U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

04-ESQ-097

Mr. J. P. Henschel, Project Director
Bechtel National, Inc.
2435 Stevens Center
Richland, Washington 99352

Dear Mr. Henschel:

CONTRACT NO. DE-AC27-01RV14136 – AS LOW AS REASONABLY ACHIEVABLE (ALARA) PROGRAM ASSESSMENT REPORT, A-04-ESQ-RPPWTP-013, FOR OCTOBER 18 THROUGH 25, 2004

This letter forwards the results of the subject assessment. The assessment team concluded, except for the Observation identified below, Bechtel National, Inc. (BNI) had an adequate ALARA Program in place and was implementing the ALARA process. The assessors identified one Observation for not meeting Safety Requirements Document Implementing Code and Standard DOE G 441.1-2, "Occupational ALARA Program Guide." Specifically, BNI had no ALARA recognition program. Details of the inspection are documented in the attached inspection report.

Please provide corrective actions to the Observation within 30 days of receipt of this letter. If you have any questions, please contact me, or your staff may call Robert C. Barr, Director, Office of Environmental Safety and Quality, (509) 376-7851.

Sincerely,

Roy J. Schepens
Manager

ESQ:JLP

Attachment

cc w/attach:
D. E. Kammenzind, BNI
G. T. Shell, BNI
W. R. Spezialetti, BNI
J. M. Eller, PAC
Administrative Record

Attachment
04-ESQ-097
A-04-ESQ-RPPWTP-013

U.S. DEPARTMENT OF ENERGY
Office of River Protection

ASSESSMENT: ALARA Program Assessment

REPORT NO.: A-04-ESQ-RPPWTP-013

FACILITY: Bechtel National, Inc.

LOCATION: 2435 Stevens Center
Richland, Washington 99352

DATES: October 18 - 25, 2004

INSPECTORS: J. Polehn, Lead Assessor, Sr. Regulatory Technical Advisor
L. McKay, Team Member
G. Yuhas, Team Member

APPROVED BY: P. Carier, Verification and Confirmation Official
Environmental Safety and Quality Division

Executive Summary

Introduction

From October 18 - 25, 2004, the U.S. Department of Energy, Office of River Protection (ORP), Office of Environmental Safety and Quality assessed the Hanford Tank Waste Treatment and Immobilization Plant (WTP) project Contractor's as low as reasonably achievable (ALARA) Program. The assessors utilized Inspection Technical Procedure, I-111, "ALARA Program Assessment." The assessors interviewed Contractor personnel, reviewed documents, and observed constructed structures, systems, and components (SSC) at the site to determine whether the contractor had an adequate ALARA Program in place and implemented. The focus of the assessment was changes to the ALARA Program since the last ALARA assessment in November 2003. Specific design areas reviewed for application of ALARA included the High-Level Waste Radioactive Solid Waste Handling System, the Pretreatment Facility (PTF) Filter Cave handling System, and the PTF Operating Gallery.

In addition, the assessors reviewed one Assessment Follow-up Item (AFI) from the November 2003 ALARA Design Assessment for closure by interviewing Contractor personnel and reviewing documents.

Significant Observations and Conclusions

Based on Contractor documents reviewed, personnel interviewed, and the observed constructed SSCs, the assessors found the Contractor's ALARA program was in place and implemented, though an Observation was identified for lack of an ALARA recognition program. The Safety Requirements Document specified the program through the cited ALARA standard. Documentation deviations also were evident in some documents reviewed, including the Radiation Protection Program's (RPP) implementing plans and measures specified in the Radiological Control Manual (RCM). Except for these items, the Contractor had implemented RPP ALARA requirements.

As a result of discussions with the Contractor and document reviews, the assessors concluded the Contractor provided adequate documentation to close AFI A-03-OSR-RPPWTP-019-A02. The assessors opened one AFI to follow the Contractor's correction of self-identified errors in its PTF penetration shielding calculations scheduled for completion on December 15, 2004.

