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

03-OSR-0361

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

Dear Mr. Henschel:

CONTRACT NO. DE-AC-01RV14136 – AUTHORIZATION BASIS (AB) MANAGEMENT ASSESSMENT REPORT, A-03-OSR-RPPWTP-018, CONDUCTED SEPTEMBER 15 THROUGH SEPTEMBER 24, 2003

This letter forwards the U.S. Department of Energy, Office of River Protection (ORP) results of the subject inspection. This assessment focused on weaknesses identified in the January 2003 AB maintenance assessment. In this assessment, the inspectors concluded contractor actions generally were effective in correcting those weaknesses. The inspectors also confirmed implementation issues that had been independently identified by Bechtel National, Inc. (BNI) staff. In the current assessment, three Findings were identified. The Findings were not generic, as in the January 2003 assessment, but were limited to specific areas and are documented in the Notice of Finding (Enclosure 1). Details of the inspection, including Findings, are documented in the Inspection Report (Enclosure 2).

The Findings involved (1) failure to perform a safety evaluation that demonstrates the change does not result in more than a minimal decrease in the Safety Functions of important-to-safety structures, systems, or components (SSC) or change how a safety design class SSC meets its respective safety function; (2) failure to conform to commitments made in the associated decision to deviate for High Level Waste -21 foot elevation of wall section 36; and (3) failure to conform with the requirements of the Safety Requirements Document in making a change to the facility administrative controls.

The inspectors identified the following Assessment Follow-up Item (AFI): The first step in the AB maintenance process requires engineering to fully identify changes to environmental and nuclear safety staff who perform the requisite safety screens and safety evaluations. On a number of occasions, separately identified by the inspectors and by BNI staff and documented in Corrective Action Report (CAR) 24590-WTP-CAR-QA-03-175, engineering had not fully identified changes.

BNI previously had requested further reduction to the AB Change controls described in RL/REG-97-13, *Office of River Protection Position on Contractor-Initiated Changes to the Authorization Basis*. Based on the results of this inspection, ORP has concluded further reduction in these controls is warranted. Action on this will be pending ORP review of closure of CAR 24590-WTP-CAR-QA-03-175 and BNI's responses to the above Findings.

If you have any questions, please contact me, or your staff may contact Walter Pasciak, WTP Safety Regulation Division, (509) 373-9189.

Sincerely,

Roy J. Schepens
Manager

OSR:WJP

Enclosures (2)

cc w/encls:
G. Shell, BNI
W. R. Spezialetti, BNI

NOTICE OF FINDING

During the performance of an inspection of the Authorization Basis (AB) Management Assessment conducted September 15 through September 24, 2003, at the Contractor's (Bechtel National, Inc.) offices, the U.S. Department of Energy (DOE), Office of River Protection (ORP) identified the following:

Contract No: DE-AC27-01RV14136[1] states in Standard 7 Section (e) (2) (iii) the Contractor's Integrated Safety Management Plan (ISMP) shall conform with RL/REG-97-13, *Office of River Protection Position on Contractor-Initiated Changes to the Authorization Basis.* 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan,* Revision 3, dated June 13, 2003, implements this commitment in Section 1.5 by stating the Preliminary Safety Analysis Report (PSAR), Volume 1, provide additional discussion of Project AB management activities. Volume 1 Section 17.6.5 of the PSAR dated June 25, 2003, stated the Contractor may make changes to the facility or administrative controls if they are made in accordance with RL/REG-97-13.

1. RL/REG-97-13, Position 3.5.a.1.v, states the Contractor may make changes to the facility without prior WTP Safety Regulation Division (OSR) approval provided a safety evaluation was performed and documented which demonstrates, among other things, the change "Does not result in more than a minimal decrease in the Safety Functions of important-to-safety structures, systems, or components (SSC) or change how a SDC (safety design class) SSC meets its respective safety function."

   Authorization Basis Change Notice (ABCN) 24590-WTP-SE-ENS-03-111, Revision 0, transmitted by the Contractor on June 5, 2003, proposed design changes to accommodate an increase in the size and configuration of the High Level Waste (HLW) building without demonstrating the SDC walls would not suffer more than a minimal decrease in, or change how, the walls meet their safety function during the design basis seismic event.

   Failure to implement the requirement in Section 1.5 of the ISMP is a Finding (A-03-OSR-RPPWTP-018-F01).

2. RL/REG-97-13, Positions 3.7 and 3.8, state in part, the Contractor may deviate from the facility description in the AB that would require an Authorization Basis Amendment Request (ABAR) without prior ORP approval provided the Contractor's safety evaluation is complete, the specific changes are identified, and ORP is notified within specific time periods.

   On September 15, 2003, concrete was poured for the HLW -21 foot elevation of wall section 36 following a change to accommodate increasing and reconfiguring the design of the HLW building without: (1) approval of ABCN 24590-WTP-SE-ENS-03-111, *Design Changes in the HLW Facility Due to Above Grade HLW Facility Reconfiguration,*

[1] Contract No. DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

Revision 1, and: (2) compliance with the conditions of Decision to Deviate (DTD) 24590-HLW-DTD-PL-03-001, Revision 1, dated August 6, 2003, that stated in part, "This DTD will allow the issuance of general arrangement drawings for construction and the procurement of rebar, embeds, and form work. The DTD will not allow the pouring of concrete prior to approval of ABAR 24590-WTP-SE-ENS-03-111, Revision 1, by DOE" and "This DTD will not allow the pouring of concrete prior to ABAR approval unless another DTD is submitted."

Failure to implement the requirement in Section 1.5 of the ISMP is a Finding (A-03-OSR-RPPWTP-018-F02).

3. Top-level safety standards, DOE/RL-96-0006 states in Section 6.0 that design-basis events are "(p)ostulated events providing bounding conditions … that are necessary to protect the worker … and prevent or mitigate the event consequences so that the radiological exposures to … workers would not exceed appropriate limits." The SRD in Appendix A, Section 4.6, states that "design basis events shall be selected to establish a set of bounding performance requirements for SSCs relied upon to control internal hazards and hazardous situations." It also states that the design basis events provide confirmation that the design meets the requirements of Safety Criteria 2.0-1, which has requirements for workers.

   ABCN 24590-WTP-SE-ENS-03-419, Revision 0, transmitted by the Contractor on July 14, 2003, deleted the requirements for establishing Design Basis Events (DBE) for workers. Under "Description of change" in the ABCN the following is stated: "(T)he Design Basis Event (DBE) selection process will not identify events for quantitative analysis for Facility Workers." At the time of the writing of the ABCN, the only process for establishing DBEs was the quantitative process. The Contractor eliminated the application of the quantitative process for establishing DBEs for workers and did not replace it with an alternative process. The ABCN only states that "a knowledgeable group of professionals with backgrounds in the subject matter will evaluate the range of impacts to the facility workers." During a meeting in which this ABCN was discussed, the Contractor's staff indicated that the impacts evaluated for workers would not include establishment of DBEs for workers as DBEs were established only based on quantitative approaches.

   Elimination of the establishment of DBEs for workers by means of an ABCN is a failure to follow the requirements of RL/REG-97-13, Section 3.5.b.1.iii because it is inconsistent with the SRD. Failure to implement the requirement in Section 3.5.b.1.iii, of RL/REG-97-13 is a Finding (A-03-OSR-RPPWTP-018-F03).

The Contractor is requested to provide, within 30 days from the date of this letter, a reply to the above Findings. The reply should include: (1) admission or denial of the finding; (2) the reason for the Finding, if admitted, and if denied, the reason why; (3) the corrective steps that have been taken and the results achieved; (4) the corrective steps that will be taken to avoid such further Findings; and (5) the date when full compliance with the applicable commitments in your authorization bases will be achieved. Where good cause is shown, consideration will be given to extending the requested response time.

Enclosure 2
03-OSR-0361
A-03-OSR-RPPWTP-018

U.S. DEPARTMENT OF ENERGY
Office of River Protection

INSPECTION:	Authorization Basis Management Assessment
REPORT NO:	A-03-OSR-RPPWTP-018
FACILITY:	Bechtel National, Inc.
LOCATION:	2435 Stevens Center Richland, Washington 99352
DATES:	September 15 through September 24, 2003
INSPECTORS:	W. Pasciak, Sr. Regulatory Technical Advisor, Inspection Lead G. Yuhas, Consultant D. Kirsch, Consultant
APPROVED BY:	P. Carier, Verification and Confirmation Official WTP Safety Regulation Division

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EXECUTIVE SUMMARY
Authorization Basis (AB) Management Assessment Inspection
September 15 through September 24, 2003
Inspection Report Number A-03-OSR-RPPWTP-018

INTRODUCTION

This inspection examined the Contractor's (Bechtel National, Inc.) performance related to maintenance of the Authorization Basis.

SIGNIFICANT OBSERVATIONS AND CONCLUSIONS

- The inspectors concluded the program for AB maintenance, including the requirements in the engineering procedures, implemented the requirements established by RL/REG-97-13, *Office of River Protection Position on Contractor-Initiated Changes to the Authorization Basis*, Revision 9, dated September 2002. The inspectors found the procedures implementing the AB maintenance processes provided amplifying details regarding the issues to be considered when performing safety evaluations and the detail required when documenting the basis for conclusions. The AB maintenance procedure was clear and easy to understand. (Section 1.2)

- The inspectors randomly sampled two recently revised design drawings to assess the completeness of the design change descriptions provided by Engineering. For one of the two design changes examined, Engineering had not completely described the changes made to design in the Description of Design Change section of one Safety Evaluation form; accordingly, Environmental and Nuclear Safety (ENS) evaluators had not evaluated three changes needing evaluation. (Section 1.3)

- The inspectors randomly sampled five recently completed safety evaluations to assess conformance with AB maintenance requirements regarding design change description evaluation of all identified changes, and thoroughness of justification basis for conclusions. Four of the five safety evaluations conformed to established AB maintenance requirements. One safety screen had two of the safety screening questions 'yes' and 'no' boxes checked and the safety evaluation had been approved by ENS management without identifying the discrepancy. (Section 1.3)

- The inspectors randomly selected three recently revised design drawings and five recently revised specifications to assess whether safety evaluations conformed to established AB maintenance requirements. The selected safety evaluations conformed to AB maintenance requirements, except two of the five selected specifications had not been subjected to the safety evaluation process because Engineering had not transmitted these to ENS. (Section 1.3)

- Based on samples of recently completed design changes (above), the inspectors concluded the ENS staff was, generally, performing high quality safety screenings and

safety evaluations on the documents they received from Engineering; however, Engineering had not consistently provided all documents needing safety evaluations to the ENS staff and Engineering had not consistently, fully described the extent of the changes to the ENS staff. Generally, the safety screenings, performed since corrective actions were taken in response to the Findings identified during the last assessment of this area, conformed to established requirements; descriptions of the design changes were clear; and the basis statements for justification of the answers to the questions on Part 1 of the Safety Evaluation forms were sufficiently detailed and provided sufficient justification for the answers. (Section 1.3)

