002.

TFC-PLN-010, Revision A, *Assessment Program Plan*, dated August 23, 2002.

TFC-ESHQ-AP-C-01, Revision A-1, *Management Assessment Program*, dated September 4, 2002

TFC-ESHQ-AP-C-02, Revision A, *Independent Assessment Program*, dated September 2, 2002

HNF-IP-0842, Revision 0c, *Radiation Protection Instrument Program*, dated March 14, 2002

Radiological Control Instructions

RCI-01, Revision 4, *Radiological Control Instruction Administration*, dated September 18, 2002

Other Documents Reviewed

RPP-7788, Revision 1, *Tank Farms Contractor (TFC) Radiological Control Functional Analysis for Facility Technical Authority Functions, Radiological Control Manager and Technical Staff*, dated February 25, 2002

RadCon Assessment Reports (all RadCon assessment reports for 1999-2001, plus seven reports for 2002 completed before the assessment period):

TF-RC-1999-001, *Emergencies*, dated March 10, 1999
TF-RC-1999-002, *Radiological Work Permits*, dated March 12, 1999
TF-RC-1999-003, *ALARA Review*, dated March 26, 1999
TF-RC-1999-004, *ALARA Committee*, dated April 23, 1999
TF-RC-1999-005, *Program, Policy and Procedures*, dated June 24, 1999

TF-RC-1999-007, *Radiological Work Planning*, date July 30, 1999
TF-RC-1999-008, *Personnel Contamination Monitoring*, dated August 31, 1999
TF-RC-1999-009, *Workplace Monitoring and Contamination Control*, dated September 22, 1999
TF-RC-1999-010, *ALARA Review*, dated November 1, 1999
TF-RC-1999-011, *Design and Control and ALARA*, dated November 23, 1999
TF-RC-1999-012, *Posting and Labeling*, dated December 29, 1999

TF-RC-2000-001, *Workplace Monitoring and Contamination Control*, dated January 27, 2000
TF-RC-2000-002, *Release of Material and Equipment*, dated February 29, 2000
TF-RC-2000-003, *Radiological Records*, dated April 19, 2000
TF-RC-2000-004, *Radioactive Material and Source Control*, dated June 27, 2000
TF-RC-2000-005, *Conduct of Radiological Operations*, dated June 26, 2000
TF-RC-2000-006, *Workplace Monitoring and Contamination Control*, dated July 27, 2000
TF-RC-2000-007, *Standards for Internal and External Exposure and Dosimetry*, dated September 19, 2000
TF-RC-2000-008, *Design and Control and ALARA*, dated November 1, 2000
TF-RC-2000-009, *Posting and Labeling*, dated November 14, 2000
TF-RC-2000-010, *Workplace Monitoring and Contamination Control*, dated February 6, 2001
TF-RC-2000-011, *Radiation Safety Training*, dated March 9, 2001
TF-RC-2000-012, *Workplace Monitoring and Contamination Control*, dated March 12, 2001

TF-RC-2001-001, *Design and Control and ALARA*, dated May 29, 2001
TF-RC-2001-002, *Radiological Records*, dated July 13, 2001
TF-RC-2001-003, *Release of Material and Equipment*, dated July 13, 2001
TF-RC-2001-004, *Conduct of Radiological Operations*, dated September 17, 2001
TF-RC-2001-005, *Radiation Safety Training*, dated September 24, 2001
TF-RC-2001-006, *Workplace Monitoring and Contamination Control*, dated September 24, 2001
TF-RC-2001-007, *Radioactive Material and Source Control*, dated October 4, 2001
TF-RC-2001-008, *Radiological Records*, dated October 4, 2001
TF-RC-2001-009, *Workplace Monitoring and Contamination Control and Entry Control*, dated November 6, 2001
TF-RC-2001-010, *Radiological Reports*, dated November 20, 2001
TF-RC-2001-011, *Entry Control*, dated December 4, 2001
TF-RC-2001-012, *Organization and Administration*, dated December 19, 2001

TF-RC-2002-001, *Emergencies*, dated February 22, 2002
TF-RC-2002-002, *Radiological Work Permits*, dated April 29, 2002
TF-RC-2002-003, *Transportation and Receipt of Radioactive Material*, dated May 20, 2002
TF-RC-2002-004, *Contamination Control*, dated June 18, 2002
TF-RC-2002-005, *Organization and Administration*, dated June 19, 2002
TF-RC-2002-006, *Radioactive Material Labeling and Control*, dated July 15, 2002
TF-RC-2002-007, *Radiological Conduct of Operations*, dated August 28, 2002

3.4 List of Acronyms

ALARA	As Low As Reasonable Achievable
CHG	CH2M HILL Hanford Group, Inc.
DOE	U.S. Department of Energy
PD	Procedure Directive
RadCon	Radiological Control
RL	Richland Operations Office
RPP	Radiation Protection Program
TFRCM	Tank Farm Radiological Control Manual

Task Detail Report 03/31/2003 08:09 AM

Task #: ORP-ESQ-2003-0009

Parent Task #:
Subject: CONCUR:03-ESQ-009;CHG SELF-ASSESSMENT PROGRAM, A-03-RADCON-CHG-001
Category: None
Due Date:
Originator: Mosby, Debbie A

Reference #: 03-ESQ-009
Deliverable: None
Status: Open
Priority: None
Originator Phone: (509)376-9106

