Department of Energy
Washington, DC 20585

May 21, 2012

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004

Dear Mr. Chairman:

This letter is to provide the Defense Nuclear Facilities Safety Board (Board) with the Bechtel National Incorporated (BNI) action plan that addresses the findings in the Independent Oversight Assessment of Nuclear Safety Culture and Management of Nuclear Safety Concerns at the Waste Treatment and Immobilization Plant, January 2012, issued by the Department of Energy Office of Health, Safety and Security. The BNI action plan was produced pursuant to Action 1-4 of the Department's Implementation Plan for the Board's Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*.

Sincerely,

David Huizenga
Senior Advisor
for Environmental Management

Enclosure

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Attachment
12-WTP-0182

BECHTEL NATIONAL, INCORPORATED COMPREHENSIVE CORRECTIVE ACTION PLAN FOR STRENGTHENING THE NUCLEAR SAFETY AND QUALITY CULTURE AT THE HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT

58 Pages

Comprehensive Corrective Action Plan for Strengthening the Nuclear Safety and Quality Culture at the Hanford Tank Waste Treatment and Immobilization Plant

Document title:

Document number: 24590-WTP-PL-MGT-12-0005, Rev 2

Contract number: DE-AC27-01RV14136

Department: Project Management

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Checked by: N/A

Issue status: Approved

Approved by: R. W. Bradford

Approver's position: Project Manager

Approver's signature: _____ for _____ * 5/17/12

Signature *Date*

* Rev 2 to correct/clarify specific actions

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Executive Summary

This Plan (24590-WTP-PL-MGT-12-0005) is submitted for DOE approval as requested in letter 12-WTP-0070 dated February 22, 2012. After this Plan is approved by DOE, it will be incorporated into a revision of the project's formal NSQC Plan (24590-WTP-PL-MGT-10-0001) which is the living document currently used by the senior leadership team to manage, track and measure improvement in the NSQC of the project. BNI is proceeding, however, with implementation in a number of areas where corrective actions are already underway. This Plan describes the process that was used to evaluate the findings, recommendations and issues from the following reports and survey:

- *Independent Oversight Assessment of Nuclear Safety Culture and Management of Nuclear Safety Concerns at the Hanford Site Waste Treatment and Immobilization Plant,* dated January 2012 including the Supplemental Volume
- *Assessment and Recommendations for Improving the Safety and Quality Culture at the Hanford Waste Treatment and Immobilization Plant,* dated November 30, 2011 (ISQCA)
- 2011 BNI WTP NSQC Manual and Non-Manual Employee Surveys
- Defense Nuclear Facilities Safety Board Recommendation 2011-1

The Department of Energy Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2011-1, Safety Culture at the Waste Treatment and Immobilization Plant, dated December 2011 was also reviewed and considered for additional input.

A team then distilled and grouped the findings and recommendations into an integrated set of manageable actions contained in this Plan. Implementation of these actions is sponsored by the BNI WTP senior leadership team. The Plan also describes actions from these assessments and prior initiatives that have been taken and are in progress to strengthen the NSQC on the project. The results of the assessment evaluation process have been grouped into the following six Strategic Improvement Areas which are addressed in this Plan:

- Realignment and Maintenance of the Design and Safety Bases
- Management Processes of the WTP NSQC
- Timeliness of Issues Identification and Resolution
- Roles, Responsibilities, Authorities and Accountabilities (R2A2s)
- Management and Supervisory Behaviors
- WTP Construction Site-Unique Issues

For each of these six areas, the Project Director has assigned either himself (for R2A2s) or one of his direct reports responsibility and accountability for the effective implementation of the corrective actions outlined in their assigned area. For each area, an objective statement has been developed to pinpoint the desired results from the improvement initiatives in that area. The objective statement ensures that the desired end state is clear to all and that the effectiveness of the corrective actions being taken can be measured against that objective. The Plan indicates those near-term actions that will be implemented in each of these areas and also describes our approach to measure effectiveness so that we can develop longer-term actions that may be needed to assure sustained effectiveness.

In the first Strategic Improvement Area, Realignment and Maintenance of the Design and Safety Bases, our evaluation of the findings and recommendations from the external assessments and the findings of the PIER MGT-11-1178 root cause team indicate that process issues, dysfunctional organizational dynamics between the Engineering and Environmental & Nuclear Safety organizations, and lack of clarity of roles responsibilities, authorities and accountabilities (R2A2s) led to behaviors that are not indicative of a strong safety culture. The corrective actions developed in this area under the sponsorship of the two senior managers responsible for these organizations are intended to address these causes in a manner that will result in the integration of the design and safety bases development processes with clear understanding of the R2A2s associated with those processes among the people responsible to execute them. Off-project expertise in both organizational dynamics and nuclear safety analysis and documentation will be used to assist the sponsors in addressing the process and organizational dynamics issues in this area. The Objective statement for this area is:

Refine, improve, and integrate the appropriate Nuclear Safety and Engineering processes such that the design outputs are consistent with the current Safety Basis based on controlled and approved hazard and safety analyses.

In the Strategic Improvement Area of Management Processes of the WTP NSQC, actions are being taken to bring the NSQC management processes, metrics and NSQC assessment and oversight processes into line with current commercial nuclear industry best practices. Some of these actions have been put into place while others are yet to be implemented, but the BNI WTP leadership team clearly understands that management of the culture is not a staff function that can be delegated: it must be owned and driven by the senior leadership. The Objective for this area is:

Enhance and implement the management processes to be used by the WTP senior management team to drive continuous improvements in the NSQC across the entire project so that they are consistent with nuclear industry best practices.

Timeliness of Issues Identification and Resolution was a major recurring theme in the assessment reports. In addition, the HSS January 2012 assessment issued a formal Finding regarding the effectiveness of the BNI corrective action management process. It specifically states "BNI has not been fully effective in implementing its corrective action management process for documenting, evaluating, and resolving safety issues..." The formal response to this Finding and the associated specific corrective actions are being transmitted to DOE under separate cover. Because a fully effective corrective action process which resolves issues in a timely manner is a key component to a strong NSQC, the corrective actions associated with that Finding are being incorporated into this Plan by reference in CA: C-2, Strengthen the Corrective Action Management Program. The formal response letter is included as Appendix B to this Plan.

Our evaluation of the causes in this problem area indicates that corrective actions are needed that include simplifying and reducing the number of issue resolution processes, clearly communicating to the workforce the correct process to use for resolution of specific types of issues, providing timely feedback to individuals about the status of their issue, establishing metrics on the timeliness and effectiveness of specific issue resolution processes, clarifying who has the decision-making authority on the resolution of the issue, and letting people know what their options are if they are not satisfied with the resolution of their issue. Specific issue resolution processes such as the PIER process, Employee Concerns and Differing Professional Opinion are also being improved. An essential part of the effective resolution of this problem area is getting the decision-making authority for the resolution of an issue aligned with the responsibility and accountability for the applicable issue area. Specific actions to address this are included in the Strategic Improvement Area of the R2A2s (Section IV.D) and are discussed below. We are also evaluating the effectiveness of our current internal assessment and audit processes to self-identify and resolve issues before they are identified by external sources. Improvements are needed in this area

and actions have been identified to strengthen our ability to identify and resolve problems internally. The Objective for this area is:

Integrate, simplify, and communicate the processes to be used by the project to identify and resolve various types of issues such that the work force is clear on which process is appropriate for resolving an issue, how and by whom the decision will be made, and the initiator is made aware of the resolution in a timely manner.