- **Adequacy and Effectiveness of ALARA Program Documentation and Implementing Procedures**

  Based on the procedures and records reviewed and staff interviews, the assessors concluded: a) The Contractor had established an adequate ALARA Program, along with formal plans and measures for applying the ALARA process to the WTP; b) With one exception, the Contractor had established, maintained, and implemented accurate and effective ALARA program procedures; c) The three Radiological Protection professionals hired since December 1, 2003 possessed the necessary knowledge, skills, and abilities to occupy their current positions; d) A structured ALARA Awards/Recognition program to encourage

innovative ALARA design and operational suggestions from the employees had not been established (see A-04-ESQ-RPPWTP-013-O01, below); and e) While the Environmental Radiological Protection Program procedure was still in draft form, and had not been submitted to ORP for approval, the Contractor had applied the ALARA process to effluents and public dose.

- **Adequacy and Effectiveness of ALARA Design and Construction**

  Based on review of documents, interviews with Contractor representatives, and observation of constructed SSCs, the Contractor had implemented ALARA criteria during construction and in the portion of the design and construction completed, as of this assessment. As design and construction progress, continued implementation of the Contractor's ALARA program, at the level observed during this assessment, provided reasonable assurance radiation dose to facility workers, co-located workers, and members of the public can be maintained ALARA during operation, deactivation, and decommissioning of the WTP. As part of ongoing ORP oversight, the assessors identified a follow-up item (A-04-RPPWTP-013-A01) to evaluate completion of Contractor corrective actions for Contractor identified errors in PTF penetration shielding calculations, since the scheduled corrective actions will not be completed until December 15, 2004.

- **Adequacy and Effectiveness of the ALARA System of Records**

  Based on the review of records and procedures and interviews with Contractor staff, the assessors concluded the Contractor had appropriately implemented its ALARA records program despite changes made to the Contractor's RCM as a result of a Contractor Quality Assurance audit which identified observations with storage of records. The RCM changes resulted in inconsistency in requirements, including a commitment to the DOE, between the RPP and the RCM; but the assessors found the Contractor continued to meet RPP requirements and commitments. However, disconnects now exist in RCM text cited by the RPP and the RCM text. ORP will follow such ongoing changes to the RCM to assure the Contractor continues to meet RPP requirements and commitments.

- **Assessment Follow-up Item**

  Based on discussions with the Contractor and review of documents, the assessors found the Contractor provided adequate documentation to close AFI A-03-OSR-RPPWTP-019-A02. This AFI addressed actions the Contractor had taken to ensure ALARA Design Reviews (ADR) referenced on design products (i.e., drawings, engineering specifications, and system descriptions) were appropriate for their intended use. The Contractor performed management assessments of the design products to determine the extent of the condition. While design products were identified where an inappropriate ADR was listed, the misalignments were minor and there was no impact to the design. As a result this AFI was closed.

Assessment of the Waste Treatment and Immobilization Plant (WTP) Contractor's Radiological As Low As Reasonably Achievable (ALARA) Program

Assessment Purpose and Scope

During the period of October 18 - 25, 2004, the U.S. Department of Energy (DOE), Office of River Protection (ORP), assessed the WTP Contractor's ALARA Program. The assessors utilized Inspection Technical Procedure, I-111, "ALARA Program Assessment." The team interviewed Contractor personnel, reviewed documents, and observed constructed structures, systems, and components (SSC) at the WTP site to determine whether the Contractor had an accurate ALARA Program in place and the contractor had implemented its ALARA Program. The assessment focus was for changes to the ALARA Program since the last ALARA assessment in November 2003. Specific design areas reviewed for application of ALARA included the High-Level Waste (HLW) Radioactive Solid Waste Handling System (RWH), the Pretreatment Facility (PTF) Filter Cave Handling System (PFH), and the PTF Operating Gallery. The observations documented in this report reflect the status of the program during the period of this assessment, the material reviewed, and personnel interviewed. The team's assessments were documented in Assessment Notes and have been maintained electronically. Copies of the Assessment Notes are available upon request.

In addition, the assessors reviewed one Assessment Follow-up Item (AFI) from the November 2003 ALARA Design Assessment for closure by interviewing Contractor personnel and reviewing documents.