- Corrective Action Report (CAR) 24590-WTP-CAR-QA-03-175 identified wherein safety evaluations had not been performed, as required, for specifications (4 examples), system description change notices (3 examples), general arrangement drawing revisions (11 examples), and drawing revisions/change notices (5 examples). In addition, the CAR identified: one specification, upon which a safety evaluation had been performed, where the safety evaluation was not retrievable; three safety evaluations wherein all of the design changes had not been identified; and one safety evaluation that did not provide adequate evaluation for supporting an Authorization Basis Change Notice (ABCN). During the inspection, the inspectors identified no additional problem areas that had not been addressed by the CAR. Quality Assurance (QA) management determined the problems identified by CAR 03-175 required further evaluation and additional corrective action than those currently specified. Accordingly, QA management was in process of assessing the significance of the CAR and considering more broad scope corrective actions. (Follow-up Item A-03-OSR-RPPWTP-018-A01) (Section 1.3)

- The inspectors examined several reports of U.S. Department of Energy (DOE), Office of River Protection (ORP) reviews of 25 ABCNs for conformance with the requirements of RL/REG-97-13, *Office of River Protection Position on Contractor Initiated Changes to the Authorization Basis*, paragraphs 3.5.a.2.i, 3.5.a.1.iii through vii, and 3.5.a.2.iii. The inspectors concluded the Contractor was performing adequate safety evaluations and had improved in the area of safety evaluation performance since the last AB Maintenance assessment. (Section 1.4)

- Pouring of High Level Waste (HLW) wall section 36 at the -21’ elevation on September 15, 2003, represented failure to effectively implement the AB maintenance process. The initial ABCN was inadequate and the Decision to Deviate (DTD) was issued containing appropriate controls that were not implemented. Two Findings were identified: failure to follow the requirements of RL/REG-97-13, Position 3.5.a.1 for making changes to the authorization basis is considered Finding (A-03-OSR-RPPWTP-018-F01); and implementation of an Authorization Basis Amendment Request (ABAR) without prior approval or issuance of a DTD (A-03-OSR-RPPWTP-018-F02). (Section 1.5)

- The inspectors found three instances where the process for making Contractor-initiated changes to the AB was not followed in that ABCNs instead of ABARs were provided to ORP. One instance was considered a Finding. ABCN 24590-WTP-SE-ENS-03-419, Rev. 0, “Hazard Analysis, Development of Hazard Control Strategies, and Identification

of Standards," transmitted to ORP on July 14, 2003, deleted the requirement for establishing Design Basis Events (DBE) for workers. The change is inconsistent with the Appendix A, Section 4.6 of the Safety Requirements Document (SRD) which requires DBEs to be established for workers. This change was proposed under the ABCN process rather than under the ABAR process (i.e., RL/REG-97-13 requires that changes involving the SRD be processed using the ABAR process). (Section 1.7)

- ABAR 24590-WTP-ABAR-ENS-03-032, *Redefinition of ITS SSC Subclassifications and Defense in Depth Determination*, transmitted to ORP on July 2, 2003, proposed to revise the sub-classification definitions for important to safety (ITS) structures, systems, and components (SSC). Also, it changed the requirements in SRD Appendix A to allow estimates of consequences to workers to be performed using qualitative methods rather than quantitative ones. The change modified SRD Appendix B to allow barriers for worker protection to be established based on qualitative estimates of consequences. The regulatory basis for the changes is DOE STD-3009 and DOE G 420.1-1. The changes to these Appendixes initially proposed by the Contractor were not acceptable. Twenty review questions were needed and numerous changes to the initial proposal were required to have the change meet applicable laws and regulations. The Contractor's submittal demonstrated that changes to SRD appendixes like Appendices A and B should only be implemented after review and approval by DOE. (Section 1.9)

- ABAR 24590-WTP-ENS-03-002, Revision 0, *Seismic Design for Piping*, represented an example of insufficient justification to demonstrate how application of the change in piping seismic analysis methodology would be applied such that the piping would continue to meet its safety function. Use of the proposed change without approval of the ABAR was a Finding in a previous inspection. Failure to use the DTD process is an example where use of DTD portion of the AB maintenance process could have been implemented. (Section 1.10)

- While the Preliminary Safety Analysis Report (PSAR) Update Plan does not provide the details for preparing the update that would be found in a detailed procedure, it does provide guidance at a level appropriate for experienced staff to perform the task. Authors assigned to specific PSAR sections appeared experienced in the project suggesting that the Contractor's program for this task was adequate and would meet the requirements of RL/REG-97-13. (Section 1.11)

- The Contractor's management assessments and QA audit demonstrated a history of continuing performance weaknesses in the area of AB maintenance regarding: completeness of basis for answers to safety screening/evaluation questions; assuring that all design change documents requiring safety evaluation were subjected to the safety evaluation process; and design change description completeness. The inspectors concluded the Contractor had performed broad scoped, thorough management assessments and QA audit of this area. (Section 1.12)

- Personnel performing safety screenings and safety evaluations were knowledgeable of AB maintenance program and procedure requirements. They also recognized vulnerabilities in the process and appeared motivated to ensure no deleterious impact on

safety results from changes to the AB. There remains concern about the needed level of detail to document as basis for the answers to the safety evaluation questions. (Section 1.13)

- AB maintenance training had been updated to reflect Revision 5 of the AB maintenance procedure. Continuing training had been provided and the results were indicated by improved performance in the AB maintenance process. (Section 1.14)

- The Contractor is maintaining documentation associated with the AB current. Some additional attention to detail associated with maintaining procedures up-to-date and the accuracy and completeness of AB change documentation is warranted. (Section 1.15)

Table of Contents

AUTHORIZATION BASIS (AB) MANAGEMENT ASSESSMENT
INSPECTION REPORT A-03-OSR-RPPWTP-018

1.0 REPORT DETAILS

1.1 Introduction

This inspection assessed the Contractor's performance related to maintenance of the AB; the adequacy of the integration of the AB maintenance process with the approval process for changes to the Waste Treatment and Immobilization Plant (WTP) facility design and with project programs and procedures; the safety evaluation process being conducted as specified in the Quality Assurance Manual (QAM); the adequacy of the AB process implementation to determine if reviews of design changes against the Safety Analysis Report (PSAR) and against design requirements are being made; the adequacy of the Contractor's management assessment of AB/design consistency; the adequacy of the AB maintenance training; and the adequacy of AB documentation module and the training and experience of staff performing safety evaluations.

Details and conclusions regarding this inspection are described below.

1.2 Review of Procedures for AB Maintenance (ITP I-107)

1.2.1 Inspection Scope

The inspectors examined the Contractor's procedures governing Authorization Basis (AB) maintenance to determine whether the procedures adequately implemented the guidance of ORP document RL/REG-97-13, *Office of River Protection Position on Contractor-Initiated Changes to the Authorization Basis*, Revision 9, dated September 2002.

1.2.2 Observations and Assessments

The requirements for AB management had been provided by 24590-WTP-PSAR-ESH-01-002-01, *Preliminary Safety Analysis Report to Support Construction Authorization*; *General Information,* Revision 0d, dated June 25, 2003, Section 17.6.5. Section 17.6.5 provided changes to the facility or administrative controls may be made, by the Contractor, if a review of the AB is performed in accordance with RL/REG-97-13.

The inspectors examined 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 5, dated April 15, 2003, to determine whether the procedure implemented the requirements of RL/REG-97-13. The inspectors concluded the procedure implemented the established requirements and provided amplifying details regarding the issues to be considered when performing safety evaluations and the detail required when documenting the basis for conclusions. The procedure was clear and easy to understand. However, the inspectors observed the screening criteria for safety

evaluations, specified by the procedure Form 24590-SREG-F00010, Revision 0, did not provide consideration of potential change in frequency of a Design Basis Event, as required by RL/REG-97-13, Section 3.5.a.1.iv. This oversight had been corrected on Form 24590-SREG-F00010, Revision 2, Part 2, item 2.

The inspectors examined the newly issued Revision 6 of the Authorization Basis Maintenance procedure, dated September 12, 2003, and concluded the new revision continued to implement the requirements of RL/REG-97-13. The revised form for conducting safety screenings and safety evaluations (Revision 3) had been included in Appendix 3 to the AB maintenance procedure.

The inspectors examined the following procedures to verify these provided instructions to use the processes established by the AB maintenance procedure to evaluate design changes.

- 24590-WTP-3DP-G04B-00046, *Engineering Drawings*, Revision 5, dated April 15, 2003.

  Requirements for authorization basis management were adequate and provided in Section 3.3 and Exhibits D and E.

- 24590-WTP-3DP-G04B-00049, *Engineering Specifications*, Revision 5, dated April 15, 2003.

  Requirements for authorization basis management were adequate and provided in Sections 3.4 and 3.5.

- 24590-WTP-3DP-G04B-00062, *Disposition of Field Change Request/Field Change Notice*, Revision 4, dated February 7, 2003.

  Section 3.3 required the Responsible Engineer review Field Change Requests to determine whether the change represents a change to the Authorization Basis. The inspectors concluded these were adequate. The inspectors determined through review of training records the responsible engineers making those judgments were qualified by having completed the training requirements of the established training requirements matrix.

- 24590-WTP-3DP-G04B-00063, *Supplier Disposition Deviation Request*, Revision 4, dated July 21, 2003.

  Section 3.2 required the Responsible Engineer review Supplier Deviation Disposition Requests (SDDR) to determine whether the change represents a change to the Authorization Basis. The inspectors concluded these were adequate. The inspectors determined through review of training records the responsible engineers making those judgments were qualified by having

completed the training requirements of the established training requirements matrix.

- 24590-WTP-3DP-G04T-00901, *Design Change Control*, Revision 3, dated June 9, 2003.

  Requirements for authorization basis management were adequate and provided in Section 3.5.

- 24590-WTP-3DP-G04T-00903, *System Descriptions*, Revision 2, dated April 15, 2003.

  Requirements for authorization basis management were adequate and provided in Section 3.2.

1.2.3 Conclusions

The inspectors concluded the program for AB maintenance, including the requirements in the engineering procedures, implemented the requirements established by RL/REG-97-13. The inspectors found the procedures implementing the AB maintenance processes provided amplifying details regarding the issues to be considered when performing safety evaluations and the detail required when documenting the basis for conclusions. The AB maintenance procedure was clear and easy to understand.

1.3 Review of Facility Change Safety Screening Process (ITP I-107)

1.3.1 Inspection Scope

The inspectors examined the Contractor's safety screening process implementation to determine whether the safety screening performance adequately implemented the requirements of ORP document RL/REG-97-13 as implemented by the Contractor's procedure 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 5, dated April 15, 2003.

1.3.2 Observations and Assessments

1.3.2.1 Review of General Arrangement Drawings

The inspectors selected and examined two revised general arrangement drawings, compared them to the previous revision, and examined the safety screening/evaluations, to assess whether safety evaluations had been completed, as required, and whether the changes, identified on the safety evaluations, were completely and accurately described. The following documents were examined:

- Drawing 24590-HLW-P1-P01T-00004, *HLW Vitrification Building General Arrangement Plan at EL 37' 0"*, Revision 2, dated August 6, 2003.

- Drawing 24590-HLW-P1-P01T-00004, *HLW Vitrification Building General Arrangement Plan at EL 30' 0"*, Revision 1, dated April 18, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-459, *HLW General Arrangement Plan at 37' 0"*, Revision 1, dated August 25, 2003.

    - Revision 2 of the drawing added a structural wall from coordinates H5 to N5, which was not on Revision 1 of the drawing.

    - Revision 2 of the drawing added a construction access on a wall between coordinates E8 and F8 that was not on Revision 1 of the drawing.