Getting clarity and shared agreement on the R2A2s on the project, both internal to the BNI/URS WTP team as well as with the DOE-WTP/ORP teams were identified by multiple members of the project leadership as the highest priority issue needing resolution as part of this Plan. Our analysis of project weaknesses in timeliness of issue resolution, management and supervisory behaviors, and teamwork between organizations showed that problems with unclear or unenforced R2A2s were major contributing factors. Our corrective actions in this area will be focused on getting decision-making authority clarified and aligned with responsibilities so that individuals are held accountable for their decisions and results. The project's over-reliance on consensus decision making, which has negatively impacted the speed with which issues are resolved, will be addressed so that it is clear who has authority to make a decision and how they will make it, with the establishment of a preference for consultative decision making. The proper integration and alignment of the WTP internal R2A2s with the DOE R2A2s is essential for project success. The recently issued DOE Project Execution Plan provides a framework for the successful execution of the project going forward by delineating the DOE R2A2s for the project and ORP. We will be recommending to DOE a process by which we work together in a series of facilitated sessions to ensure that our respective R2A2s are aligned and are clearly communicated and enforced through our organizations. The Objective for this area is:

Revise, document, communicate, and enforce the R2A2s such that decision-making authority is clearly established and aligned between functional process ownership and line project execution responsibilities.

The behaviors of the workforce are most directly influenced by the behaviors of their managers and supervisors. To establish a strong NSQC, the behaviors of the managers and supervisors must both emulate the desired behaviors as well as provide the necessary antecedents and consequences to obtain the desired behaviors from the workforce. Our analysis of the findings and recommendations indicate that substantial focus is needed in this Plan on managerial and supervisory behaviors. Actions in this area are designed to not only provide the necessary antecedents through training in the near term, but also to provide processes for feedback, both upwards and downwards, as well as positive and negative consequences to effectively shape behaviors. The planned actions are also geared to continuous reinforcement of NSQC managerial and supervisory behaviors as turnover occurs in the leadership ranks and new leaders join the WTP project team. The Objective for this area is:

Develop, teach and communicate the managerial and supervisory behavioral competencies associated with a strong NSQC and provide feedback and appropriate consequences to effectively shape the behaviors of the WTP management and supervisory team.

The final of the six Strategic Improvement Areas deals with addressing construction site-specific issues which will not be addressed by actions in the other five areas. The manual employee survey results indicated several specific weaknesses that the Construction management team has identified as having the greatest potential to improve the NSQC at the site going forward. The Objective for this area is:

Identify the construction site-specific issues identified in the HSS assessment and surveys that will not be addressed by the other five Strategic Improvement Areas and develop and implement those

additional actions needed to positively impact nuclear safety and quality culture in Construction activities.

As we developed the corrective actions contained in this Plan, we identified several areas where coordination and integration with DOE are highly desirable if not essential. In each section, we identify those potential areas of coordination and provide recommendations for the Department's consideration in Section V. In particular, coordinated work in developing, communicating, and enforcing the R2A2s for both organizations is essential. In addition, major project benefit will be gained by coordination of our work in the development of project values as well as management and supervisory behaviors so that a common project set of behavioral competencies can be developed and implemented.

A number of the issues identified in the external assessment reports have already been entered into the project's PIER system with causal analysis and corrective actions in progress. In those cases, this Plan references those PIERs. Actions contained in this Plan that are programmatic and long-term in nature will be tracked and managed through their addition to the project's formal NSQC Plan referenced above.

Appendix A to this report provides a link between the issues raised in the external assessments and Employee Survey and the corrective action(s) intended to address the issue.

1 Introduction

Bechtel National Inc. (BNI) is the primary contractor to the U.S. Department of Energy (DOE) for the delivery of the Hanford Tank Waste Treatment and Immobilization Plant (WTP). In this role, it has the primary responsibility for designing and constructing the WTP with safety and quality embedded in its processes and work products. The only way BNI can be successful in delivering a safe and high quality facility to DOE is through its skilled and professional work forces whose behaviors must reflect their dedication to not only working safely every day, but also in delivering a high quality facility which will operate safely and reliably over its design life. Several independent assessments conducted during 2010 and 2011 indicated that behaviors observed and events that have taken place demonstrate that the NSQC at WTP is not sufficiently mature, pervasive, and reinforced to ensure that the requisite levels of quality and safety are consistently applied to the design and construction of the WTP. This Plan has been developed to effectively address the issues raised in those independent assessments with the objective of not only strengthening the project NSQC in the short term, but also sustaining it over the remainder of the construction and startup phases as project staff continues to change over the long duration of this project.

This Plan is being submitted for DOE approval as requested in letter 12-WTP-0070 dated February 22, 2012. BNI is proceeding, however, with implementation in a number of areas where corrective actions are underway. In areas where the Plan relies on the implementation of corrective actions to address issues that are documented in the Project Issue Evaluation Reporting system (PIER), this Plan shows the linkage to those PIERs.

This Plan describes the process that was used to evaluate the various assessments and to distill and group their findings and recommendations into an integrated set of manageable actions. Implementation of this final set of actions is sponsored by the BNI WTP senior leadership team. The Plan also describes actions that have been taken and are already in progress from these assessments to strengthen the NSQC on the project. The results of the assessment evaluation process have been grouped into the following six Strategic Improvement Areas which are addressed in this Plan:

- Realignment and Maintenance of the Design and Safety Bases
- Management Processes of the WTP NSQC
- Timeliness of Issues Identification and Resolution
- Roles, Responsibilities, Authorities and Accountabilities (R2A2s)
- Management and Supervisory Behaviors
- WTP Construction Site-Unique Issues

For each of these six areas, the Project Director has assigned either himself (for R2A2s) or one of his direct reports the responsibility and accountability to effectively implement the corrective actions outlined in their assigned area. The Plan indicates those near-term actions that will be implemented in each of these areas and also describes our approach to develop longer term actions to ensure sustained effectiveness.

The Plan also describes how we will manage, measure and refine not only this Plan, but more importantly, the NSQC of the project over time. After this Plan is approved by DOE, it will be incorporated as a revision to the project's formal NSQC Plan (24590-WTP-PL-MGT-10-0001) which is the living document used by the senior leadership team to manage, track, and measure improvement in the NSQC of the project.

As we evaluated the various assessments and their recommendations and findings, we identified several areas where coordination of our actions with DOE is highly desirable. Some of the recommendations in fact were common to both the Department and BNI, such as the development of a consensus set of project-unique core values. In other cases, our success in effectively addressing certain issues will be dependent on working collaboratively with the DOE-WTP/ORP team in areas such as R2A2s, management and supervisory behaviors, and timeliness of issue resolution. In these cases, we have included recommendations for DOE-WTP/ORP to consider in this Plan.

We recognize that the culture of an organization must be measured and managed both strategically and tactically over time and that this project provides unique challenges in that regard due to the turnover of the workforce that has been and will continue to be experienced. We also recognize that this Plan is not a simple checklist of action items that are to be completed and then forgotten. The management attention and leadership needed to drive continuous NSQC improvement must be an integral part of what the leadership team does every day to both reinforce the desired NSQC behaviors and to hold others as well as themselves accountable for not only achieving the desired results, but also the behaviors exhibited to obtain those results. The BNI WTP leadership team is committed to being held accountable for the successful and effective implementation of this Plan.

II Analysis Methodology and Results

This plan is intended to provide a comprehensive response to the findings, recommendations, and information in the various NSQC reports and surveys, with recognition of the current WTP environment. The approach outlined in this plan recognizes the need for holistic treatment of the issues within the context of managing a nuclear construction project. We therefore did not attempt to breakdown every issue cited in one of the assessments listed below and prepare individual causal analyses and develop standalone corrective actions. Experience indicates that such an incremental and compartmentalized approach to driving and sustaining broad-based culture change will not be successful. We instead grouped the issues using the methodology described in this Section, analyzed the major findings in those areas, and developed near-term corrective actions which we believe will have the greatest positive impact on strengthening and sustaining a strong NSQC on the project. The resulting plan is intended to provide a roadmap for the current management team as well as future project leaders so that the improvements that result become embedded in the project culture.

Methodology

A project team comprised of a cross section of line and staff managers conducted a detailed review of the following source documents:

- *Independent Oversight Assessment of Nuclear Safety Culture and Management of Nuclear Safety Concerns at the Hanford Site Waste Treatment and Immobilization Plant,* dated January 2012, including the Supplemental Volume
- *Assessment and Recommendations for Improving the Safety and Quality Culture at the Hanford Waste Treatment and Immobilization Plant,* dated November 30, 2011(ISQCA)
- 2011 BNI WTP NSQC Manual and Non-Manual Employee Surveys
- Defense Nuclear Facilities Safety Board Recommendation 2011-1

The Department of Energy Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2011-1, Safety Culture at the Waste Treatment and Immobilization Plant, dated December 2011 was also reviewed and considered as input to this Plan.