Significant Observations and Conclusions

Overall Conclusions

Based on review of documents and interviews with Contractor representatives, the Contractor had established an adequate ALARA Program and supporting procedures though an observation was identified for lack of an ALARA recognition program as recommended by the Safety Requirements Document (SRD) cited ALARA standard. The Radiological Protection professionals hired since December 1, 2003, possessed the necessary knowledge, skills, and abilities to occupy their current positions. ALARA requirements were implemented at the construction site. In addition, the assessors found through observation of constructed SSCs the Contractor had implemented ALARA criteria in the portion of the design and construction completed. As design and construction progress, continued implementation of the Contractor's ALARA program, at this level, provided reasonable assurance radiation dose to the facility workers, co-located workers, and members of the public can be maintained ALARA during operation, deactivation, and decommissioning of the WTP. Minor deviations to requirements were evident in some of the documents reviewed and are described below.

As a result of discussions with the Contractor and document reviews, the assessors concluded the Contractor provided adequate documentation to close AFI A-03-OSR-RPPWTP-019-A02. The assessors opened one AFI to follow the Contractor's correction of self-identified errors in its PTF penetration shielding calculations scheduled for completion on December 15, 2004.

Adequacy and Effectiveness of ALARA Program Documentation and Implementing Procedures

Knowledge, Skills, & Abilities of ALARA Project Personnel

The assessors reviewed the Employee Training Information packages for these positions filled by individuals hired since December 1, 2003:

- WTP ALARA Coordinator;
- Rad. Safety Lead (LAB); and
- Rad. Safety Lead (HLW)

The assessors compared the Job Description requirements for educational background and job experience against their resumes to determine if each individual fully satisfied the requirements. Two of the individuals (both Rad. Safety Leads) held two-year degrees instead of the four-year degrees in engineering, physics, or equivalent experience required by the Job Description.

At an interview, the Radiological and Fire Safety Manager stated he performed a comparison of job experience and educational background and determined equivalency for both individuals. He did not document the basis for the determination. He further stated no "formula" existed for converting job experience into educational equivalency. A review of the WTP Radiological Control Manual, Article 143, showed DOE Standard DOE-STD-1107-97, "Knowledge, Skills and Abilities for Key Radiation Protection Positions at DOE Facilities," January 1997, established the standards for the education and training of senior RadCon staff members, including a "formula" for determining equivalency in Section 1.1.2, "Experience Substitution for Education," which provided for up to six semester hours of college credit for each year of experience, up to a maximum of 60 semester hours.

As a result, while neither employee possessed a four-year degree, both possessed job experience equivalent to holding a four-year degree, consistent with Job Description requirements.

The assessors provided the following suggestion for program improvement:

- To avoid future questions, for job hires which do not possess the necessary educational background, document the determination of experience equivalency for education, and include it in the hire package.

ALARA Awards/Recognition Program

The Authorization Basis Document, 24590-WTP-SRD-ESH-01-001, "Safety Requirements Document," August 17, 2004, Safety Criterion 2.0-3 committed to Implementing Codes and Standards, DOE G 441.1-2, "Occupational ALARA Program Guide" (Program Guide). Section 4.2, Policy and Management Commitment, of the Program Guide contained the following guidance:

"Senior site and line management should demonstrate their support of the ALARA program through direct communication, instruction, inspection of the workplace, and actions including:

- Encouragement of and praise for workers who identify ALARA solutions; and

- Publication of ALARA success stories."

At an interview, both the Radiological Operations Lead and the Radiological and Fire Safety Manager stated no ALARA Awards/Recognition Program currently existed within the Project. The assessors captured this issue in **Observation A-04-ESQ-RPPWTP-013-O01**.

The WTP Project published a bimonthly newsletter, "Environmental & Worker Safety," as a means of sharing information with, and increasing ALARA awareness of, the workforce. The assessors reviewed the July 2004 and September 2004 issues and noted articles about routine surveys, site and building surveys, special surveys, and dosimetry.

Environmental Radiological Protection Program (ERPP) Condition

From interviews the assessors determined the ERPP had not been issued, nor was it planned to be issued until the Final Safety Analysis Report (FSAR) submittal to ORP for approval. The assessors identified several errors in ERPP References (for example, the ERPP description includes a reference to Safety Criterion 5.3, which no longer exists in the Authorization Basis Documents). During an interview with the Environmental Manager and Regulatory Integration Lead, the assessors determined the ERPP, when fully implemented, provided reasonable assurance doses from effluents and to the public will be maintained ALARA. The assessors also reviewed the Notice of Construction for Low-Activity Waste (LAW) for ALARA controls to assure this commitment.