    - Revision 2 of the drawing moved the location of vessels PCW-VSL-0005, 0006, 0040, and 0041 about 23 feet from the location shown on Revision 1 of the drawing.

    These changes were not described by Engineering (in the Description of Design Change section) on Safety Evaluation 03-459 and, hence, not evaluated. The inspectors discussed these oversights with the Environment and Nuclear Safety Department (ENS) safety evaluator and were informed these should have been included and evaluated; although the evaluator stated the answers to the questions would not have changed if these changes had been included and evaluated. The Contractor stated these omissions would be included in Corrective Action Report 24590-WTP-CAR-QA-03-175 as additional examples of discrepant design change descriptions. The Contractor stated these omissions would be considered by a safety screening/evaluation to determine any AB impact. However, the inspectors found the safety screening evaluations of Safety Evaluation 03-459 had adequately considered and justified the conclusions regarding acceptability of the changes identified in the Description of Design Change section. The inspectors concluded: (1) improvement was needed by Engineering to assure the Description of Design Change section fully identified the design changes to be evaluated by ENS; and (2) ENS had performed the safety screening and evaluation, on the identified changes, in conformance with established requirements.

- Safety Evaluation 24590-WTP-SE-ENS-03-463, *Changes to the HLW Annex, Glass Former Feed Room and Room Classifications*, Revision 0, dated August 5, 2003.

    This safety evaluation evaluated equipment changes, specifically 24590-HLW-P1-P01T-00004, Rev. 2, among other changes to other drawings. The inspectors found the Description of Design Change section accurately described the changes from Revision 1 to Revision 2 of drawing 24590-HLW-P1-P01T-00004. The

inspectors evaluated a design change notice and the associated safety evaluation, for drawing 24590-HLW-P1-P01T-00004, Rev. 1.

- DCN 24590-HLW-P1N-P01T-00034, dated June 2, 2003, placed on hold the entire drawing 24590-HLW-P1-P01T-00004, *HLW Vitrification Building General Arrangement Plan at EL 30' 0"*, Revision 1, dated April 18, 2003.

  The safety evaluation for this DCN is Safety Evaluation 24590-WTP-SE-ENS-03-292, *Placing Drawing 24590-HLW-P1-P01T-00004, HLW Vitrification Building General Arrangement Plan at EL 30' 0", Revision 1, dated April 18, 2003*, Revision 0, dated June 3, 2003.

  The inspectors concluded the safety evaluation of the DCN change was in conformance with AB maintenance requirements.

- Drawing 24590-HLW-P1-P01T-00001, *HLW Vitrification Building General Arrangement Plan at EL 21' 0"*, Revision 3, dated August 6, 2003

- Safety Evaluation 24590-WTP-SE-ENS-03-456, *HLW General Arrangement at EL 21' 0"*, Revision 1, dated August 22, 2003

- Drawing 24590-HLW-P1-P01T-00001, *HLW Vitrification Building General Arrangement Plan at EL 21' 0"*, Revision 2, dated April 18, 2003.

  The inspectors found the Description of Design Change section, provided by Engineering, adequately described the changes made by drawing Revision 3 from the drawing Revision 2 and the ENS safety evaluations of the changes conformed to established requirements.

Based upon the above examinations, for one of the two design changes examined, the inspectors concluded Engineering had not completely described the changes made to design in the Description of Design Change section of the Safety Evaluation form; accordingly, ENS evaluators had not evaluated three changes needing evaluation. However, the inspectors concluded ENS had performed safety screening and evaluation of the described design changes in accordance with established AB maintenance program requirements.

1.3.2.2 Review of Safety Screening Documentation

The inspectors examined the safety screening documentation for the following safety evaluations to assess conformance with established requirements:

- Safety Evaluation 24590-WTP-SE-ENS-03-050, *Deletion of Train C*, Revision 0, dated June 23, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-463, *Changes to HLW Annex, Glass Former Feed Room and Rom Classifications*, Revision 0, dated August 4, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-456, *HLW General Arrangement Plan at El –21'-0"*, Revision 0, dated August 1, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-272, *Deletion of Transfer/Sampling RFDs and Vessel Emptying Steam Ejectors, and Revised Cascade Overflow in System RFP*, Revision 0, dated June 18, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-084, *Various Changes to Chilled Water System*, Revision 0, dated May 21, 2003.

Two of the safety screening questions had checked 'yes' and 'no' boxes; however, this discrepancy had been identified by the Contractor and documented in Corrective Action Report 24590-WTP-CAR-QA-03-175 for corrective action. The inspector discussed this with the engineer preparing the evaluation and determined the answers should have been 'yes' and had been justified as a 'yes' answer in the basis statements. The engineer was unable explain how the 'no' box had occurred, since that had not been his intent. The inspectors observed the safety evaluation had been approved by ENS management without identifying the discrepancy.

With the exception of Safety Evaluation 24590-WTP-SE-ENS-03-084, the inspectors concluded the safety screenings conformed to established requirements, descriptions of the design changes to be considered had been clearly identified, and the basis statements for justification of the answers to the questions on Part 1 of the Safety Screening and Evaluation forms were sufficiently detailed and provided sufficient justification for the answers.

1.3.2.3 Review of Additional Drawings and Specifications

The inspectors selected three recently revised drawings and five recently revised specifications to determine whether safety evaluations had been completed as required by requirements established by the procedures for Engineering Drawings and Engineering Specifications. The safety evaluations are identified below:

- Drawing revision Safety Evaluation 24590-WTP-SE-ENS-03-395, *P&ID-HLW Melter Primary Offgas HEPA Filters*, Revision 0, dated June 27, 2003.

- Drawing revision Safety Evaluation 24590-WTP-SE-ENS-03-388, *P&ID-HLW Melter Offgas System Melter 2 Primary Offgas WESP*, Revision 0, dated June 27, 2003.

- Drawing revision Safety Evaluation 24590-WTP-SE-ENS-03-271, *Various Changes to Melter 2 Systems*, Revision 0, dated June 25, 2003.

- Specification revision Safety Evaluation 24590-WTP-SE-ENS-03-697, *Safety Evaluation for Engineering Specification for Excavation and Backfill, 24590-BOF-3PS-CE01-T0001, Rev. 5 and SCN 24590-BOF-3PN-CE01-00006*, Revision 0, dated September 3, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-523, *HLW Melter Spout Drip Tray Reclassification*, Revision 0, dated August 11, 2003.

- Safety Evaluation 24590-WTP-SE-ENS-03-505, *Addition of IEEE-382-1996 to the Safety Requirements Document Volume II*, Revision 0, dated July 29, 2003.

The inspectors found two of the five selected specifications had not been subjected to the safety evaluation process, as required by the procedure for Engineering Specifications. These were:

- Specification 24590-WTP-3PS-FA02-T0002, *Engineering Specification for Purchase of Post Installed Concrete Anchors for Important To Safety Application*, Revision 0, dated August 28, 2003.

- Specification 24590-WTP-3PS-MDRM-T0001, *Engineering Specification for Heating, Ventilating and Air Conditioning System Seismic Category I and II Ductwork*, Revision 2, dated August 6, 2003.

The Contractor pointed out Specification 24590-WTP-3PS-MDRM-T0001 had been identified by their QA audit and the discrepancy documented in CAR 24590-WTP-CAR-QA -03-175. The inspectors verified this assertion.

However, the Contractor stated the other omission (Specification 24590-WTP-3PS-FA02-T0002), identified by the inspectors, was another example of the type of discrepancies identified in CAR 24590-WTP-CAR-QA-03-175, and would be included in the CAR for corrective action and resolution as part of the CAR corrective action process. The Contractor completed Safety Evaluation 24590-WTP-SE-ENS-03-761, *Engineering Specification for Purchase of Post Installed Concrete Anchors for Important to Safety (ITS) applications*, Revision 0, dated September 17, 2003. The inspectors examined the safety evaluation and concluded no AB impact was identified and it conformed to the AB maintenance procedure established criteria.

1.3.2.4 Review of Corrective Action Report 24590-WTP-CAR-QA-03-175

Corrective Action Report 24590-WTP-CAR-QA-03-175 was written on August 14, 2003 to document the issues identified by Management Assessment 24590-WTP-MAR-ENS-03-022, *Management Assessment of Safety Evaluations*, Revision 0, dated August 28, 2003. The CAR identified wherein safety evaluations had not been performed, as required, for specifications (4) examples, system description change notices (3) examples, general arrangement drawing revisions (11) examples, and drawing

revisions/change notices (5) examples. In addition, the CAR identified: one specification, upon which a safety evaluation had been performed, where the safety evaluation was not retrievable; three safety evaluations wherein all of the design changes had not been identified; and one safety evaluation that did not provide adequate evaluation for supporting an ABCN. The inspectors observed the CAR narrowly focused corrective actions on perceived ENS corrective actions and not on Engineering failings to make ENS aware of design changes needing review or design change description thoroughness. The inspectors discussed CAR 03-175 with QA management and determined QA management considered the problems identified by the CAR required more extensive evaluation and corrective action than had been specified to date. Accordingly, QA management was in process of raising the significance of the CAR and considering more broad scope corrective actions. The specification and completion of more broad corrective actions regarding the discrepancies documented by CAR 03-175 is a Follow-up item (A-03-OSR-RPPWTP-018-A01).

1.3.3 Conclusions

The inspectors concluded the ENS staff was performing high quality safety screenings and safety evaluations on the documents they received from Engineering; however, Engineering had not consistently provided all documents needing safety evaluations to the ENS staff and Engineering had not consistently described fully the extent of the changes to the ENS staff. With one exception, previously identified by the Contractor, the inspectors concluded the safety screenings conformed to established requirements, descriptions of the design changes were clear, and the basis statements for justification of the answers to the questions on Part 1 of the Safety Evaluation forms were sufficiently detailed and provided sufficient justification for the answers. The inspectors concluded the Contractor was experiencing continuing problems in assuring all design changes received a safety evaluation, if required, in conformance with established requirements.

1.4 Review of ABCNs for Facility Changes – Consistency with RL/REG-97-13

1.4.1 Inspection Scope

The inspectors examined several reports of ORP reviews of 25 ABCNs for conformance with the requirements of RL/REG-97-13, paragraphs 3.5.a.2.i, 3.5.a.1.iii through vii, and 3.5.a.2.iii. The ORP reports reviewed were: 03-OSR-275, dated August 23, 2003; 03-OSR-0258, dated July 23, 2003; 03-OSR-0235, dated July 3, 2003; and 03-OSR-0232, dated July 9, 2003.

Contract No. DE-AC27-01RV14136[1] states in Standard 7 Section (e) (2) (iii) the Contractor's Integrated Safety Management Plan (ISMP) shall conform with RL/REG-97-13, *Office of River Protection Position on Contractor-Initiated Changes to the*

[1] Contract No. DE-AC27-01RV14136 between the U.S. Department of Energy and Bechtel National, Inc., dated December 11, 2000.

Authorization Basis. 24590-WTP-PSAR-ESH-01- 002 -01, *Preliminary Safety Analysis Report to Support Construction Authorization*; *General Information,* Revision 0d, dated June 25, 2003, Section 17.6.5 provided changes to the facility or administrative controls may be made, by the Contractor, if a review of the AB is performed in accordance with RL/REG-97-13. RL/REG-97-13 Position 3.5.a. 2.ii states: "Documentation shall be retained and readily available for ORP review."