The review highlighted the substantive provisions of each report, and then binned these provisions using the three Safety Culture Focus Areas identified in DOE G 450.4-1C: Leadership, Employee/Worker Engagement, and Organizational Learning. Under each focus area, there are nine NRC Traits listed in the *NRC Final Policy on Safety Culture*. For reference purposes, the Safety Culture Attributes described in DOE G 450.4-1C are captured within the Nine NRC traits and Three Focus Areas, as shown below.

FOCUS AREA: A. LEADERSHIP

NRC Trait: 1 - Leadership Safety Values and Actions

- Attribute: A.i Demonstrated safety leadership
- Attribute: A.ii Risk-informed, conservative decision making
- Attribute: A.iii Management engagement and time in field
- Attribute: A.iv Staff recruitment, selection, retention and development

NRC Trait 6: Environment for Raising Concerns

- Attribute A.v (Open communication and) fostering an environment free from retribution

NRC Trait: 7 - Effective Safety Communication

- Attribute: A.v (Open communication and) fostering an environment free from retribution
- Attribute: A.vi Clear expectations and accountability

FOCUS AREA: B. EMPLOYEE/WORKER ENGAGEMENT

NRC Trait: 3 - Personal Accountability

- Attribute: B.i Personal commitment to everyone's safety
- Attribute: B.iv Mindful of hazards and controls

NRC Trait: 8 - Respectful Work Environment

- Attribute: B.ii Teamwork and mutual respect
- Attribute: C.i Credibility, trust (and reporting of errors and problems)

NRC trait: 4 - Work Processes

- Attribute: B.iii Participation in work planning and improvement
- Attribute: B.iv Mindful of hazards and controls

FOCUS AREA: C. ORGANIZATIONAL LEARNING

NRC Trait: 2 - Problem Identification and Resolution

- Attribute: C.i (Credibility, trust and) reporting of errors and problems
- Attribute: C.ii Effective resolution of reported problems

NRC Trait: 5 - Continuous Learning

- Attribute: C.iii Performance monitoring through multiple means
- Attribute: C.iv Use of operational experience

NRC Trait: 9 - Questioning Attitude

- Attribute: C.v Questioning attitude

The team reviewed each of the reports listed above and circled each finding, recommendation, and area for improvement using the three Focus Areas to group the issues. There were 7 Findings (2 DNFSB, 1 HSS, 4 ISQCA), 2 Factors Affecting Safety Culture (HSS), 26 Recommendations (14 HSS, 12 ISQCA) and 5 Potential Areas of Improvement (Survey).

The information from the source reports was then compiled and organized with the goal of addressing all significant information without duplication because many of the issues overlap from one report to another. The result was the development of the issue matrix (included in this report as Appendix A). The matrix contains 40 issues which are addressed in this plan.

A cross cutting team of senior managers then met to evaluate and validate the process used and the resultant grouping of issues contained in the Appendix. Based on this effort, the BNI/URS leadership team has identified six Strategic Improvement Areas which will be the focus of WTP NSQC improvement efforts under this comprehensive plan.

A senior manager has been assigned as the Executive Sponsor for each Strategic Improvement Area. The role of the Executive Sponsors is to both ensure development of an effective corrective action plan that addresses the issues in their assigned Strategic Improvement Area (SIA) and to oversee the plan's effective implementation. They will be assisted by Change Agents whose role is to plan and facilitate the implementation of the improvement actions in their assigned SIA. Change Agents will work with the target populations whose processes and behaviors need to change in order to assure that lasting improvements are implemented and sustained. Change Agents will be assisted by an experienced organizational development professional.

Strategic Improvement Areas

The review and evaluation of the source documents and issue prioritization conducted by the senior management team has identified the following six Strategic Improvement Areas which are the focus of WTP NSQC improvement efforts.

- Realignment and Maintenance of Design and Safety Basis
- Management Processes of the WTP NSQC
- Timeliness of Issue Identification and Resolution
- Roles, Responsibilities, Authorities and Accountabilities (R2A2s)
- Management and Supervisory Behaviors
- WTP Construction Site Unique Issues

Section IV of this plan provides the Objective statement for each of the six SIAs, an analysis of the issues and causes that are to be addressed by the corrective actions in that section of the plan, the short-term (within 12 months) actions, and the longer-term approach, where appropriate. In many areas, specific corrective actions are underway and they are described in the Analysis sections. Where those actions are linked to specific PIERs, those PIERs are referenced. The corrective actions in this plan which are not resulting from issues currently in the PIER system will be contained in the *WTP NSQC Management Plan* (24590-WTP-PL-MGT-10-0001) which is used on an ongoing basis by the senior leadership team to manage the NSQC improvement efforts. The MGT-10-0001 plan will be revised to include the actions in this Plan that are approved by DOE.

III Programmatic Actions Taken To-Date

In October 2010 WTP issued 24590-WTP-PL-MGT-10-0001, *Nuclear Safety and Quality Culture Plan.* This was the culmination of an effort, begun in late 2009, to re-invigorate the Nuclear Safety and Quality Imperative (NSQI). NSQI was initiated in early 2006 in response to a Notice of Violation (NOV) issued by DOE to address perceived weaknesses in Project nuclear safety culture. Many of the actions taken as part of the NSQI were effective at the time; however, as management and project leadership changed, sponsorship for those initiatives waned diminishing their effectiveness. Recognizing that reality, we have focused our efforts in this plan on institutionalizing these corrective actions for long-term effectiveness. The 2010 plan was structured around the three safety culture focus areas developed by an EFCOG/DOE ISMS Safety Culture Task Force; Leadership, Employee Engagement, and Organizational Learning. A number of the actions in the plan were in response to a recently completed assessment by DOE's Office of Health, Safety, and Security (*Office of Health, Safety, and Security (HSS) Independent Review of Nuclear Safety Culture at the Hanford Site Waste Treatment and Immobilization Plant (WTP) Project,* 10-WTP-265, dated October 25, 2010). Major actions in the initial edition of the Plan included:

- Issuance of an NSQC Policy
- Inclusion of NSQC into initial employee training and orientation
- Development of an NSQC Communication Plan that produced a new website
- Conduct of NSQC training delivered initially by the Project Director and rolled out through the management team
- Conduct of a gap analysis to identify deltas between current practices and the attributes of the three focus areas established by the EFCOG/DOE Task Force
- Institutionalizing NSQC to ensure sustainability as the Project continues to experience personnel turnover

Prior to issuing the Plan it was reviewed by the Project senior management team at an off-site retreat where their input was solicited and incorporated. Other noteworthy initiatives in the Plan included:

- Revision of the Project procedure 24590-WTP-GPP-MGT-023, *Differing Professional Opinion* to enhance the resolution of technical issues not resolved by other means or processes
- Development of a guide,24590-WTP-GPG-0021, *Assessment, Planning, and Execution of Organization and Process Changes*
- Establishment of an organizational component for overseeing the implementation of NSQC initiatives through assignment of an executive, with considerable nuclear safety culture experience, reporting directly to the Project Director
- Integration of NSQC into several Project committees, including the PIER Trend Working Committee, the PIER Users Group, and the Procedure Approval Process Group, by adding NSQC representatives

The Plan has been revised twice to update completed actions, incorporate lessons-learned, and address the outcome of the gap assessment. The latter included a confidential employee survey that confirmed the results of the 2010 HSS assessment that there were pockets where some employees felt they were discouraged from identifying issues. It also identified weaknesses in organizational teamwork that had not been previously noted. In response, the Project arranged for attorneys with extensive nuclear industry experience to provide training in safety conscious work environment. Over three hundred WTP managers and supervisors attended the training. Subsequently, similar training was provided to the entire workforce

at the Bechtel WTP project office in Oakland, California. To address the teamwork weakness the Project committed to implement the Bechtel Covenants as specific talking points to be used in Project meetings. Each of the covenants was published on the WTP NSQC website.