Occupational ALARA Program Procedures

The assessors reviewed the ALARA Program procedures and found most were of high quality, accurate and logically developed. The assessors determined the Occupational ALARA Program procedure (24590-WTP-PL-NS-01-002, Revision 2, "RPP-WTP Occupational ALARA Program") addressed the seven elements of Program Guide DOE G 441.1-2 (RPP Requirement 13).

The assessors identified some reference errors; the parenthetical section references in the Executive Summary did not match the section numbers in the body of the procedure. The

procedure cover sheet bore the signatures of two individuals who reviewed this procedure ("Checked by" and "Approved by"), neither one of which apparently detected these reference inconsistencies.

When the assessors identified this problem, the Radiological Operations Lead initiated a procedure revision to correct these errors. While the Contractor did not complete the revision process during the assessment, the assessors examined a markup draft of Revision 3, October 21, 2004, which corrected the identified reference errors.

Adequacy and Effectiveness of ALARA Design and Construction

Application of ALARA in the design of HLW RWH, PTF PFH, and the PTF Operating Gallery

Through review of documents, interview of Contractor personnel, and observation of SSCs at the WTP site, the assessors found actions had been taken to implement ALARA criteria in design of the HLW RWH and PTF PFH systems and PTF Operating Gallery.

Review of applicable portions of the Preliminary Safety Analysis Report, system descriptions, drawings, ALARA Design Review Records (ADR), calculations, management assessments, and interviews with the Radiological Safety Lead and HLW Mechanical Handling Lead Engineer confirmed:

- The primary method to reduce dose was physical design features;

- Evidence of optimization was noted in cost-benefit analyses and design changes such as elimination of some gamma and door interlocks, re-classification of radiation zones around bulge areas from R-2 to R-3, deletion of implanted steel in joggle boxes, and limiting application of special protective coatings;

- The Contractor relied on calculations supporting radiation zone classification to achieve compliance with the objective to maintain occupational dose and dose rates as far below the radiological exposure standards expressed in Safety Criterion 2.0-1 of the SRD as reasonably achievable;

- The Contractor had not performed facility dose assessments, used to demonstrate compliance with the overall dose goals, since 2000. The Contractor revised the ALARA program implementing procedure 24590-WTP-GPP-SRAD-006, Revision 1, January 29, 2004, "Dose Assessment Report," in January 2004, to replace the annual requirement to update the dose assessment with direction to revise the report when directed by management as new information became available, but prior to facility commissioning activities. The Radiological Operations Lead stated the change was necessary due to the lack of specificity in occupancy data. The "just in time" approach to design resulted in a vulnerability potentially leading to rework of constructed SSCs or to accept "as is" and compensate with administrative controls to satisfy the dose objectives. The assessors noted 24590-PTF-RPT-ENG-04-0002, Revision 0, June 10, 2004, "ALARA Cost Benefit Analysis to Re-Zone the PTF Bulge Areas from R2 to R-3" included a dose assessment as expected by the procedural

guidance. However, it was not clear why permitting dose rates up to 75 millirem/hr, eight feet above normally occupied work areas (NOWA), would not result in greater than 2.5 millirem/hr in the R3 NOWAs. The PTF Radiation Safety Lead stated Radiological Operations did not endorse this approach and had designed all R3 areas to meet the 2.5 millirem/hr both above and below the NOWAs;

- ADR 24590-WTP-ADR-ENS-04-001 indicated the impact on workers from routine airborne emissions, recycled into the facilities, will not result in occupational dose in excess of 10% of the ALARA design objective;

- Confinement, ventilation systems, contamination control, remote handling, and maintenance features in the design will facilitate operations, maintenance, de-inventory and stabilization of the systems at the time of decommissioning consistent with the ALARA criterion; and