Assigned By: Self
Assigned Role: Originator
Assigned Date: 01/28/2003
Assigned Due Date:

Routing Lists: ⊞ **Route List - Active**

- ☐ McKay, Larry R - Approve - Approve - 01/29/2003 10:12
- ☐ Barr, Robert C - Review - Concur with comments - 03/21/2003 13:08 (By: Hopkins, Dianne)
- ☐ Erickson, Leif - Approve - Withdrawn - 01/29/2003 15:57
- ☐ O'Connor, Judith S - Review - Concur - 03/25/2003 07:18 (By: ALMARAZ, ANGELA D)
- ☐ Erickson, Leif - Review - Concur - 03/26/2003 16:30 (By: Deutsch, V Genie)
- ☐ Schepens, Roy J - Approve - Approve with comments - 03/31/2003 07:44 (By: Deutsch, V Genie)

Instructions:
Delay in concurrence was due to report being revised. 3/21/03 DH

Correspondence is being routed for concurrence via hard copy instead of electronically. Once you receive the correspondence, please approve or disapprove electronically via E-STARS and route to next person on the routing/concurrence list.

bcc:
ESQ OFF FILE
ESQ RDG FILE
MGR RDG FILE
R. C. BARR, ESQ
L. R. MCKAY, ESQ
J. S. O'CONNOR, OPA
[redacted]

Attachments:
1. 03-ESQ-009 A-03-RAD-CHG-001 Report.doc
2. 03-ESQ-009.lrm.doc

Comments
Response Comments

Poster / Date : Barr, Robert C (Hopkins, Dianne) - 2003-03-21 13:08:24
Subject : Hopkins, Dianne -- Concur
Revised report finalized 3/21/03. dh
Poster / Date : Schepens, Roy J (Deutsch, V Genie) - 2003-03-31 07:44:22
Subject : Deutsch, V Genie -- Approve
Erickson signed in Schepens' absence.

RECEIVED
MAR 31 2003
DOE-ORP/ORPC

Task Due Date History:

Date Modified	Task Due Date	Modified By

-- End of Report --

Task Detail Report 03/21/2003 11:51

Task #: ORP-ESQ-2003-0009

Parent Task #:
Subject: CONCUR:03-ESQ-009;CHG SELF-ASSESSMENT PROGRAM, A-03-RADCON-CHG-001
Category: None
Due Date:
Originator: Mosby, Debbie A

Reference #: 03-ESQ-009
Deliverable: None
Status: Open
Priority: None
Originator Phone: (509)376-9106

Assigned By: Self
Assigned Role: Originator

Assigned Date: 01/28/2003
Assigned Due Date:

Routing Lists: ⊞ **Route List - Active**

- ☐ McKay, Larry R - Approve - Approve - 01/29/2003 10:12
- ☐ Barr, Robert C - Review - Awaiting Response RCB 3/21/03
- ☐ Erickson, Leif - Approve - Withdrawn - 01/29/2003 15:57
- ☐ O'Connor, Judith S - Review - Awaiting Response
- ☐ Erickson, Leif - Review - Awaiting Response
- ☐ Schepens, Roy J - Approve - Awaiting Response

Instructions:
Delay in concurrence was due to report being revised. 3/21/03 DH

Correspondence is being routed for concurrence via hard copy instead of electronically. Once you receive the correspondence, please approve or disapprove electronically via E-STARS ar route to next person on the routing/concurrence list.

bcc:
ESQ OFF FILE
ESQ RDG FILE
MGR RDG FILE
R. C. BARR, ESQ
L. R. MCKAY, ESQ
J. S. O'CONNOR, OPA
B. Pangborn, RL — move to cc

Attachments:
1. 03-ESQ-009 A-03-RAD-CHG-001 Report.doc
2. 03-ESQ-009.lrm.doc

Comments

Task Due Date History:

Date Modified	Task Due Date	Modified By

-- End of Report --

Task Detail Report 01/28/2003 07:44 AM

Task #: ORP-ESQ-2003-0009

Parent Task #:
Subject: CONCUR:03-ESQ-009;CHG SELF-ASSESSMENT PROGRAM, A-03-RADCON-CHG-001
Category: None
Due Date:
Originator: Mosby, Debbie A

Reference #: 03-ESQ-009
Deliverable: None
Status: Open
Priority: None
Originator Phone: (509)376-9106

Assigned By: Self
Assigned Role: Originator
Assigned Date: 01/28/2003
Assigned Due Date:

Routing Lists: ⊞ **Route List - Active**
- ⊡ McKay, Larry R - Approve - Awaiting Response JRMc 1/29/03
- ⊡ Barr, Robert C - Approve - Awaiting Response
- ⊡ Erickson, Leif - Approve - Awaiting Response

Instructions:
Correspondence is being routed for concurrence via hard copy instead of electronically. Once you receive the correspondence, please approve or disapprove electronically via E-STARS and route to next person on the routing/concurrence list.

bcc:
ESQ OFF FILE
ESQ RDG FILE
MGR RDG FILE
R. C. BARR, ESQ
L. R. MCKAY, ESQ
L. ERICKSON, ORP

Attachments:
1. 03-ESQ-009.att.doc
2. 03-ESQ-009.lrm.doc

Comments

Task Due Date History:

Date Modified	Task Due Date	Modified By

-- End of Report --