1.4.2 Observations and Assessments

The ORP reports documented the ORP reviews of 25 ABCNs. Of that number, all but three were adequately described in detail (RL/REG-97-13, paragraph 3.5.a.2.i). Two required additional teleconference calls or meetings to obtain the necessary detail and all but one contained adequate justification for the change to conform to RL/REG-97-13, paragraphs 3.5.a.1.iii through vi. In one case, the change was retracted because the change had not been adequately described. Generally, 22 of the 25 safety evaluations reviewed had been described in sufficient detail so that a knowledgeable individual reviewing the safety evaluation could identify the technical issues considered and the basis for the determinations (RL/REG-97-13, paragraph 3.5.a.2.iii). In addition, the reviewers found the safety evaluations provided summary statements briefly describing the basis for concluding each of the applicable requirements had been met. Accordingly, the inspectors concluded the Contractor was documenting the design change descriptions and providing details of the basis for conclusions. The inspectors concluded the Contractor had improved in the area of documenting the description of the change and the basis for conclusions reached in safety evaluation performance.

1.4.3 Conclusions

The inspectors concluded the Contractor was performing adequate safety evaluations and had improved in the area of safety evaluation performance.

1.5 Review of Issues Associated with ABCN 24590-WTP-ABCN-ENS-03-111 (ITP I-107)

1.5.1 Inspection Scope

The inspectors examined ABCN 24590-WTP-SE-ENS-03-111, *Design Changes in the HLW Facility Due to Above Grade HLW Facility Reconfiguration*, Revision 0; ABAR 24590-WTP-SE-ENS-03-111, Revision 1; and Decision to Deviate (DTD) from the Authorization Basis (DTD No: 24590-WTP-HLW-DTD-PL-03-001, Revision 0). The inspector examined these documents to assess the conformance to the requirements of RL/REG-97-13, Positions 3.5.a.1, 3.6, 3.7, and 3.8. Contract No. DE-AC27-01RV14136 stated in Standard 7 (e) (2) (iii) the Contractor's ISMP shall conform with RL/REG-97-13. 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*, Revision 3, dated June 13, 2003, stated the PSAR, Volume I, provided additional discussion of Project AB management activities. Section 17.6.5 of the PSAR, dated June 13, 2003,

stated the Contractor may make changes to the facility or administrative controls if they are made in accordance with RL/REG-97-13.

1.5.2 Observations and Assessments

RL/REG-97-13, Position 3.5.a.1.v, prescribed the Contractor may make changes to the facility without prior U.S. Department of Energy (DOE) approval provided a safety evaluation was performed which demonstrates, among other things, the revision "does not change how a safety design class (SDC) structures, systems, or components (SSC) meets its respective safety function."

24590-WTP-PSAR-ESH-01-002-01, P*reliminary Safety Analysis Report to Support Construction Authorization; General Information*, Revision 0d, dated June 25, 2003, Section 2.4.5.3, Seismic Analysis, details the seismic analysis criteria to be used to compute the seismic loads on the SSCs and to generate in-structure response spectra.

The Safety Evaluation 24590-WTP-SE-ENS-03-111, Revision 0, Part 2, Safety Evaluation, Item 3, was marked "NO." This question was intended to demonstrate the proposed change "Does not result in more than minimal decrease in the Safety Functions of important-to-safety SSC or change how a SDC SSC meets its respective safety function" as specified in RL/REG-97-13, Position 3.5 a. 1. v. The Contractor's basis for this conclusion stated in part, "If there are any negative impacts they are minimal and bounded by the existing analyses. The method by which ITS functions are implemented is unchanged, except for the detailed (sic) design implementation, which was not currently discussed in the AB."

Footnote #4 to Position 3.5. a 1. of RL/REG-97-13 states, "The format, content, and level-of-detail associated with an acceptable 'Safety Evaluation' is highly dependent on the nature of the proposed revision to the authorization basis, but in all cases, the evaluation must provide the rationale which demonstrates Items 1.i through 1.viii are met."

ORP's review of the safety evaluation concluded it did not provide a rationale to demonstrate the reconfiguration and increasing of the High Level Waste (HLW) building size would not result in more than a minimal decrease in how the SDC walls –to-grade would meet their safety function. Specifically, the safety evaluation did not state a seismic analysis had been completed in accordance with PSAR 2.4.5.3 for walls-to-grade using input from the larger, reconfigured HLW building. The Contractor was informed and retracted the ABCN by letter dated June 30, 2003.[2]

Failure to provide sufficient detail in the safety evaluations to justify the conclusions was identified as a Finding (A-03-OSR-RPPWTP-007-F03) during the last inspection of this

[2] BNI letter from J.P. Henschel to R.J. Schepens, ORP, "Retraction of Authorization Basis Notice 24590-WTP-SE-ENS-03-111, Revision 0," CCN: 062215,dated June 30, 2003.

area conducted in January 2003. Review of 24590-WTP-MAR-ENS-03-015, Revision 0, *Management Assessment of Authorization Basis Maintenance Program*, indicated corrective actions taken to improve the quality of safety evaluations were completed on April 15, 2003. Since this ABCN was reviewed and approved by the Contactor on May 5, 2003, ORP considered it appropriate to document the inadequate safety evaluation as a Finding. Failure to follow the requirements of RL/REG-97-13, Position 3.5 a. 1. for making changes to the authorization basis is considered Finding (A-03-OSR-RPPWTP-018-F01).

On August 4, 2003, the Contractor notified ORP of its DTD from the AB and issued DTD 24590-HLW-DTD-PL-03-001, Revision 0, on August 6, 2003. The DTD stated in part, "This DTD will allow the issuance of general arrangement drawings for construction and the procurement of rebar, embeds, and form work. The DTD will not allow the pouring of concrete prior to approval of ABAR 24590-WTP-SE-ENS-03-111, Revision 1, by DOE."

ABAR 24590-WTP-SE-ENS-03-111, Revision 1, *Design Changes in the HLW Facility Due to Above Grade HLW Facility Reconfiguration*, was submitted to ORP for approval on August 7, 2003. In a September 5, 2003[3] letter the ORP Manager informed the Contractor it was extending its review of the ABAR, which had been scheduled for completion by September 15, 2003, because the Contractor had not completed additional calculations necessary to answer questions generated by ORP in the ABAR review process. The letter acknowledged the Contractor responses were not expected to be available before September 24, 2003. The letter also stated ORP would recommence its review of the ABAR on receipt of the calculations.

As of September 19, 2003, the ABAR had not been approved by ORP and the DTD had not been revised or a new DTD issued to address pouring of concrete prior to approval of ABAR 24590-WTP-SE-ENS-03-111, Revision 1, by DOE.

According to the Contractor representative, concrete was poured for the HLW -21' elevation of wall section 36 at 6:30 PM on Monday, September 15, 2003. This section of wall was shown on one of the drawings referenced in the ABAR (24590-HLW-P1-P01T-0001, Revision 3, *HLW Vitrification Building General Arrangement Plan at EL.-21'-0"*. Drawing 24590-HLW-DB-S13T-00007, Revision 6, *HLW Vitrification Building Structural Concrete Placement Plan at El. (-) 21'-0"*) identified the portion of wall referred to as "section 36" making clear the connection to the drawing referenced in the ABAR. As a result of the decision to increase the size and reconfigure the HLW building, calculation 24590-HLW-DGC-S13T-00014, Revision A, dated June 27, 2003, indicates wall 36 was changed to accommodate the new loads.

[3] ORP letter from R. J. Schepens to J.P. Henschel, BNI, "Extension of Review of Authorization Basis Amendment Request (ABAR) 24590-WTP-SE-ENS-03-111, Revision 1, 'The Reconfiguration of the High Level Waste Facility'," 03-OSR-0334, dated September 5, 2003.

Implementation of an ABAR without prior approval or issuance of a DTD is considered a Finding (A-03-OSR-RPPWTP-018-F02).

1.5.3 Conclusions

Pouring of HLW wall section 36 at the -21' elevation on September 15, 2003 represents failure to effectively implement the AB maintenance process. The initial ABCN was inadequate and the DTD was issued containing appropriate controls that were not implemented. Two Findings were identified: failure to follow the requirements of RL/REG-97-13, Position 3.5.a.1 for making changes to the authorization basis (A-03-OSR-RPPWTP-018-F01); and implementation of an ABAR without prior approval or issuance of a DTD (A-03-OSR-RPPWTP-018-F02) are considered findings.

1.6 Review of ABCN 24590-WTP-ABCN-ENS-03-007 (ITP I-107)

1.6.1 Inspection Scope

The inspectors examined ABCN 24590-WTP-ABCN-ENS-03-007, Rev. 0, "Use of Post Installed Concrete Anchors for Seismic Category (SC) IV Applications," transmitted to ORP on June 5, 2003. The review was against the requirements of RL/REG-97-13, Section 3.5.a.1. Contract No. DE-AC27-01RV14136 states in standard & Section (e) (2), (iii) the Contractor's ISMP shall conform with RL/REG-97-13. 24590-WTP-ISMP-ESH-01-001, Rev. 3, *Integrated Safety Management Plan*, dated June 13, 2003, states that the PSAR, Volume I, provides additional discussion of Project AB management activities. Section 17.6.5 of the PSAR states that the Contractor may make changes to the facility or administrative controls if they are made in accordance with RL/REG-97-13.

1.6.2 Observations and Assessments

RL/REG-97-13, Section 3.5.a.1.vii, states that changes may be made to the facility provided a safety evaluation is performed which demonstrates that the revision "will continue to conform to the contract requirements associated with the authorization basis documents affected by the revision." The SRD requires in the implementing codes and standards for Safety Criterion 4.1-2 the use of ACI 349-01, *Code Requirements for Nuclear Safety-Related Concrete Structures*, which specifies requirements for concrete anchors for Important to Safety SSCs.[4] The ABCN deleted the requirements of the existing implementing standard for concrete expansion anchors contained in ACI 349-01, and replaced them with the "manufacturer's recommendations" for SC-IV SSCs. As a result, the change was inconsistent with the SRD, a contract requirement associated with the authorization basis. This change could have been documented as a finding but will not be documented as one because the ORP had in earlier meetings informed the Contractor that changes of this type could be made once the SRD was revised and that

[4] Note that Safety Criterion 4.1-3 specifies that RRC SSCs, which are Important to Safety SSCs, be designated as SC-IV.

ORP would support such a revision, although the Contractor had not made the change to the SRD at the time the above change was made. The change is an example of the Contractor not following the process established in RL/REG-97-13.

1.6.3 Conclusions

ABCN 24590-WTP-ABCN-ENS-03-007 inappropriately deleted requirements of the SRD for concrete anchors for RRC applications. Further, the Contractor's safety evaluation incorrectly stated that the change does not result in inconsistencies with other AB agreement commitments or descriptions.

1.7 Review of Issues Associated with ABCN 24590-WTP-SE-ENS-03-419 (ITP I-107)

1.7.1 Inspection Scope

The inspectors examined ABCN 24590-WTP-SE-ENS-03-419, Rev. 0, "Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards," transmitted to ORP on July 14, 2003. The review was against the requirements of RL/REG-97-13, Section 3.5.a.1. Contract No. DE-AC27-01RV14136 states in standard & Section (e) (2), (iii) the Contractor's ISMP shall conform with RL/REG-97-13. 24590-WTP-ISMP-ESH-01-001, Rev. 3, *Integrated Safety Management Plan*, dated June 13, 2003, states that the PSAR, Volume I, provides additional discussion of Project AB management activities. Section 17.6.5 of the PSAR states the Contractor may make changes to the facility or administrative controls if they are made in accordance with RL/REG-97-13.