Following the issuance of DNFSB Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*, the Project arranged for an independent assessment of the nuclear safety culture by a team of industry and NRC experts. The team included the former Chairman of the NRC, Dr. Nils Diaz. This assessment that went by the acronym ISQCA (Independent Safety and Quality Culture Assessment) was completed in late November 2011. Also, subsequent to 2011-1, the Project elected to adopt a new commercial nuclear industry initiative based on a document produced by the Nuclear Energy Institute in conjunction with INPO, the NRC, and industry best practices. That document, NEI 09-07 *Fostering a Strong Nuclear Safety Culture,* has been implemented at WTP through the establishment of a Nuclear Safety and Quality Culture Monitoring Panel that has met six times through April 2012 and is providing input to the Project Executive Review Board (ERB) on the status of Project NSQC based on indicators developed from corrective action and Employee Concerns Program data. Several local and headquarters DOE representatives participate in the monthly meetings and have provided constructive feedback. The Project NSQC procedure mentioned above, 24590-WTP-MGT-061, *WTP Nuclear Safety and Quality Culture*, incorporates the tailored elements of NEI 09-07 as well as the requirements to conduct biennial employee surveys and annual management assessments of NSQC using the EFCOG/DOE ISMS Task Force safety culture attributes.

Another initiative, established in the summer of 2011, was a daily review of Project condition reports (PIERs). Where appropriate, NSQC process codes are assigned to those PIERs that have NSQC relevance and then they are binned according to the attributes of the EFCOG/DOE ISMS Task Force model, now incorporated into DOE G 450.4-1C, *Integrated Safety Management System Guide.* As a result, the NSQC Monitoring Panel identified an issue with procedure use and adherence, initiated a PIER, and a common-cause analysis was performed. The need for increased management emphasis on attention to detail was addressed through a communication from the Project Director. Review of the product of this initiative is a regular part of each NSQC Monitoring Panel meeting. This has also reinvigorated the "Good-Catch PIER" process through the identification of noteworthy PIERs that are evaluated by a subcommittee of the NSQC Monitoring Panel. Originators and contributors are recognized via the WTP Intranet website.

In order to better facilitate the management of Project change, given its dynamic nature, training was conducted for the senior management team including how to plan for and implement change using the structured method described in the organizational guide discussed above.

Two recent Public Open House sessions held in Richland, Washington, have featured an NSQC kiosk detailing the Project's approach to ensuring and sustaining a strong NSQC. Handout material was provided and subject matter experts made available to answer questions.

As a response to both the recent ISQCA and HSS assessments, our recognition of the need to better align behavioral performance expectations with consequences has resulted in incorporating NSQC into the Project's Performance Objectives, Measures, and Commitments (POMCs) as well as individual employee Performance Monitoring Plans (PMPs). In addition, a revision to the contract fee structure that incentivizes the WTP leadership team to more appropriately balance cost, schedule, nuclear safety and quality is under consideration with DOE.

IV Strategic Improvement Area Plans

This section describes the analysis of the issues listed in Appendix A that led to the development of the corrective actions to be implemented in each of the six strategic improvement areas identified in this plan as well as the short-term (within 12 months) corrective actions and the longer-term approach as appropriate.

A. Realignment and Maintenance of Design and Safety Bases

Objective: Refine, improve and integrate the appropriate Nuclear Safety and Engineering processes such that design outputs are consistent with the current Safety Basis based on controlled and approved hazard and safety analyses.

Executive Sponsors: T. Patterson, Manager of Engineering and F. Beranek, Manager of Nuclear Safety and Plant Engineering

Analysis

Design and Safety Bases Misalignment

As identified by the HSS January 2012 Assessment, clearly defined requirements are a prerequisite to an effective safety construct, including development of a safety design and adequate safety basis; if requirements are not clearly understood, problems in safety basis reviews are inevitable. A series of discrepancies have been identified at WTP where the design and safety bases are not aligned.

In November 2011, the Project initiated a project issue and evaluation report (PIER), 24590-WTP-PIER-11-1178-A, *Evaluation of Design and Safety Basis Concern*, to address the misalignments between design and the safety basis. This PIER resulted in the performance of a root cause analysis (RCA), performed during December 2011 and January 2012. The RCA identified two (2) root causes and five (5) contributing causes[1] . For each root and contributing cause, the RCA team developed Judgment of Need (JON) statements to address the causes. The JONs were evaluated and used to develop corrective actions which are being tracked via PIER 11-1178. This Plan is based on the PIER 11-1178 corrective actions, along with additional completed, in-progress or newly developed corrective actions that comprehensively address the issue and causes of the design and safety basis misalignment. Not only are the near-term process/procedural and organizational dynamics issues addressed, but this Plan also contains actions for long-term effectiveness review and monitoring to ensure sustained performance based on a strong nuclear safety quality culture.

Non-Collaborative Organizational Interaction Between Nuclear Safety and Engineering

The January 2012 HSS Assessment identified that tensions existed between the Engineering and E&NS organizations and the apparent causes of those tensions. It indicated that while some promising initiatives had been started to address these issues, significant management attention must be devoted to resolving these tensions to ensure that safety culture concerns are addressed. Significant efforts are underway to correct these issues and further actions are planned as outlined in the Near-Term Corrective Actions listed later in this Section.

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[1] Reference: 24590-WTP-PM-RCA-11-0001, Root Cause Analysis Report for Design and Safety Basis Misalignment (24590-WTP-PIER-MGT-11-1178)

BNI has incorporated management interfaces between Engineering and Nuclear Safety to promote communication of issues and to facilitate timely resolution. The Manager of Engineering (MOE) and the Manager of Environmental & Nuclear Safety (E&NS) meet weekly with key staff to discuss issues and status of issue resolutions. The MOE, the Manager of E&NS, and the Manager of Nuclear Safety and Plant Engineering meet bi-weekly to review issues with Operations and to ensure open communication/resolution of issues. This increased management attention and interaction is an ongoing action.

As an initial step to promote open communications, an off-site meeting, with a trained facilitator (organizational development professional) for management and staff leadership from both organizations is planned. At this session, management will clearly state their expectations for each organization for moving forward with design while maintaining alignment. Management will also receive input from the staff leadership on improvements and roadblocks that need to be addressed. This upfront open communication will assist in resolving the issues and completing the actions in this Plan with a collaborative approach.

Lack of Nuclear Safety and Engineering Integrated Schedules to Support Project Execution

A fully integrated schedule has not existed between Nuclear Safety and Engineering to support Project execution and achievement of milestones/goals. The scope of the integration is needed for numerous integrated processes, to include: accident analysis, hazard analysis, control strategy selection, Authorization Basis Amendment Requests (ABAR)s, radiological calculations, Safety Implementation Levels (SIL)s, Analytical Limits, Documented Safety Analysis (DSA) development, and chemical hazard analysis. The task of integrating the Nuclear Safety and Engineering schedules is a major task and will require dedicated Nuclear Safety and Engineering personnel as well as Project Controls planners and schedulers.

Nuclear Safety Training and Qualification Program

Training and qualification of both Nuclear Safety and selected other technical staff must ensure the requisite level of knowledge, understanding and implementation skills of nuclear safety requirements such as reviewing/screening design documents for alignment with the safety basis. An improved training and qualification program will be implemented for both Nuclear Safety and other selected technical staff (CA: A-4). A list of Qualified Personnel will be maintained of those individuals who have completed the formal training and qualification program and demonstrated satisfactorily performance. Benefit will also be gained by using senior and experienced Nuclear Safety personnel to provide mentoring to less experienced personnel as they participate in the qualification process. [2]

Corrective Actions in Progress

Resolution of Inconsistencies in Contractual Requirements

Long standing inconsistencies in the contractual requirements associated with the Safety Requirements Document were discussed in the January 2012 HSS Assessment. In December 2011, DOE provided contractual direction to BNI with a change in Standard 9 of the contract to resolve the inconsistencies.[3]

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[2] *Reference* PIER 11-1178, Action 15

[3] *Reference* CCN 243209 dated 12/22/11

BNI is developing an implementation plan for the recently proposed Contract Standard 9 changes that includes:

- A plan for disposition of the SRD (e.g., Appendices A&B) contents that are related to the Nuclear Safety functions that describes the development of the DSA, which results in process and deliverables in conformance with 10 CFR 830 Subpart B.