- The dose methodology to estimate shielding for the PTF Operating Gallery Area was adequate to meet ALARA dose considerations. A wall (i.e., pony wall) which had been decreased in height was not a shielding concern because the wall had not been utilized in the shielding calculations; the wall simply served as a dike to prevent fluids from flowing from the equipment area to the Hot Cell Gross Decontamination Area. The assessors found in PTF calculation (24590-PTF-Z0C-W13T-00003, Revision B, April 10, 2002, "Pretreatment Facility Bulk Shielding Assessment") the Contractor used a target dose rate of 0.425 millirem/hr instead of the required 0.25 millirem/hr dose rate; the shielding thickness for 0.425 millirem/hr (i.e., 36 inches of concrete) was used in Engineering Specification (24590-WTP-3PS-MX00-T0002, Revision 4, April 28, 2004) issued for procurement. Based on the above information, the assessors questioned the Contractor on why the design was ALARA since the calculation had no explanation. The Contractor provided an acceptable rationale through discussions and documentation (CCN 102568, October 25, 2004) for why the design was ALARA based on the following: the source term utilized was conservative, the time the source would be in the area was conservative (i.e., actual time in the area was once every 10 years instead of constantly), and the computer modeling was conservative.

Contractor Assessments of the ALARA Program

Contractor management assessments specifically addressed ALARA design issues since the last inspection of this topic in November 2003:

- Quality Assurance audit, 24590-WTP-IAR-QA-03-016, Revision 0, December 15, 2003, addressed implementation of the Contractor's ALARA program. Specific ALARA-related topics included qualifications, training, procedures, calculations, computer codes, Laboratory dose assessment, classification of areas, and oversight of licensed radiography. The audit resulted in one Finding, two Observations, and ten recommendations. The Finding, addressed in Corrective Action Report (CAR) 24590-WTP-CAR-QA-03-244, identified the Contactor had not updated the dose assessment reports for HLW, LAW, and Pretreatment annually as required by the procedure. The auditors concluded the Contractor's, "…Radiological Control Program is considered effective." Review of CAR 24590-WTP-CAR-QA-03-244 found the corrective action to revise 24590-WTP-GPP-SRAD-006, (described above) was completed on

March 10, 2004. The assessors pointed out that completion of facility dose assessments will be necessary to evaluate compliance with ALARA dose goals as part of the FSAR process;

- Since December 1, 2003, the Contractor's Environmental and Nuclear Safety Department had conducted 10 management assessments of elements of its Radiation Protection Program (RPP) as specified in 24590-WTP-PL-ESH-01-004, Revision 0, November 12, 2001, "Radiological Safety Management Assessment Plan" to satisfy the requirements expressed in 10 CFR 835.102. The assessors reviewed these audits and found they addressed ALARA in the design and construction of the facility and actions taken to ensure the WTP construction work force's dose due to ionizing radiation was maintained ALARA; and

- The Contractor's San Francisco Nuclear Group (auditors) documented its March 22 – April 9, 2004, assessment in 24590-PTF-ENG-04-0001, Revision 0, April 22, 2004, "Pretreatment Facility Penetrating Shielding Evaluation." The auditors evaluated the PTF wall and floor penetration radiation shielding program. Assessment methodology included review of design requirements, source terms, shielding analysis programs, calculations, and physical observation of as-built penetrations. The auditors found: 1) the penetration shielding analysis methodology contained calculational non-conservatisms and conservatisms; and 2) spreadsheet-based shielding formulations used to supplement shielding computer programs contained incorrect cell references. The auditors offered seven substantive recommendations. Quality Assurance (QA) issued CAR 24590-WTP-CAR-04-056 originally scheduled for completion on September 15, 2004. On May 18, 2004, the Radiological Operations Lead issued an e-mail message (CCN 090275) to his staff and the facility Radiation Safety Leads describing the management assessment, acknowledging five of 55 PTF shielding calculations slightly under-predicted the shielding thickness, and directed that any work in progress, involving a dose point into a new source without a scattering event, be stopped and corrected. The CAR target date for completing the corrective actions was subsequently extended to December 15, 2004.

  From discussions with the PTF Radiation Safety Lead and the Radiological Operations Lead, the assessors learned:

  - The CAR due date was extended to facilitate other priority work while the erroneous calculations were corrected;

  - The effect of non-conservative assumptions were offset by conservative ones, therefore, no design changes to prescribed shielding resulted;

  - The extent of condition did not extend beyond PTF penetrations calculations performed by one individual;

  - The computer model recommended by the auditors for use, SHIELD-SG, as presently documented, was not appropriate for use on penetrations;

  - The staff had developed two spread sheet programs to perform penetration calculations (24590-WTP-VV-ENG-04-0001, Revision 2, September 6, 2004, "Penetration Shadow

Shielding Determination - QAS Routine," 24590-WTP-VV-ENG-04-0002, Revision 0, September 23, 2004, "Penetration Shielding [Vertical Penetrations - QAS Routine]"); and

- Three Radiation Safety Engineers had recently completed training on use of MCNP – "A Monte Carlo N-Particle Transport Code."