1.7.2 Observations and Assessments

RL/REG-97-13, Section 3.5.a.1.vi, states changes may be made to the facility provided a safety evaluation is performed which demonstrates the revision "will continue to conform to top-level safety standards…." RL/REG-97-13, Section 3.5.a.1.vii, states that changes may be made to the facility provided a safety evaluation is performed which demonstrates the revision "will continue to conform to the contract requirements associated with the authorization basis documents affected by the revision." Top-level safety standards, DOE/RL-96-0006 states in Section 6.0 that design-basis events are "(p)ostulated events providing bounding conditions … that are necessary to protect the worker… and prevent or mitigate the event consequences so that the radiological exposures to … workers would not exceed appropriate limits." The SRD in Appendix A, Section 4.6, states that "design basis events shall be selected to establish a set of bounding performance requirements for SSCs relied upon to control internal hazards and hazardous situations." It also states that the design basis events provide confirmation that the design meets the requirements of Safety Criteria 2.0-1, which has requirements for workers. The ABCN deleted the requirements for establishing Design Basis Events for workers. Under "Description of change" in the ABCN the following is stated: "(T)he

Design Basis Event (DBE) selection process will not identify events for quantitative analysis for Facility Workers." As a result, the change is inconsistent with the Appendix A, Section 4.6 of the SRD which require the establishment of DBEs for workers. This change was proposed under the ABCN process rather than under the ABAR process. Changes to the facility that involve changes to the SRD are required under RL/REG-97-13 to be made under the ABAR process.

1.7.3 Conclusions

The ABCN 24590-WTP-SE-ENS-03-419 deleted the requirement for establishing Design Basis Events for workers. This change was inconsistent with the SRD which required DBEs to be established for workers. Failure to follow the requirements of RL/REG-97-13 for making changes to the authorization basis is considered a Finding (A-03-OSR-RPPWTP-018-F03).

1.8 Review of Issues Associated with ABCN 24590-WTP-ABCN-ENS- 02-038 (ITP I-107)

1.8.1 Inspection Scope

The inspectors examined ABCN 24590-WTP-ABCN-ENS-02-038, Rev. 0, "Alignment of System HFH Rev 0 Mechanical Handling Diagram with the HLW Authorization Basis." The review was against the requirements of RL/REG-97-13, Section 3.5.a.1. Contract No. DE-AC27-01RV14136 states in standard & Section (e) (2), (iii) the Contractor's ISMP shall conform with RL/REG-97-13. 24590-WTP-ISMP-ESH-01-001, Rev. 3, *Integrated Safety Management Plan*, dated June 13, 2003, states that the PSAR, Volume I, provides additional discussion of Project AB management activities. Section 17.6.5 of the PSAR states that the Contractor may make changes to the facility or administrative controls if they are made in accordance with RL/REG-97-13.

1.8.2 Observations and Assessments

RL/REG-97-13, Section 3.5.a.1.v, states that the Contractor may make changes to the facility without prior DOE approval provided a safety evaluation is performed which demonstrates, among other things, that the revision "does not change how a SDC SSC meets its respective safety function." Prior to this change, the method to ensure that multiple HLW filter cave shield doors were not simultaneously opened was through the use of administrative controls. This change added SDC positions sensors to ensure the multiple shield doors were not simultaneously opened. As a result, the modification changed how a SDC SSC meets its respective safety function and the change should have been submitted to DOE for approval prior to implementation. This change could be documented as a finding but is not being documented as one because the change is a clear enhancement to safety. The change is an example of the Contractor not following the process established in RL/REG-97-13.

1.8.3 Conclusions

The ABCN 24590-WTP-ABCN-ENS-02-038 added SDC position sensors which changed how a SDC SSC system met its respective safety function. The Contractor incorrectly processed this change under the RL/REG-97-13 rules for ABCN type changes rather than those for ABAR type changes.

1.9 Review of Issues Associated with ABAR 24590-WTP-ABAR-ENS-03-032 (ITP I-107)

1.9.1 Inspection Scope

ABAR 24590-WTP-ABAR-ENS-03-032, *Redefinition of ITS SSC Subclassifications and Defense in Depth Determination*, transmitted to ORP on July 2, 2003 proposed to revise the sub-classification definitions for important-to-safety (ITS) SSC. Also, it changed the requirements in SRD Appendix A to allow estimates of consequences to workers to be performed using qualitative methods rather than quantitative ones. The change modified SRD Appendix B to allow barriers for worker protection to be established based on qualitative estimates of consequences. The regulatory basis for the changes is DOE-STD-3009 and DOE G 420.1-1.

1.9.2 Observations and Assessments

The reviewers of ABAR 24590-WTP-ABAR-ENS-03-032 identified several areas in the ABAR that needed further information in order to complete the review and also identified several areas in which the Contractor's initial proposal needed to be modified. Below are some examples of proposed changes in the ABAR that needed modification:

- The Contractor proposed to adjust the unmitigated ranges for SL-2 through SL-4 for the co-located worker. Based on the adjustment of the unmitigated ranges, fewer ITS SSCs would be necessary. The Contractor's safety evaluation was deficient because a technical basis was not provided supporting the requested change.

- The Contractor proposed to delete some of the references to the SDC/SDS/RRC[5] classification system even though that system will remain in place until the new classification system (SC/SS/APC[6]) is fully implemented. The Contractor's proposal to delete references to the SDC/SDS/RRC classification system would have left that system incomplete. Such a change may not have provided adequate safety.

[5] SDC/SDS/RRC means Safety Design Class/Safety Design Significant/Risk Reduction Class
[6] SC/SS/APC means Safety Class/Safety Significant/Additional Protection Class

- In the Contractor's initial proposed definitions of SC and SS the issue of criticality safety was not addressed. As a result of a review question, the Contractor included criticality safety in the description of SSC. Failure to include criticality safety in the definition may have represented an incomplete safety picture.

- In the Contractor's initial submittal it is stated that: "Support SSCs to safety-significant SSCs that mitigate or prevent accidents with the potential for significant facility worker consequences need not be classified as safety-significant." DOE-G-420.1-1 does not make this statement. The guide states that only if the consequences are localized need the SSCs not be classified as safety significant. It is reasonable to expect that significant on-site consequences could occur to facility workers which would then require the support SSCs be classified as SS. Under this scenario the Contractor's definition would be inconsistent with DOE-G-420.1-1.

1.9.3 Conclusions

The changes associated with ABAR 24590-WTP-ABAR-ENS-03-032 mostly involve changes to SRD Appendixes A and B. The changes to these Appendixes initially proposed by the Contractor were not acceptable, twenty review questions were needed and numerous changes to the initial proposal were required to have the change meet applicable laws and regulations. The Contractor's submittal demonstrated that changes to SRD appendices like Appendix A and B should only be implemented after review and approval by DOE.

1.10 Review of Issues Associated with ABAR 24590-WTP-ABAR-ENS-03-002 (ITP I-107)

1.10.1 Inspection Scope

The inspectors examined ABCN 24590-WTP-ENS-03-002, *Seismic Design for Piping,* Revision 0, dated July 2, 2003, to assess the conformance to the requirements of RL/REG-97-13, Positions 3.5.a.1, 3.6, and 3.7. Contract No. DE-AC27-01RV14136 stated in Standard 7 (e) (2) (iii) the Contractor's ISMP shall conform with RL/REG-97-13. 24590-WTP-ISMP-ESH-01-001, Revision 3, *Integrated Safety Management Plan*, dated June 13, 2003, stated the PSAR, Volume I, provided additional discussion of Project AB management activities. Section 17.6.5 of the PSAR, dated June 13, 2003, stated that the Contractor may make changes to the facility or administrative controls if they are made in accordance with RL/REG-97-13.

1.10.2 Observations and Assessments

This ABAR proposed to use certain AMSE Section III methodology to perform seismic analysis of ASME B31.3 piping. It was submitted on March 20, 2003[7], and requested ORP approval by April 14, 2003. ORP reviewed the ABAR and noted in a letter to the Contractor, dated April 16, 2003[8], it was temporarily suspending its review because it had been informed on April 10, 2003, the Contractor was re-evaluating its technical approaches described in the ABAR and was unable to meet with OPR representatives to resolve reviewer questions.

During an ORP inspection of SRD design standards conducted during the period July 21 through 25, 2003,[9] it was determined the Contractor had not submitted a revision to the ABAR and was using the ASME Section III methodology without an approved ABAR or issuance of a DTD, as permitted by Position 3.7 of RL/REG-97-13. A Finding (IR-03-ORP-RPPWTP-016-03-FIN) addressing this matter was transmitted to the Contractor on September 4, 2003.

ABAR-ENS-03-002 is another example of a proposed SRD change where the safety evaluation did not contain sufficient information for ORP to approve the change. As noted above, this change was also submitted before the Contractor had fully implemented its corrective actions taken in response to the findings identified in the last inspection of this topical area.

1.10.3 Conclusions

ABAR-ENS-03-002 represents another example of an insufficient justification of a proposed change and a second example[10] where use of DTD portion of the AB maintenance process could have been implemented.

1.11 Contractor Program for Updating PSAR (ITP I-107)

1.11.1 Inspection Scope

The scope of the inspection was to review the Contractor's methods for ensuring the PSAR was updated as required by RL/REG-97-13, Section 3.5.a.2.iv and Section 3.5.b.2.iv. The inspectors reviewed the Contractors PSAR update Plan dated May 1,

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[7] BNI letter from R.F. Naventi to R.J. Schepens ORP, "Transmittal For Approval-Authorization Basis Amendment Request 24590-WTP-ABAR-03-002, Revision 0, *Seismic Design of Piping*," CCN: 052724, dated March 20, 2003.

[8] ORP letter from R. J. Schepens to R.F. Naventi, BNI, "Suspension of Authorization Basis Amendment (ABAR) 24590-WTP-ABAR-ENS-03-002, Revision 0, Seismic Design of Piping Review," 03-OSR-015, dated April 16, 2003.

[9] ORP letter from R.J. Schepens to J.P. Henschel BNI, "Safety Requirements Document (SRD) Design Standards Implementation Inspection Report A-03-OSR-RPPWTP-016," 03-OSR-0301, dated September 4, 2003.

[10] ABAR 24590-WTP-SE-03-111, Revision 1

2003, and discussed the activities with several Contractor employees involved in the work.

1.11.2 Observations and Assessments

The Contractor did not establish procedures for conducting this activity; rather; it was being conducted at the time of the inspection by use of an internal memorandum described as a PSAR Update Plan. The activity is only minimally discussed in procedure 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*. The Plan assigned responsibilities to various individuals for particular sections of the PSAR. The Plan identifies information for the PSAR update as coming from the following sources: ORP Questions/Response Commitments; incorporation of approved ABCNs/ABARs; non-design related calculation revisions; non-design related updated SIPD output; editorial corrections; changes associated with responses to Defense Nuclear Facilities Safety Board questions; and reduction in level of detail as appropriate.