  Status: Complete. SRD disposition plan provided to DOE via CCN 243303 dated February 28, 2011

- Key activities and schedules for implementing Contract Standard 9 changes.

  Status: Complete. Implementation Plan with key activities and schedules provided to DOE via CCN 245510, dated 4/20/12

- A procedure for DOE approval that supports implementation of the revised Contract Standard 9 and the revised Justification for Continued Design, Procurement and Installation process (ref CCN 237683 dated Nov 2, 2011) that supports ongoing evaluations of proposed design changes.

  Status: Complete. Procedure provided to DOE via CCN 245510, dated 4/20/12

While the comprehensive implementation plan is in process, it should be noted that BNI has completed the following actions:

- Nuclear Safety provided interactive DOE-STD-3009 licensing construct familiarization sessions with the affected project work groups.
  (Completed during December 2011 and January 2012)
- Nuclear Safety performed a detailed, all day walkthrough of a USQ draft procedure with representatives from Design Engineering, Construction, Plant Engineering, Nuclear Safety, Quality Assurance (QA) and others.
  (Completed during January 2012)
- Nuclear Safety hosts a weekly seminar in which relevant technical topics are presented to Project personnel. Examples of past topical presentations have included the integration of fire hazards analysis with the content of the documented safety analysis, overview of the hazards analysis process, presentation of the content of 10 CFR 830 Subparts A and B.
  (Ongoing)

Preliminary Documented Safety Analysis (PDSA) Content

The January 2012 HSS Assessment identified that the PDSAs are currently out-of-date relative to the progress of design. Actions to address the PDSA content deficiencies include:

- LAW Facility - A management assessment was conducted for the LAW facility[4] . As a result, a Project Execution Plan was developed to address the nuclear safety infrastructure changes and specific actions necessary to transition the existing PDSAs for the Low-Activity Waste, Balance of Facilities, and Analytical Laboratory (Lab) to DOE-STD-3009-compliant Documented Safety Analyses. *The changes necessary to execute the Project Execution Plan were incorporated into the WTP baseline in December 2011 and the implementation activities are in-progress per the baseline.*

[4] *Reference* 24590-LAW-SAA-ENS-11-0001

- PT Facility - The project recognized the need to reconstitute the hazards analysis for the PT facility. The results of the reconstituted hazards analyses will be used to upgrade the accident analyses and refine the control selection. The plan and schedule to reconstitute the hazards analysis for the PT Facility will be completed by June 15, 2012. An initial project execution plan will be drafted by June 30, 2012. The results of the reconstituted hazards analyses, accident analyses and control selection will provide the necessary input to the final project execution plan for the PT Facility. *This action is being tracked via PIER 11-0473 Action 5.*
- HLW Facility - An HLW PDSA Upgrade Plan[5] was developed to address the near-term issue of correcting inaccuracies in the HLW PDSA. A Project Execution Plan will be developed for transitioning the HLW PDSA to a DOE-STD-3009-compliant DSA no later than June 15, 2012. *This action is being tracked via PIER 11-0473 Action 7.*

The actions above address updates to the contents of the PDSAs as required to achieve accuracy, completeness and development of a DSA that complies with the requirements of DOE-STD-3009. The actions to address the process for maintaining the PDSA content are included in CA: A-1.

Near Term Additional Corrective Actions (CA)

CA: A-1 Engineering and E&NS Process Integration

Conduct a formal Six Sigma process mapping activity with an integrated Engineering and E&NS team, with representation from Operations, to develop, refine, improve and integrate the Nuclear Safety and Engineering processes required to achieve and maintain alignment between design and the safety bases. The interface of the process outputs with Construction activities will be included.
Completion: Fourth Quarter CY 2012

As further clarification regarding the processes to be addressed in the six sigma process-mapping activity in CA: A-1, it should be noted that the overall process of achieving design basis and safety basis alignment is comprised of several aspects. Each of these aspects must address how the alignment is maintained as the design progresses forward into equipment procurement and installation (and/or requirements change). The specific processes include:

- Design Output - Process for issuing design (initial design or design change) in alignment with the safety basis. This includes the process of reviewing/screening the design content against the safety basis requirements.
- Safety Basis Change - Process for implementing a safety basis requirement update (adding a new or revised safety basis requirement) that ensures design/procurement/installation impacts are identified and actions taken to maintain alignment between design and the safety basis [6]
- Impact Determinations - Process for a comprehensive impact review, at the time it is recognized that, alignment between existing design and safety bases is questioned as a result of safety basis changes, potential safety basis changes, implementation of change for existing safety bases requirement, or determination that existing design may not meet the safety bases requirement.[7]

[5] *Reference* CCN 244867
[6] *Reference* PIER 11-1178 Action 2
[7] *Reference* PIER 11-0979 Action 2, and PIER 11-1178 Action

CA: A-2 DOE Safety Basis Review Team (SBRT) Review

Obtain DOE Safety Basis Review Team (SBRT) review and feedback on the process map developed in CA A-1.
Completion: Fourth Quarter CY 2012

CA: A-3 Engineering and E&NS Procedure Revisions

Revise the affected Engineering and E&NS procedures to implement the approved integrated process map developed in CA A-1.
Completion: First Quarter CY 2013

CA: A-4 Training and Qualification to Revised Procedures

Begin the new training and qualification activities for the Nuclear Safety organization and other interfacing technical staff to ensure the requisite level of knowledge, understanding and implementation skills for successful integration of nuclear safety requirements with the design.[8]
Begin implementation: First Quarter CY 2013

CA: A-5 Engineering /E&NS Inter-organizational Dynamics

Conduct a series of facilitated meetings of the Engineering, E&NS, Operations and potentially other organizations that are related to the effective implementation of CAs A-1, 3, 4, and 6 with the stated objective of developing teamwork and mutual respect between the organizations.
Start: Third Quarter CY 2012 and continuing as determined by the sponsoring managers

CA: A-6 Engineering/E&NS Integrated Schedules

Develop an integrated Engineering /E&NS schedule for interfacing activities that supports the revised project baseline as a part of the integrated project schedule.
Completion: Fourth Quarter CY 2012

Long Term Actions to Monitor and Assess Effectiveness
The long-term success of this Plan will be monitored and measured for effectiveness through ongoing management observation and involvement, as well as through scheduled, periodic management assessments. The management assessments will focus on pre-defined effectiveness/success measures. In addition, key metrics will be created and maintained visible to Project Management that track progress of the major activities required by this Plan.

B. Management Processes of the WTP Nuclear Safety and Quality Culture

Objective: Enhance and implement the management processes to be used by the WTP senior management team to drive continuous improvements in the NSQC across the entire project so that they are consistent with nuclear industry best practices.

Executive Sponsor: R. Kacich, Assistant Project Director for Integration

[8] *Reference* PIER 11-1178, Action 15

Analysis

As stated in the above objective for the corrective actions, BNI intends to strengthen the management processes and metrics that it uses to measure and manage the NSQC of the WTP project team. We have undertaken significant actions over the past 2 years as a result of the 2010 HHS assessment. Those actions are described in Section III of this plan.

Going back as far as 2005, BNI devoted significant resources to improve the NSQC on the project through the NSQI program and its associated training and reinforcement. Unfortunately, as time passed and management personnel changed and project personnel left and were replaced, the benefits of those earlier efforts were diluted because the training and reinforcement were not sufficiently institutionalized. The intent of the corrective actions in this section is to provide the programmatic framework for managing and measuring the culture on the project as an integral part of project management activities and institutionalizing those activities such that they are maintained over the remaining life of the project regardless of management or staff turnover.

These corrective actions, along with the programmatic activities underway as described in Section III will address the ISQCA Finding 4 *Communications not Fully Supportive of Safety Culture*; HSS Report part 1, Recommendations 1, 2, 3, 5, and 7 and ISQCA Recommendations 1-1, 3-1, 3-2, 4-1, and 4-2.