Since the corrective actions taken in response to 24590-WTP-CAR-04-056 had not been formally completed, the assessors determined this was an **AFI (A-04-RPPWTP-013-A01).**

- The assessors reviewed ALARA Subcommittee (ASC) minutes for the last year and observed the October 7, 2004, ASC meeting. The meeting activities were conducted consistent with Project Safety Committee (PSC) implementing procedure requirements. Information provided at the meeting included an HLW Thinned Shield Wall Evaluation needed to accommodate a crane for the Canister Handling Cave and Melter Cave No. 1 and 2. The ASC members also discussed ALARA Documentation. Based on discussions with staff and review of PSC documents, the assessors found over the last year that the PSC had requested no ASC information nor did the ASC provide any (i.e., no ALARA items were deemed sufficient to be elevated to the PSC over the last year and the ASC provided no status to the PSC). In previous years, ALARA activities had been presented to the PSC on a quarterly basis.

Implementation of the ALARA Program during Construction

The Contractor had implemented its Radiation Control Program during construction to ensure radiation exposure to the construction workforce was maintained ALARA.

Review of survey records, 24590-WTP-RSR-RAD-04-01 through 04-021, documented in 2004, demonstrated the Contractor performed radiation and contamination surveys in accordance with program procedures. No contamination was found according to survey documentation and based on discussions with individuals qualified as Radiation Control Technicians (RCT) and the Radiological Operations Lead. Environmental radiation monitoring at the WTP site boundary locations indicated radiation levels of about 88 millirem per year. This level was consistent with background radiation levels according to the Pacific Northwest National Laboratory (PNNL) quarterly reports for 2003 and the first and second quarters of 2004.

The survey results also indicated the Contractor monitored the use of licensed radioactive material involving radiography and nuclear gauges in accordance with procedural requirements. Descriptive material in these survey records indicated the RCTs verified sources were properly stored, areas controlled, boundaries established and posted, and exposure rates maintained consistent with regulatory requirements. In situations where they observed anomalies, the RCTs brought the discrepancy to the radiographer's attention and took corrective actions. From review of records and discussion with an RCT, the assessors learned the RCTs had, on one occasion, taken action to ensure a worker did not violate the radiographer's boundary. Review of 24590-WTP-CRM-TRA-000003, Revision 0, October 29, 2002, "Construction HGET Initial," the computer based radiation safety training program, found it contained sufficient instruction for workers to recognize radiation area posting, control boundaries, and take actions

to maintain their dose ALARA. Training records for 10 construction workers, selected from the active roster, confirmed they received the required training.

The bi-monthly WTP "Environmental &Worker Safety" newsletter contained a running synopsis of the results of radioactivity monitoring results and a discussion about radiation sources on the WTP site and the need to comply with posting requirements. In addition, Contractor's management assessments frequently addressed control of radiography in accordance with 24590-WTP-GPP-SRAD-028, Revision 2, July 28, 2004, "Radiation Generating Device Control."

Physical inspection of HLW RWH and PTF completed construction, found design measures to ensure ALARA had been implemented, consistent with the state of construction. Shield walls were in place for most HLW elevation -21 foot and below. The shield door for HLW RWH was in place at the sub-change room; the waste drum transfer tunnel shielding was in place on the bottom and sides, with exception of the tunnel end. At PTF many ALARA features were constructed including shield walls, doors, windows, liners, and inbleeds. The assessors observed inbleeds and questioned the Radiological Operations Lead on how the design would prevent personnel access to Very High Radiation Areas in those cases where shadow shields were not installed at the R3/R5 boundary. The Radiological Operations Lead stated he was aware of cases when the C5V ductwork might provide an access pathway and that design measures would be taken. Since the design was incomplete, it was not necessary to track this as an AFI.