The Plan also provides suggestions regarding how input for the PSAR update is to be collected. It provides a priority list for the type of changes to be incorporated. The leading two types of changes are SIPD and Calc Note changes and ABCN changes. The Plan also provided a proposed format for the updated PSAR.

There is no specific training provided to users on the use of the Plan.

1.11.3 Conclusions

While the PSAR Update Plan does not provide the details for preparing the update that would be found in a detailed procedure, it provided guidance at a level appropriate for experienced staff assigned to perform the task. Authors assigned to specific PSAR sections were well experienced in the project suggesting that the Contractor's program for this task is adequate and will meet the requirements of RL/REG-97-13.

1.12 Contractor Self-Assessment of AB Maintenance Activities (ITP I-107)

1.12.1 Inspection Scope

The inspectors examined the Contractor's management and independent assessments related to maintenance of the Authorization Basis to assess adequacy of assessment scope, depth, and results to determine whether the Contractor was performing substantial evaluations of performance in this area and finding problems. The inspectors assessed the Contractor's performance to determine whether the assessments conformed with requirements of the Quality Assurance Manual (24590-WTP-QAM-QA-01-001, *Quality Assurance Manual,* Revision 3, dated January 6, 2003).

1.12.2 Observations and Assessments

The inspectors determined the Contractor had performed three management assessments in the area of AB maintenance and examined the following documents:

- Management Assessment 24590-WTP-MAR-ENS-03-005, *Management Assessment of Engineering Specifications Consistency with Authorization Basis*, Revision 0, dated April 24, 2003.

  This assessment was performed during the period of February 10 to March 13, 2003, before Revision 5 of the AB maintenance procedure was issued (April 15, 2003) and, therefore examined engineering specifications developed before implementation of the improved AB maintenance process. Although the assessment was performed on material generated before Revision 5, the assessment found the evaluated specification safety screening evaluations were thorough. However, the assessment found the screening checklist questions had been answered with inconsistent thoroughness from one screening evaluator to another and the design change descriptions were not thorough or consistent. The assessment identified ten specifications wherein the certain applicable code references did not conform to the requirements of the Safety Requirements Document (Corrective Action Report (CAR) 24590-WTP-CAR-03-103 was written to document the discrepancies and require a 100% review of all issued numeric revision specifications).

  Accordingly, the inspectors concluded the management assessment identified safety screening problem situations similar to those identified by ORP inspectors during the inspection conducted during January 6-15, 2003 (Inspection Report A-03-OSR-RPPWTP-007).

- Management Assessment 24590-WTP-MAR-ENS-03-015, *Management Assessment of the Authorization Basis Maintenance Program*, Revision 0, dated May 30, 2003.

  This management assessment was performed during the period of May 13-29, 2003, to evaluate the effectiveness of the revised Authorization Basis Maintenance procedure in satisfying the concerns of the DOE Authorization Basis Management Assessment (Inspection Report A-03-OSR-RPPWTP-007). This management assessment evaluated work products produced subsequent to the effective date (April 15, 2003) of the revised AB maintenance procedure. A sample of eleven safety evaluations, ABCNs, and ABARs were examined, representing 100% of the work products produced to the revised AB maintenance procedure. The assessment found three of the eleven safety evaluations checked had errors in answers to certain safety evaluation questions (27% error rate), although there was minimal safety significance to the errors in answering those questions because other questions had been answered ‘yes,’ triggering the additional required evaluations. The inspectors considered the error rate was

high, even though the safety significance was minimal. The management assessment concluded, and the inspectors agreed, additional improvements were needed, in the areas of training and process improvements, and assigned action for completion.

- Management Assessment 24590-WTP-MAR-ENS-03-022, *Management Assessment of Safety Evaluations*, Revision 0, dated August 28, 2003.

  This management assessment was performed during the period of August 4-22, 2003, and evaluated the safety evaluations prepared by ENS staff, using Revision 5 of the AB maintenance procedure, during the period of May 15, 2003 to August 1, 2003.

  The assessment examined 284 design documents to determine whether safety evaluations had been performed, as required. The assessment identified 30, of 284, documents had not been subjected to the required safety evaluation process (about 10%). Although subsequent safety evaluations performed on the 30 design documents found no situations where the AB was impacted, the inspectors considered the performance demonstrated continuing problems in assuring all necessary engineering documents received safety evaluation, in accordance with engineering procedure and AB maintenance program requirements.

  In addition, the assessment examined 129 safety evaluations, of the total of 252 changes with safety evaluations, to assess whether the change description was accurate and whether the questions related to determining AB impact were answered correctly. The assessment found 15 of the 129 evaluated had limited discrepancies, although none of the discrepancies resulted in AB impacts. The assessment concluded the current safety evaluation process was accurately identifying changes that impact the AB. The inspectors considered the discrepancies demonstrated continuing minor problems in assuring conformance with RL/REG-97-13 requirements regarding clarity and completeness of decision basis statements. The inspectors recognized no AB impacts were identified following completion of more careful consideration of the basis statements.

  The Contractor wrote CAR 24590-WTP-CAR-QA-03-175, *Drawings/Specifications/Change Notices were issued without Safety Evaluations*, dated August 14, 2003, documenting the discrepancies observed during the management assessment.

- Quality Assurance Audit 24590-WTP-IAR-QA-03-011, *Environmental and Nuclear Safety Functions and Responsibility*, Revision 0, dated September 11, 2003.

  The purpose of this audit was to evaluate the performance and compliance of the ENS organization functions to established organization procedures. The inspectors evaluated the audit report specifically to assess the scope, depth and

findings of the audit related to safety screening and safety evaluation performance. The audit examined 14 safety evaluations and identified 6 of the 14 contained some inadequate justifications in the basis for the answers to questions. Two of the safety evaluations failed to consider all of the changes made where the design change made multiple changes to the original design. These were documented on Corrective Action Reports by the audit team.

The audit reviewed 10 specifications and found 2 specifications had not been evaluated by the safety evaluation process. This situation, too, had been documented by Corrective Action Report.

The inspectors concluded the audit identified some continued weaknesses in the implementation of the authorization basis management program requirements in the areas of: thoroughness of design change description; completeness of the basis for conclusions; and assuring all documents, for which safety evaluations were required, were reviewed by ENS.

The Audit team concluded in the Executive Summary "The ENS program is considered effective." The inspectors questioned the audit team leader regarding the basis for the statement; the team leader stated they knew there were safety evaluation implementation problems, but the program for performing safety evaluations was effective. The inspectors considered the failure to mention the problems with the program implementation was misleading for senior Contractor management. The QA Manager had the conclusion statement revised to more accurately reflect the audit results and the report was reissued on September 16, 2003.

1.12.3 Conclusions

The Contractor's management assessments and QA audit demonstrated a some continuing performance weaknesses in the area of Authorization Basis maintenance regarding: completeness of basis for answers to safety screening/evaluation questions; assuring that all design change documents requiring safety evaluation were subjected to the safety evaluation process; and design change description completeness. Except for Engineering identifying issues to ENS, the scope of the weaknesses were considered to reflect a small percentage of the total activity. The inspectors concluded the Contractor had performed broad scoped, thorough management assessments and QA audit of this area.

1.13 Knowledge of Staff (ITP I-107)

1.13.1 Inspection Scope

The Contractors QAM required personnel performing activities governed by the QA program be trained to perform their assigned responsibilities. The inspectors interviewed

ENS personnel who had performed safety screening and safety evaluations to assess their knowledge of the AB maintenance procedure and program requirements.

1.13.2 Observations and Assessments

The inspectors interviewed ten ENS personnel to assess whether they possessed adequate knowledge of the requirements of the AB maintenance procedures and program. These individuals were all directly involved in the preparation, concurrence, review, and approval of safety evaluations in accordance with Revision 5 of the AB Maintenance procedure. The inspectors found all possessed a thorough knowledge of the AB maintenance process and requirements. They were aware of how the Contractor maintained the AB documents up-to-date and utilized the Design Criteria Database as their primary method of evaluating changes.

In response to questions concerning vulnerabilities of the current AB maintenance process, the interviewees identified the following concerns:

- Design Engineers submit changes for review with an Engineering Design Review request to numerous organizations for comment. Frequently, the Safety Evaluation Request Preparer will initiate Part 1, Safety Screening, of the procedure while other organizations are providing review and comment on the proposed changes. Resolution of these comments sometimes required additional changes to the design products, particularly primary drawings. It is incumbent on the Design Engineer and the Safety Evaluation Preparer to verify that all changes, including those resulting from the comment process, having a potential AB impact, have been addressed in the "Description of design change." This vulnerability surfaces on complex drawings containing a lot of detail and many "Hold" clouds, according to those interviewed.

  The inspector noted that Revision 6 of the AB maintenance procedure, Step 3.2.2, and Revision 3 of the Part 1, Safety Screen Form (24590-SREG-F00010), now required a sign-off by the design document originator or supervisor to verify the description of the change was accurate, complete, and contains sufficient detail.

- Once the Hazards and Safety Analyst (H&SA) concurred in Part 2, Safety Evaluation, the form was routed for concurrences. Given the frequent, large number of detailed changes, some individuals were concerned that concurrence by senior managers may not result from a detailed knowledge of each change and its impact.

  The inspector noted Revision 5 of the AB maintenance procedure, Section 3.4, Safety Evaluation for Design, Step 11, contained detailed guidance to address the perceived vulnerability. The specific language has been moved from Step 11 to Step 10 in Revision 6 of the procedure.

- The level of detail documented in the "Basis" portion of each question block of the safety screen and safety evaluation, necessary to justify the Safety Evaluation Preparer's conclusion to the satisfaction of ORP, remained a concern.

  The Contractor's response[11] to previously identified Findings A-03-OSR-RPPWTP-007-F02 and F03 stated in part "BNI will prepare example safety evaluations that demonstrate an increased level of detailed descriptive text for each of the six safety evaluation questions. These example safety evaluations will be discussed with DOE in order to reach a consensus as to the appropriate level of descriptive detail needed for future safety evaluations." The Contractor also stated, "Examples of acceptable screenings and evaluations will be identified and used in the training sessions. These examples will be reviewed with DOE prior to their use."

  Review of Authorization Basis Maintenance Module # 24590-WTP-CRM-TRA-000902, Revision 0, records of AB maintenance reviewer meetings held on June 4, 2003, and July 30, 2003, and CAR 24590-WTP-CAR-QA-03-036 indicate that sample safety evaluations were discussed and provided on two occasions in March 2003, with DOE. The example safety evaluation demonstrated an increased level of detailed descriptive text for each of the six safety evaluation regulatory questions.

1.13.3 Conclusions

The inspectors concluded personnel performing safety screenings and safety evaluations were knowledgeable of AB maintenance program and procedure requirements, recognized vulnerabilities in the process, and appeared motivated to ensure no deleterious impact on safety results from changes to the AB. Contractor ENS reviewers remained concerned about the level of detail they are required to document as a basis for the answers to the safety evaluation questions.

1.14 Training of Staff for Performing AB Maintenance (ITP I-107)

1.14.1 Inspection Scope

The Contractor's QAM, Revision 4a, Policy Q-02.2, *Personnel Training and Qualification*, requires initial and continuing training. Continuing training must include training in significant applicable procedure changes, operating experience, and selected fundamentals with emphasis on knowledge and skills necessary to assure safety. The inspectors reviewed the training module, training records, qualification lists, and about 15

[11] BNI letter from R.F. Naventi to R.J. Schepens, ORP, "Bechtel National, Inc.'s Response to Inspection Report A-03-OSR-RPPWTP-07-Authorization Basis Management Assessment," CCN: 051759, dated March 12, 2003.