Actions will address NSQC Program enhancements, Communication Program improvements, including employee engagement in communication processes, and development and tracking of metrics to monitor NSQC Program implementation.

Corrective Actions In-Progress

As described below, and in other sections of this Action Plan, BNI has identified and is implementing a range of actions designed to enable the enhancement and maturation of the NSQC program at WTP.

BNI has established an NSQC program, captured in policy and procedure. Procedure 24590-WTP-GPP-MGT-061, *WTP Nuclear Safety and Quality Culture,* identifies responsibilities of managers, supervisors, employees, and subcontractors and provides a road map to other procedures that implement processes and programs important to NSQC. A key component of the Project's NSQC program is the implementation of a tailored version of the nuclear industry's voluntary initiative, *Fostering a Strong Nuclear Safety Culture,* described in NEI 09-07. This document delineates the commercial nuclear industry approach to assessing and addressing nuclear safety culture issues and places primary responsibility on line management, and in particular, on the Project's leadership team. NEI 09-07 draws heavily on metrics and assessments, both internal and external. The Project procedure establishes the foundation for the NSQC program at WTP to ensure sustainability as the Project transitions from design and construction to startup and commissioning. However, realization of a healthy culture that is strong, visible, reliable and forward-looking, and not merely proceduralized will require implementation of the elements of this Action Plan; in particular the actions to provide communication and training; establish clear roles, responsibilities and accountabilities; and

achieve the behavior expectations for managers and supervisors. Implementation of these key elements of this Plan will facilitate the transition from a procedural approach to NSQC to a fully integrated nuclear safety culture.

To ensure inclusion of NSQC principles into the Safety Management Programs (SMPs) currently under development, the guidance document (24590-WTP-GPG-MGT-0023) has been revised to describe applicable attributes of the NSQC Focus Areas (Leadership, Employee Development, and Organizational Learning) that pertain to each requirement area program. In addition, the Project procedure for the Systematic Approach to Training (24590-WTP-GPP-CTRG-007) has been revised to incorporate NSQC attributes into training development.

As described above, the WTP NSQC procedure established a project Nuclear Safety and Quality Culture Monitoring Panel. This panel, chaired by Assistant Project Director for Integration, reviews and evaluates the ongoing efforts to improve the nuclear safety culture at the WTP. Process inputs include corrective action program metrics, employee concerns statistics, and results of self-assessments. In addition, WTP has initiated action to establish an independent panel of experts to perform periodic reviews of the project's progress in developing and maintaining a healthy culture. BNI will be participating in the DOE-sponsored employee culture surveys that are scheduled to occur in CY 2012. Further, Bechtel has initiated a corporate-wide effort to conduct periodic pulse surveys of employees to gauge the effects of culture improvement efforts. WTP will be using this technique to obtain timely feedback in targeted areas.

Near Term Additional Corrective Actions (CA)

CA: B-1 Develop and Communicate a Shared Definition of Core Values for the Project

Develop a set of behavioral values specific to the WTP project that embody the concepts of a NSQC utilizing significant employee engagement with senior management leadership in the communication and explanation of the developed values.
Completion: First Quarter CY 2013

BNI recommends a joint effort with DOE to develop these core values so that they are shared by the entire WTP project team. BNI believes that this joint effort will lead to significant improvement in the project working relationships and help establish a common project culture. The values developed will be reinforced through the application of the management/supervisory behavioral competencies that will be developed in the corrective actions in Section IV.E of this plan.

CA: B-2 Strengthen the NSQC Communications Processes

Revise the Project NSQC Communication Plan (24590-WTP-PL-MGT-10-004) and provide the staffing needed to adequately implement it.
Completion: Third Quarter CY 2012

CA: B-3 Develop and Implement a Set of NSQC Health Metrics

Develop a set a quantitative and qualitative metrics to be used by the senior leadership team to track and trend the health of the NSQC on the project.
Completion: Third Quarter CY 2012

CA: B-4 Strengthen the Implementation of NEI-09-07 (Fostering a Strong Nuclear Safety Culture)

Establish a Nuclear Safety Review Board comprised of experienced external individuals to provide assistance to project leadership in the management of the NSQC.
Completion: Fourth Quarter CY 2012

Long Term Actions to Monitor and Assess Effectiveness

Utilize the metrics developed in CA: B-3, with review by the board established in CA: B-4 to monitor long term effectiveness of these corrective actions as augmented by the data from biennial employee surveys and local pulse surveys. Annual assessments per procedure 24590-WTP-GPP-MGT-061 will formalize this review.

C. Timeliness of Issues Identification and Resolution

Objective: Integrate, simplify, and communicate the processes to be used by the project to identify and resolve various types of issues such that the work force is clear on which process is appropriate for resolving an issue, how and by whom the decision will be made, and the initiator is made aware of the resolution in a timely manner.

Executive Sponsor: R. Bradford, Deputy Project Director

Analysis

The Pillsbury Assessment of the BNI-sponsored 2011 Opinion Survey identified "issues take too long to get resolved at WTP" as the greatest concern for both manual and non-manual employees. Several BNI business processes, Differing Professional Opinion and Employee Concerns both considered to be issue management programs, were singled out in the January 2012 HSS Assessment report as needing to be strengthened. This report also contained a formal Finding related to timeliness of issue resolution that specifically states "BNI has not been fully effective in implementing its corrective action management process for documenting, evaluating, and resolving safety issues..." The formal response to this Finding and the associated specific corrective actions are being transmitted to DOE under separate cover. Because a fully effective corrective action process which resolves issues in a timely manner is a key component to a strong NSQC, the corrective actions associated with that Finding are being incorporated into this Plan by reference in CA: C-2, Strengthen the Corrective Action Management Program. The formal Finding response is included as Appendix B to this Plan.

Lack of effective and timely disposition of technical and safety issues, in both the business processes and the corrective action program, was a theme in several improvement recommendations made by the Independent Safety and Quality Assessment Team (ISQAT) after spending several months at the WTP. In all three evaluations, timely communication with issue originators was noted as an important aspect of a sound nuclear safety culture. BNI recognized insufficiencies in its corrective action program as a result

of the 2010 HSS report. Several major improvements intended to address these areas are documented in the Project Issues Evaluation Reporting (PIER) system. Many corrective actions have been implemented, while others remain to be executed.

Employees, stakeholders, and the DOE expect BNI processes to work. They rely on these as a means of effectively ensuring that safety and quality considerations are integrated into the EPC work processes and will produce a quality plant. Therefore, timeliness in identifying and resolving technical and safety issues associated with BNI business processes is key to a strong nuclear safety culture. It is vital to engendering confidence that the WTP can be operated safely.

The section below describes the actions previously taken to understand the causes and to develop actions to improve the timeliness and effectiveness of resolving issues on the project. Work done to date has focused primarily on procedures and processes. Our further evaluation of the causes of this problem clearly indicates that the problem goes beyond the processes themselves. One of the major contributing causes of untimely issue resolution on this project is the lack of clarity as to who has the responsibility for making a particular decision. This has led to an over reliance on decision making by consensus which has by its nature an indefinite time frame to bring an issue to resolution if consensus cannot be reached. It also diffuses accountability for a decision to a group of people who may not have the responsibility for the results of that decision and therefore cannot be held accountable for its implications. In addition, it is not always clear when DOE approval is needed and from whom that approval is needed, particularly when the decision may involve DOE in its client role versus its regulator role. Getting decision-making authority clear for particular types of issues and aligned with the accountability for the implications for those decisions is vital for project success and timely issue resolution. These will be addressed by the corrective actions in Section IV.D of this plan.

The corrective actions in this section to achieve the above objective are focused on 1) streamlining the issue resolution processes on the project, 2) clarifying decision-making authority and how decisions are made in these processes, 3) clearly communicating to the project which process is the appropriate process to be used for a particular issue type, 4) providing timely feedback to the initiator on the status of the resolution of their issue, and 5) establishing metrics for key issue resolution processes that show issue resolution cycle time.

Corrective Actions In Progress

Since the October 2010 HSS Report, BNI has been working to understand and address the organizational and process barriers related to timely issue identification and resolution, as well as the underlying drivers for a less than "fully effective" implementation of its corrective action management processes. Along with this, management has worked to reinforce the attributes of timely and effective communication.