The assessors discussed the value of periodic physical inspection of the as-constructed WTP by Design Engineers and Radiation Safety Leads with the Radiological Operations Lead. The Radiological Operations Lead took the position the WTP was being built to the design; the design was constructed and inspected against the design products by qualified inspectors. Therefore, Design Engineers and Radiation Safety Leads need not inspect facility construction to confirm ALARA features have been installed. The Radiological Operations Lead also pointed out Design Engineers and Radiation Safety Leads participated in frequent design reviews, using sophisticated computer modeling. This tool had been useful in identifying design discrepancies having ALARA impact according to one Radiation Safety Lead. The assessors had no further questions regarding this matter.

Adequacy and Effectiveness of the ALARA System of Records

The assessors reviewed the Contractor's records for December 1, 2003, - September 1, 2004, and discussed them with the Contractor staff. The assessors found the Contractor's records documented the ALARA program, with the following exceptions.

Some records did not contain units for the numerical doses (e.g., mrem) as required by RPP Requirement 10. Specifically, the "Annual Report Card" did not contain dose units, although the Contractor's contract with its vendor required such units be provided. As a result, the Contractor requested that its vendor include such units in future reports (CCN 102569, October 26, 2004).

The assessors reviewed audit reports and found the Contractor had identified (24590-WTP-IAR-QA-03-016, Revision 0, December 15, 2003, "Radiological Protection") a number of observations regarding records. One of the observations addressed storage of records and as a result the Contractor changed some of its Radiological Control Manual (RCM) Articles to address storage of records with its vendors. Specifically, one of the changes (Article 712.2) deleted text cited by the RPP commitment, "Records of results should reside in the custody of the originating contract organization." Though the RCM text change deleted the commitment and resulted in an inconsistency with the RPP text, the assessors found the Contractor continued to maintain records of results to assure doses to its workers are ALARA. ORP will follow ongoing changes to the RCM text to assure RPP requirements and commitments continue to be met.

(Closed) Assessment Follow-up Item A-03-OSR-RPPWTP-019-A02

The assessors previously identified an example of an inappropriate ADR cited on an equipment assembly HLW condensate receipt drawing. The material requisition had been issued for bid. Fortunately, the generic engineering specification addressed the specific elements necessary to satisfy the ALARA guidance. CAR 24590-WTP-CAR-QA-03-203 documented other examples of inappropriate ADR referencing. At the time of the assessment, two "Actions to be Implemented," involving evaluation of the extent of errors in referencing applicable ADRs on specifications and publicizing the need for attention to detail, were incomplete.

Management Assessment 24590-WTP-MAR-ENG-04-0014, Revision 1, "RPP-WTP Engineering Drawings and System Descriptions ALARA Documentation," performed May 20 - June 25, 2004, randomly selected 135 drawings and 13 system descriptions for verification of ALARA documentation from a set of 7,463 drawings and 48 system descriptions. The Contractor found three drawings, one system description, and 22 ADRs requiring revision. The Contractor concluded the errors did not affect the design product's compliance with ALARA requirements. The July 2004, Engineering Quality Presentation provided to engineers and the ALARA Subcommittee included "ALARA Documentation Reminders."

Review of ADR 24590-WTP-ADR-M-03-008, Revision 1, July 6, 2004, "Engineering Specification for Pressure Vessel Design and Specification," found the ADR had been revised to include specific features from the "Discipline-Specific ALARA Design Review Checklist - Mechanical Systems," applicable to vessels in radioactive service. When asked to provide copies of material requisitions for vessels in radioactive material service since the last inspection, the Contractor representative stated that none had been issued.

Based on the above information, this AFI is closed.

List of Assessment Items Opened, Closed, and Discussed

Opened

A-04-ESQ-RPPWTP-013-A01	Follow-up	Determine if the Contractor has adequately corrected errors in Contractor identified PTF shielding penetration calculations currently scheduled for completion by the CAR 24590-WTP-CAR-04-056 on December 15, 2004.
A-04-ESQ-RPPWTP-013-O01	Follow-up	Determine if the contractor has developed an ALARA Awards/Recognition Program as recommended by DOE G 441.1-2

Closed

A-03-OSR-RPPWTP-019-A02	Follow-up	Determine if the Contractor has taken action to ensure ADR referenced on design products are appropriate for their intended use. See Inspection Note Number: A-03-OSR-RPPWTP-19-05.

Discussed

None.