AB changes to determine if the individuals involved in the AB maintenance process had been trained as required.

1.14.2 Observations and Assessments

During the last inspection of AB maintenance several deficiencies in the consistency between the AB training module and procedures 24590-WTP-GPP-009, *Safety Screening and Safety Evaluations* and 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 4 were identified as Assessment Follow-up Item A-03-OSR-RPPWTP-007-AO3.

Review of the new module (24590-WTP-CRM-TRA-000902, *Authorization Basis Maintenance*~~)~~, Revision 0 found: (1) the definition of "change" conformed to that used in RL/REG-97-13; (2) the individuals responsible for addressing each question on the safety screens and evaluations was made clear; (3) ENS review and signatures were clarified; and (4) the way "yes" answers are disposition was addressed. The module was consistent with Revision 5 of the procedure for AB maintenance. The module also included a useful test, particularly if taken "closed book."

The module did not contain or reference example answers to the safety evaluation questions as described above in Section 1.15.2. The instructor stated that examples had been discussed with the ORP but a decision to not provide examples was based on the concerns that the example basis statements might evolve into "boilerplate." The instructor stated that rather than use examples they discussed the validity of actual safety screens and safety evaluations submitted to ORP during the continuing training.
The Contractor provided a record indicating 67 individuals involved in reviewing and approving AB changes had completed the classroom presentation of the training module. Based on review of the selected ACBNs and ABARs, all of the Safety Evaluation Preparers had completed the module. Many of the individuals, from other than ENS, concurring or approving AB changes were not on the list of attendees. Since the focus of this assessment was on design changes, the inspectors requested a computer sort of all engineering staff that had not completed reading of *Authorization Basis Maintenance*, Revision 5, and/or the computer based training presentation of the module. Only one of these individuals were on the List of Qualified Individuals, according to the Contractor representative. That manager had recently moved into a position where he might be required to concur in an AB changes, however he still had time, within the thirty day window to complete the required reading. The inspectors concluded all engineering and ENS staff had completed the required AB maintenance training.

1.14.3 Conclusions

AB maintenance training had been updated to reflect Revision 5 of the AB maintenance procedure. Continuing training had been provided and the results were demonstrated by improved performance in the AB maintenance process.

1.15 Adequacy of Documentation (ITP I-107)

1.15.1 Inspection Scope

The Contractor's QAM, Revision 4a, Policy Q-06.1, *Document Control*, requires AB documents, in hard copy or electronic media, including latest changes thereto, are controlled, reviewed for accuracy, approved for release, and distributed to and used at the location where work is being performed. The inspectors reviewed the Contractor's procedures related to AB maintenance, compared ORP's controlled copies of AB documents against those available on the Contractor's design criteria database, and those used by ENS representatives to evaluate AB changes.

1.15.2 Observations and Assessments

The controlled copies the SRD, ISMP, RPP, QAM, and PSAR used by the Contractor's Safety Program Lead to evaluate AB changes were found to be consistent with the current AB documents used by ORP. A search of the Contractor's WTPS 0026 server, searched under, "Other Library Documents," then "Authorization Basis Documents," demonstrated the electronic media also contained the most up-to-date revisions of the AB documents. These were the two primary methods used by the Contractor's representatives to evaluate AB changes.

Procedure, *Authorization Basis Maintenance,* Revision 5 described the specific steps necessary to manage the documentation associated with changes to the AB. The inspectors requested numerous "Safety Evaluations" during the course of this assessment and all were readily available, except in the case one specification change, that had not been prepared and is discussed above.

Changes to primary design drawings[12] were the starting point for many of the AB design changes. Review of 24590-WTP-3DP-G04B-0046, *Engineering Drawings,* Revision 5, dated April 15, 2003, Section 3.3 directs the design engineer to verify changes are consistent with the AB by reviewing applicable copies of the AB or searching the Design Criteria Database (DCD). Procedure 24590-WTP-3DP-G04T-00904, *Design Criteria Database*, Revision 1, dated November 11, 2002, was reviewed to confirmed that it established a system to assure that AB design criteria was effectively made available to the design engineers. Review of the procedure found the definition of what documents comprise the AB to be out-of-date in that it stated the AB included the Initial Safety Analysis Report rather than the PSAR and did not include the *Limited Construction Authorization, Quality Assurance Manual,* and Contractor commitments made in response to AB submittal questions. This was brought to the attention of a representation of the Contractor's QA organization. The inspector's selected three specific criteria from

[12] 24590-WTP-3DP-G04B-0046, Revision 4, *Engineering Drawings*, define primary design drawings as those drawings, "… when issues as a numeric revision and in conformance with the AB documents, provide substantial assurance that lower-level (secondary) drawings checked against primary documents and produced in compliance with the design process will comply with system and facility level AB and environmental permitting requirements."

PSAR 24590-WTP-PSAR-ESH-01-002-04, Revision Oc and requested the Contractor representative to demonstrate by electronic search that there criterion were in the DCD. Two of the specific criteria were quickly located by using logical word search methodology and the information was as found in the AB reference. The third criteria, PSAR, Section 2.5.3.1.6, was not initially located using the word search methodology. Subsequently, the Contractor's QA representative located the criteria by using a citation search methodology.

During the last inspection of this area a Finding for failure to ensure that information related to ABCNs and Safety Evaluations are readily available for DOE review was issued (A-03-OSR-RPPWTP-007-01). With Revision 5 of *Authorization Maintenance*, the documentation reviewed during this assessment, associated with AB changes, was found to be consistent with procedural requirements, complete and processed in a timely manner. Some minor anomalies involving checks in both boxes on the check sheet or illogical answers were identified. These errors were minor but should have been corrected in the approval process.

1.15.3 Conclusions

The Contractor is maintaining documentation associated with the AB current. Some additional attention to detail associated with maintaining procedures up-to-date and the accuracy and completeness AB change documentation is warranted.

1.16 Adequacy of Closure of Inspection Items (IAP A-105 and A-106)

1.16.1 (Closed IR A-03-ORP-RPPWTP-007-FO1 FIN) Failure to retain and make documentation readily available for DOE review as required by ISMP, Section 3.3.3.1.a.2.ii. The Contractor provided a response to the Finding by letter.[13] The inspectors examined the response and determined it was responsive to the identified issue.

The Contractor issued CAR (24590-WTP-CAR-QA-03-033, *Safety Checklist Documentation,* Revision 0, dated February 13, 2003) to document the discrepancy, specify corrective action, and verify completion of the corrective action. The Contractor specified the corrective actions, identified below, and verified their completion prior to closure of this CAR.

The Contractor's corrective action included cancellation of 24590-WTP-SREG-009, *Safety Screening and Safety Evaluations,* coalescing of the safety screen and safety evaluation into one document, reassigning responsibility for preparation and documentation to ES&H in Revision 5 of 24590-WTP-SREG-002, *Authorization Basis Maintenance,* providing training, and performing self assessments to evaluate the effectiveness of the changes. Safety screenings for

[13] Ibid 11.

24590-LAW-M8-C5V-00005, Revision 1 and 24590-PTF-M6-PWD-00057, Revision 1, were completed.

The inspectors reviewed the CAR and noted the corrective actions had been completed and verified on June 16, 2003. During the course of this inspection the inspectors did not identify any new examples where safety evaluations had been performed but not documented or the documentation was not readily available.

Based upon the above, this Finding is closed.

1.16.2 (Closed IR A-03-ORP-RPPWTP-007-F02 FIN) Failure to perform a safety evaluation as required by the ISMP, Section 3.3.3.1.a. The Contractor provided a response to the finding by letter.[14] The inspectors examined the response and determined it was responsive to the identified issue.

The Contractor issued a CAR (24590-WTP-CAR-QA-03-035, *Changes Made to Facility Inconsistent with AB*, Revision 0, dated February 3, 2003) to document the discrepancy, specify corrective action, and verify completion of the corrective action. The Contractor specified the corrective actions, identified below, and verified their completion prior to CAR closure.

The Contractor's immediate corrective action was to reinforce the requirements for safety evaluations during meetings with the Discipline AB engineers and ENS safety engineers. The inspectors examined documentation of the meetings and concluded the action had been taken as specified. The justification for the change in flow direction was added to the safety evaluation for the affected ABCN. This action was verified and documented by QA during the examinations leading to closure of CAR-03-035.

The Contractor reviewed safety screenings prepared after November 4, 2002, up to the time of the response letter to assure that any "Yes" answers to screening questions did not otherwise generate AB changes, and processed design changes that required additional safety evaluations using the AB maintenance procedure. The completion of these actions was verified by QA prior to closure of CAR-03-035.

The Contractor revised the procedure (24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 5, dated April 15, 2003) for AB maintenance to clearly describe the responsibilities of the nuclear safety staff, design engineers, and AB change reviewers and provide clear guidance on completing safety screening, safety evaluations, and completion of ABCN/ABARs. The inspectors evaluated the revised procedure (see Section 1.2 of this report) and verified the revised procedure accomplished the specified corrective action.

[14] Ibid 11.

The Contractor committed to provide comprehensive classroom training on the new AB maintenance process and procedure for all appropriate ENS and engineering personnel. The inspectors examined the lesson plans and attendance documentation for the training and concluded the training had been conducted as specified.

The Contractor committed to conduct a self-assessment and/or QA surveillance of the program to verify effectiveness. The Contractor conducted the committed self/assessment by performance of a management assessment (24590-WTP-MAR-ENS-03-015, *Management Assessment of Authorization Basis Maintenance Program*, Revision 0, dated May 30, 2003), in addition to two additional management assessments and one QA audit. The inspectors examined the assessment and the results have been documented in Section 1.13 of this report.

Based upon the above, this Finding is closed.

1.16.3 (Closed IR A-03-ORP-RPPWTP-007-FO3 FIN) Failure to document safety evaluations in sufficient detail such that a knowledgeable individual reviewing the evaluation can identify the technical issues considered and the basis for the determination as required by ISMP, Section 3.3.3.1.a.2.iii. The Contractor provided a response to the Finding by letter.[15] The inspectors examined the response and determined it was responsive to the identified issue.

The Contractor issued CAR (24590-WTP-CAR-QA-03-036, *Safety Evaluations,* Revision 0, dated February 13, 2003) to document the discrepancy, specify corrective action, and verify completion of the corrective action. The Contractor specified the corrective actions, identified below, and verified their completion prior to closure of this CAR.

The Contractor's corrective action included reassigning responsibility for preparation and documentation to ES&H in Revision 5 of 24590-WTP-SREG-002, *Authorization Basis Maintenance,* providing additional training to the limited number of personnel assigned to prepare the safety evaluations, and performing self assessments to evaluate the effectiveness of the changes. Safety evaluations 24590-WTP-SE-ENS-02-020, 02-32, and 02-41 were revised.

The inspectors reviewed the CAR and noted the corrective actions had been completed and verified on June 17, 2003.

Based on the above, this Finding is closed.