To clearly understand the nature of these issues the Project Manager initiated a Six Sigma Black Belt process improvement project. Both the champion and black belt assigned to carry out the improvement project evaluation were independent of the corrective action management group. Results from the report were provided informally in the April/May 2011 time period, with recommendations in six key areas:

- establish clear management direction for the use of the PIER system
- improve the negative perception of PIERs
- establish clear PIER requirements
- increase PRC screening committee authorities and activities
- improve handling of significance level D PIERs
- improve the online PIER module

When the employee evaluation and initial feedback from ISQAT was made available in August/September 2011, the Manager of Quality & Performance Assessment requested senior management support for a PIER User Working Group (PUWG) to help prioritize and further expand the list of needed improvements. The user group was made up of individuals from a cross-section of line and functional support organizations vested in making the BNI business processes and corrective action program more effective. In December 2011, results were formally issued in a report. Improvements from the PUWG report are documented in the corrective action system. Completed and in-progress activities are:

CA: Publish a Management Policy Regarding WTP Issues Management

Definitively spell out senior management's direction and expectations regarding issue identification, documentation, and resolution, including communication with issue originators.
Policy, 24590-WTP-G63-MGT-015, *Issues and Corrective Action Management*, issued Fourth Quarter CY 2011.

CA: Streamline and Clarify the Corrective Action Management Process

Revise governing procedure to accomplish multiple short term PUWG recommendations. These included: streamline administrative direction; move supporting information from implementation section to appendices; capture general requirements in a single section; provide clear direction for objective evidence and verification responsibilities and expectations; improve guidance for effectiveness reviews.
Procedure, 24590-WTP-GPP-MGT-043, *Corrective Action Management,* issued First Quarter CY 2012.

Additional process changes planned include: separating issue identification from issue management; adding effectiveness review forms for structured approach; evaluating PIER Review Committee (PRC) screening criteria using benchmarking and management input; determining level of authority for PRC related to closing PIERs; determining whether to filter mandatory significance level D PIERs from recommendations; revising the resolution process list in the appendix of the procedure based on PUWG interface exercise. These are to be addressed in CA: C-2 and C-10.

Reference: 24590-WTP-PIER-09-0676-B, PIER-11-0642-D, PIER-11-0910-D, PIER-11-1195-D, PIER-11-1205-D, PIER-11-1206-D, PIER-11-1230-D, PIER-12-0029-B, PIER-12-0095-D, PIER-12-0096-C Action 02, PIER-12-0132-D, PIER-12-0158-B, PIER-12-0258-D, PIER-12-0299-D, PIER-12-0300-D, PIER-12-0301-D, PIER-12-0342-D, PIER-12-0363-D.

CA: Identify Issue Management Processes Interfacing with Corrective Action Program

PUWG examined 43 processes, both formal and informal, narrowing direct interfaces to 23 Integrated Corrective Action Management (ICAM) processes. Next step is to update the interfacing processes; revise the Corrective Action Management procedure to include all relevant interfaces; revise the trend procedure to include interfaces as sources of trend data.
Completed review First Quarter CY 2012. Remaining actions to be completed via CA: C-2 and C-11.

Reference: 24590-WTP-PIER-10-1200-C, PIER-12-0095-D, PIER-12-0342-D

CA: Strengthen Cause Analysis Program and Process

Beginning in April 2011, cause analyses, planned corrective actions and effectiveness criteria is being reviewed by the Performance Improvement Review Board (PIRB). Enhancements begun in December 2011 include: transitioning requirements from a guide to a management procedure (draft); benchmarking against Nuclear industry and other DOE sites; adding rigor and clarity to cause analysis processes; developing and delivering Cause Techniques training to recommended individuals; establishing by procedure (draft) the qualifications, mentoring, and refresher requirements for Root Cause Lead Analysts, similar to those applied to Audit Team Leads.
Plan to complete in Second Quarter CY 2012 via CA: C-4 and C-11.

Reference: 24590-WTP-PIER-11-0140-C, PIER-11-0745-C, PIER-12-0095-D, PIER-12-0342-D

CA: Upgrade Presentation Materials in New Employee Indoctrination

New employee indoctrination, for manual and non-manual, is being revised to expand on the issue identification and corrective action program.
Planned for incorporation via CA: E-6.

Reference: 24590-WTP-PIER-12-0144-D

CA: Cascade Communication Related to Corrective Action Management Program

Scripted message delivered from senior management through the organization regarding policy, value, and expectations related to issues identification and resolution. Provide feedback mechanisms. In addition, system modifications are being made to publish project-wide all opened and closed PIERs on a weekly basis.
Planned completion is for Third Quarter CY 2012 and will be implemented via CA: C-2 and C-7.

Reference: 24590-WTP-PIER-10-1200-C

CA: Upgrade Trend Program

Trend procedure, activities, and responsibilities are being redefined to increase thoroughness and consistency of efforts. In August 2011, the Project Manager directed senior managers to present their organization's trending practices, measures, results and enhancements at the PIRB. Beginning in May 2012 and continuing on a quarterly basis, selected PIRB meetings are to be devoted to performance measures, trends, and organizational reports on quality and cycle time improvements.
Planned completion is Fourth Quarter CY 2012 and will be implemented via CA: C-8, C-10 and C-11.

Reference: 24590-WTP-PIER-10-1200-C, PIER-12-0158-B, PIER-12-0342-D, PIER-11-0694-C, PIER-11-0745-C, PIER-12-0095-D, PIER-11-0897-D.

Near-Term Corrective Actions (CA)

CA: C-1 Strengthen the Differing Professional Opinion (DPO) Program

Issue revised DPO procedure that reflects current DOE/NRC best practices, lessons learned from two recently completed DPOs, and input from the 2012 HSS Report. In addition, effectively communicate the changes, their purpose and how the DPO process fits with the other issue resolution processes. Assess the

basis for what existing processes did not resolve issue(s) that ultimately invoked the DPO process.
Completion: Fourth Quarter: CY 2012

CA: C-2 Strengthen the Corrective Action Management Program

This corrective action represents the integrated set of corrective actions which are being taken to address the January 2012 HSS Finding: "BNI has not been fully effective in implementing its corrective action management process for documenting, evaluating, and resolving safety issues..." The formal response to the Finding including the listing of the associated corrective actions has been transmitted to DOE under separate cover and is included as Appendix B to this Plan. The various corrective actions to strengthen the corrective action management process are documented in the PIERs listed in Appendix B.

CA: C-3 Strengthen the Employee Concerns Program (ECP)

Benchmark the ECP against DOE and commercial nuclear programs, revise the process and metrics to gain alignment with best practices; educate managers and supervisors on the program and their appropriate roles; and, strengthen communications of ECP activities to the workforce.
Completion: Fourth Quarter CY 2012

CA: C-4 Re-institute and Strengthen the Change Authorization Process

Reaffirm with DOE the scope, process and approvals required for the Change Authorization Process, document and proceduralize the process and enforce its use in both organizations.
Completion: Third Quarter CY 2012

CA: C-5 Reconstitute the Issue Resolution Team (IRT)

Reaffirm with DOE the joint sponsorship for reconstituting the IRT, update its charter, schedule regular meetings and communicate results to employees as appropriate.
Completion: Third Quarter CY 2012

CA: C-6 Integrate, Simplify and Communicate the Issues Management Processes

Eliminate ad-hoc, informal, redundant or un-sponsored processes; clarify and align decision making authority for those processes with responsibilities; and provide guidance to the workforce on process interfaces and the appropriate process to use.
Completion: Fourth Quarter CY 2012

CA: C-7 Establish Cycle Time Metrics for Issue Resolution

Establish a set of visible metrics to be used by senior project leadership to monitor issue resolution timeliness for the major issue resolution processes.
Completion: Third Quarter CY 2012

CA: C-8 Clarify and Document the DOE Review and Approval Process

Reach agreement and document the process to be used by the WTP project to obtain DOE final approval of issues and documents requiring DOE approval, including approvals required from the DOE regulatory authority vs. the DOE Federal Project Director.
Completion: Fourth Quarter CY 2012

CA: C-9 Strengthen WTP's Ability to Self-Identify Issues in a Timely Manner

Perform an evaluation of the project assessment processes and the organization's capabilities across line organizations, support functions, and Quality Assurance to self-identify issues. Using outside expertise, determine opportunities for improving the capability of the management assessment program and the Quality Assurance organization's ability to assist line management in the early identification of problems and deficiencies.
Completion: First Quarter CY 2013

Long Term Actions to Monitor and Assess Effectiveness

Utilize the metrics developed in CA: C-7 to monitor effectiveness of these corrective actions. Trend data from the biennial employee surveys will also provide data on progress in this area.