1.16.4 (Closed IR A-03-OSR-RPPWTP-007-F04 FIN) Failure to fully implement the requirements of Section 3.3.3.1.a.2.iv of the ISMP regarding providing a summary evaluation or a brief description of the basis for concluding that each

[15] Ibid 11.

requirement of ISMP Section 3.3.3.1.a.1 had been met. The Contractor provided a response to the finding by letter.[16] The inspectors examined the response and determined it was responsive to the identified issue.

The Contractor wrote CAR 24590-WTP-CAR-QA-03-037, *ABCN did not Contain a Summary of the Safety Evaluation*, Revision 0, dated February 13, 2003. The inspectors examined CAR-03-037 and verified the corrective actions, specified by the above letter, had been incorporated into the CAR, completed, and verified by QA verification inspection.

The Contractor provided the safety evaluations for 14 ABCNs, as requested by DOE.[17] The Contractor provided the safety evaluation form with subsequent ABCNs, describing the basis for concluding that requirements had been met to DOE as specified in the response.

The Contractor revised the procedure (24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 5, dated April 15, 2003) for AB maintenance to clearly describe the responsibilities of the nuclear safety staff, design engineers, and AB change reviewers and provide clear guidance on completing safety screening, safety evaluations, and completion of ABCN/ABARs. The inspectors evaluated the revised procedure (see Section 1.2 of this report) and verified the revised procedure accomplished the specified corrective action.

The Contractor committed to provide comprehensive classroom training on the new AB maintenance process and procedure for all appropriate ENS and engineering personnel. The inspectors examined the lesson plans and attendance documentation for the training and concluded the training had been conducted as specified.

The Contractor committed to conduct a self-assessment and/or QA surveillance of the program to verify effectiveness. The Contractor conducted the committed self/assessment by performance of a management assessment (24590-WTP-MAR-ENS-03-015, *Management Assessment of Authorization Basis Maintenance Program*, Revision 0, dated May 30, 2003), in addition to two additional management assessments and one QA audit. The inspectors examined the assessment and the results have been documented in Section 1.13 of this report.

Based on the above, this Finding is closed.

[16] Ibid 11.
[17] ORP letter from R. J. Schepens to R. F. Naventi, BNI, "Bechtel National Inc. (BNI) Submission of Authorization Basis Change Notices (ABCN) Without a Safety Evaluation Summary," 03-OSR-0057, dated February 28, 2003.

1.16.5 (Closed IR A-03-OSR-RPPWTP-007-A01 AFI) Procedure for Safety Screening and Safety Evaluations lacked specific guidance for completing the safety checklist.

This issue was the result of an observation that procedure 24590-WTP-GPP-SREG-009, *Safety Screening and Safety Evaluations*, governing the AB review process did not adequately provide guidance for completing the safety checklist. The inspectors found this procedure had been eliminated combined into one procedure during the complete rewrite of 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 5, dated April 15, 2003. The inspectors examined the new procedure and concluded specific guidance was provided for completing the safety checklist.

Based upon the above, this AFI is closed.

1.16.6 (Closed IR A-03-OSR-RPPWTP-007-A02 AFI) Procedure for AB Maintenance failed to capture the requirement to include an explanation or basis for all determinations regarding safety screening criteria.

The ORP document RL/REG-97-13 provided safety evaluation and documentation requirements to be met prior to implementing revisions to the AB and required safety evaluations be documented in sufficient detail such that a knowledgeable individual can identify the technical issues considered during the safety evaluation and the basis for the determinations. This issue resulted from the observation the Authorization Basis Maintenance procedure, Revision 4, failed to capture the requirement for providing the technical issues and basis for evaluation determinations. The inspectors examined procedure 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*, Revision 5, dated April 15, 2003, and concluded the Revision 5 adequately provided requirements regarding the documentation detail required for safety evaluations.

Based upon the above, this AFI is closed.

1.16.7 (Closed IR A-03-OSR-RPPWTP-007-A03 AFI) The AB maintenance training module needed to more clearly address: (1) definition of "facility change;" (2) who was responsible for completing each question on the safety evaluations; (3) ENS responsibilities; and (4) the disposition of answers to the safety evaluation questions.

RPP-WTP Project, 24590-WTP-CRM-TRA-000902, *Authorization Basis Maintenance*, Revision 0, was revised to clearly define "facility change," delineate responsibilities for completing safety evaluations, ENS responsibilities, and disposition of answers to the safety evaluation questions.

Based upon the above, this AFI is closed.

1.16.8 (Closed IR A-03-AMWTP-RPPWTP-002-F01 FIN) Failure to install LAW Structural Steel in accordance with SRD Safety Criteria 4.1-2. The Contractor responded to this Finding by letter.[18] The ORP evaluated the response and determined it was adequate.

As immediate corrective action, the Decision to Deviate, issued on June 3, 2003 (24590-WTP-DTD-CSA-03-002) was cancelled by Contractor letter to ORP.[19] This action was verified by the inspectors.

The Contractor issued ABAR 24590-WTP-SE-ENS-03-551, which provided for Contractor approval of daughter codes and standards revision updates after the approval of engineering evaluation demonstrating equivalency. The ABAR was approved by ORP by letter.[20]

The Contractor had written significant CAR 24590-WTP-CAR-QA-03-103, *Specifications have Cited Code Dates, Revisions or Addenda that Conflict with SRD Code Requirements*, Revision 0, dated April 24, 2003, to document such issues of conflict with the SRD code requirements. The CAR was still open; however, the corrective actions specified to resolve this issue were acceptable to the inspectors, and would be verified by QA prior to closure of the CAR.

Based upon the above, this Finding is closed.

2.0 EXIT MEETING SUMMARY

The inspectors presented preliminary inspection results to members of Contractor management at an exit meeting on September 24, 2003. The Contractor acknowledged the observations and conclusions. The inspectors asked the Contractor whether any materials examined during the inspection should be considered limited rights data. The Contractor stated no limited rights data were examined during the inspection.

[18] BNI letter from J. P. Henschel to R. J. Schepens, ORP, "Response to Inspection Report A-03-AMWTP-RPPWTP-002 – On-Location Inspection Report for the Period May 30, 2003 Through July 10, 2003," CCN: 069076, dated September 8, 2003.
[19] BNI letter from J. P. Henschel to R. J. Schepens, ORP, "Cancellation of Decisions to Deviate from the Authorization Basis," CCN: 066503, dated September 3, 2003.
[20] ORP letter from R. J. Schepens to J. P. Henschel, BNI, "Approval of Authorization Basis Amendment Request (ABAR) 24590-WTP-SE-ENS-03-551, Revision 0, Safety Requirements Document (SRD), Appendix A, Section 12, Process for Updating SRD Daughter Codes and Standards," 03-OSR-0321, dated August 29, 2003.

3.0 REPORT BACKGROUND INFORMATION

3.1 Partial List of Persons Contacted

D. Adkisson, Deputy Manager of Engineering Processes, Procedures, and Personnel
A. Benemon, Senior Mechanical Engineer, ENS
F. Beranek, Environmental, Safety, and Health Manager
J. Betts. Deputy Project Manager
L. Dougherty, Safety and Licensing Engineer
K. Gibson, Safety and License Engineer
T. Hersum, Safety and Licensing Engineer
M. Higuera, Safety Analyst, SAIC
S. Johnson, Safety Analyst
D. Klein, Nuclear Safety Manager
D. Krahn, Safety and Licensing Engineer
T. Libs, Safety Analyst
P. Lowry, Central ISM Group Supervisor
H. Moorman, Engineering Procedures Lead
M. Platt, Lead Safety Program Engineer
J. Roth, Manager of Engineering Processes, Procedures, and Personnel
T. Ryan, AB Coordinator
G. Shell, Quality Assurance Manager
E. Smith, Safety Program Engineer
M. Toyooka, Safety Analyst
S. Woolfolk, HLW HAS Lead

3.2 List of Inspection Procedures Used

Inspection Technical Procedure I-107, "Authorization Basis Management Assessment"

Inspection Technical Procedure A-106, "Verification of Corrective Actions"

3.3 List of Items Opened, Closed, and Discussed

3.3.1 Opened

A-03-OSR-RPPWTP-018-F01	Finding	Failure to provide sufficient detail to demonstrate the conclusions of the safety analysis.
A-03-OSR-RPPWTP-018-F02	Finding	Failure to conform to DTD commitments

A-03-OSR-RPPWTP-018-F03	Finding	Failure to conform to requirements of the SRD in making changes to facility administrative controls
A-03-OSR-RPPWTP-018-A01	Follow-up	Verify that the specification and completion of broad corrective actions regarding the discrepancies documented by CAR 03-175 is completed.

3.3.2 Closed

A-03-OSR-RPPWTP-007-F01	Finding	Failure to ensure that information related to ABCNs and Safety Evaluations are readily available for DOE review.
A-03-OSR-RPPWTP-007-F02	Finding	Failure to perform Safety Evaluations when required.
A-03-OSR-RPPWTP-007-F03	Finding	Failure to ensure safety evaluations are documented in sufficient detail such that a knowledgeable individual reviewing the safety evaluation can identify the technical issues considered during the safety evaluation and basis for the determination.
A-03-OSR-RPPWTP-007-F04	Finding	Failure to ensure that ABCNs submitted to DOE include a summary of the safety evaluation.
A-03-OSR-RPPWTP-007-A01	Follow-up	Verify that direction in Procedure 24590-WTP-GPP-SREG-002, Revision 4, *Authorization Basis Maintenance,* and Form 24490-SREG-F00004, Revision 4, *Authorization Basis Change Notice,* have been modified to address the requirement from RL/REG-97-13, as identified in Section 1.6 of the report.

A-03-OSR-RPPWTP-007-A02	Follow-up	Verify that direction in Procedure 24590-WTP-GPP-SREG-002, Revision 4, *Authorization Basis Maintenance,* and Form 24490-SREG-F00004, Revision 4, *Authorization Basis Change Notice,* have been modified to address the requirement from RL/REG-97-13, as identified in Section 1.6 of the report.
A-03-OSR-RPPWTP-007-A03	Follow-up	Verify that the AB training module has been corrected and clarified: (1) that the definition of "facility change" has been corrected; (2) the individuals responsible for addressing each question on the Safety Checklists is clarified; (3) that ENS's signature and review responsibilities for Safety Checklists is made clear; and (4) that the way "yes" answers are dispositioned is made clear.

3.3.3 Discussed

None.

3.4 List of Acronyms

AB	authorization basis
ABAR	Authorization Basis Amendment Request
ABCN	Authorization Basis Change Notice
BNI	Bechtel National, Inc.
CAR	Corrective Action Report
DBE	Design Basis Event
DCD	Design Criteria Database
DCN	Design Change Notice
DOE	U.S. Department of Energy
DTD	Decision to Deviate
ENS	Environment and Nuclear Safety Department
ES&H	Environmental Safety and Health
HLW	High Level Waste
H&SA	Hazard and Safety Analysis

IR	Inspection Report
ISMP	Integrated Safety Management Plan
ITS	important-to-safety
LAW	Low Activity Waste
PSAR	Preliminary Safety Analysis Report
ORP	Office of River Protection
QAM	Quality Assurance Manual
SC	Safety Criteria or Safety Class, depending on context
SS	Safety Significant
SDC	Safety Design Class
SDS	Safety Design Significant
SCC	structures, systems, and components
SC-I	Seismic Category I
SE	Safety Evaluation
SRD	Safety Requirements Document
WTP	Waste Treatment and Immobilization Plant