D. Roles, Responsibilities, Authorities and Accountabilities (R2A2s)

Objective: Revise, document, communicate and enforce the R2A2s such that decision-making authority is clearly established and aligned between functional process ownership and line project execution responsibilities.

Executive Sponsor: F. Russo, Project Director

Analysis

During the evaluation of findings and recommendations of the various reports on NSQC, WTP project leadership identified weaknesses in the project's establishment and enforcement of R2A2s as contributing to issues addressed in the other Strategic Focus Areas. Specifically, evaluations of findings and recommendations from the external assessments as well as the root cause analysis of PIER-11-1178, *Evaluation of Design and Safety Basis Concerns,* indicated that a lack of clarity of R2A2s led to behaviors not indicative of a strong nuclear safety and quality culture. The project leadership evaluation of causes in the area of "Timeliness of Issues Identification and Resolution" also identified that unclear decision-making authority for issue resolution and the over dependence on achieving consensus was diffusing accountability for decisions and delaying issue resolution.

The WTP project uses a matrixed organizational management model along with multiple Integrated Project Teams (IPT) as well as special purpose committees. The organization has changed over time to reflect changing project needs and priorities. As these changes are implemented, the organization needs to be clear on the various functional process ownership and line execution responsibilities and their relationships and interfaces. Documents such as Policy Q-01.1 of the *Quality Assurance Manual* (24590-WTP-QAM-QA-06-001), *Project Execution Plan* (24590-WTP-PL-TE-01-012), and Desk Instruction: *WTP Roles, Responsibilities, Accountabilities, and Authorities (R2A2)*, *WTP Project Organization* (24590-WTP-GPP-MGT-009), all provide descriptions of WTP R2A2s, but the project has not been fully effective in implementation and enforcement of the R2A2s.

A strong nuclear safety culture requires that individuals hold each other and themselves accountable for their actions and decisions. When decision-making authority is not aligned with responsibility, accountability is diffused and becomes weak to non-existent. The project over time has become dependent on consensus decision making, which by its nature, diffuses accountability for the decision being made. Getting organizational responsibilities clear and aligning decision-making authority with those responsibilities directly leads to strengthening the NSQC by allowing individuals to be held

accountable by their superior for their actions and decisions. Consultative decision making where the decision maker considers the input from relevant individuals but has the ultimate decision making authority provides for both appropriate employee engagement and alignment of authority with responsibility. Basic awareness training of this decision making model has already been provided to the WTP BNI/URS senior management team and used in the development of this plan.

While the proper integration, alignment and enforcement of the R2A2s internal to the WTP BNI/URS project team is essential for project success, DOE-ORP has a number of interfaces with the WTP project which impact the decision making authorities of the WTP BNI/URS management team. As a result, it is vital that the WTP BNI/URS R2A2s are integrated with the DOE-ORP R2A2s for project success. The interface with DOE in its various roles as WTP-DOE the client, DOE the eventual WTP owner/operator, and DOE the regulator must be clear and documented so that project team members can understand in what capacity and authority a DOE employee may be providing direction. The recent issuance of the new DOE Project Execution Plan (PEP) for WTP provides a set of new R2A2s within DOE-ORP, but the effective implementation of that plan requires that the senior leadership of both WTP BNI/URS and WTP-DOE have a common understanding of the interfaces embodied in that plan as well as clearly communicating and enforcing a common set of the interface protocols down through their respective organizations. We are proposing corrective actions to address both the BNI/URS internal R2A2s as well as external interfaces with DOE embodied in the new DOE PEP.

Near Term Corrective Actions (CA)

CA: D-1 Assess Current R2A2 Assignments and Documentation

Review existing project R2A2 documentation to identify misalignment with existing or planned organizational responsibilities including organizational interfaces with DOE and the new DOE PEP.
Completion: Third Quarter CY 2012

CA: D-2 Establish a Common Project Accountability Model

Develop an accountability model for the project in concert with DOE-ORP that aligns decision making authority with the appropriate line and functional responsibilities.
Completion: Fourth Quarter CY 2012

CA: D-3 Effectively Implement, Validate and Enforce the New Accountability Model

Flow down the accountability model through a series of facilitated meetings of the project management team to first line supervisors in which their specific organization's R2A2s are discussed, clarified, validated and documented: both vertically and horizontally.
Completion: First Quarter CY 2013

CA: D-4 Update and Maintain WTP R2A2 Governance Documents

Using the assessment results developed in CA: D-1 and D-3, revise and maintain the project's R2A2 governance documents.
Completion: First Quarter CY 2013

CA: D-5 Enhance Managerial Competencies in Accountability and Decision Making

Develop the curriculum covering the project accountability model and decision making models for inclusion in the supervisory development training to be delivered as part of the Strategic Focus Area E corrective actions.
Completion: First Quarter CY 2013

CA: D-6 Clarify, Document and Enforce the DOE-ORP Interface R2A2s

Hold joint senior management DOE-ORP/WTP Project meetings specifically to clarify and document the R2A2s associated with the interfaces between the two organizations with particular emphasis on decision-making authorities, roles and responsibilities.
Completion: Fourth quarter CY 2012

Long Term Actions to Monitor and Assess Effectiveness

Perform an annual self-assessment of the effectiveness of these corrective actions and include a joint DOE-WTP review as part of the Construction Project Review process.

E. Management and Supervisory Behaviors

Objective: Develop, teach and communicate the managerial and supervisory behavioral competencies associated with a strong NSQC and provide feedback and appropriate consequences to effectively shape the behaviors of the WTP management and supervisory team.

Executive Sponsor: S. Sawyer, Assistant Project Director

Analysis

The behaviors of the workforce are most directly influenced by the behaviors of their managers and supervisors. To establish a strong NSQC, the behaviors of the managers and supervisors must both emulate the desired behaviors and provide the necessary antecedents and consequences to obtain the desired behaviors from the workforce. Our analysis of the findings and recommendations indicate that substantial focus is needed in this Plan on managerial and supervisory behaviors. Actions in this area are designed to not only provide the necessary antecedents through training in the near term, but also to provide processes for feedback, both upwards and downwards, as well as positive and negative consequences to effectively shape behaviors. The planned actions are also geared to continuous reinforcement of NSQC managerial and supervisory behaviors as turnover occurs in the leadership ranks and new leaders join the WTP project team.

Applied Behavioral Science indicates that behaviors are influenced by antecedents and consequences. Antecedents are only about 20 % effective in eliciting the desired behaviors. Consequences are much more effective and positive reinforcement of desired behaviors is the most effective consequence. The project has been less than effective in the use of consequences in shaping behaviors and has not been

pinpointed in the behaviors that it wants its managers and supervisors to exhibit in their performance management plans.

Over the last 6 years, starting with the NSQI program in 2005, the project has implemented and enhanced several programs and processes to improve the culture. While significant progress has been made, it has not been sustained at a high and steady level, primarily because of management and project personnel turnover. It should not be assumed that these previous efforts were not appropriate or effective, but rather they lacked the required components to ensure institutionalization and sustained managerial behavior change. This Plan will incorporate performance based leadership (PBL) tools and principles by using antecedents, feedback and consequences to shape behaviors. Specifically the plan will identify and address the critical few behaviors managers and supervisors must consistently demonstrate to achieve and sustain a strong nuclear safety and quality culture. Routine feedback mechanisms with quantitative data will be provided periodically to managers and supervisors and will become inputs into individual performance reviews. We will leverage employee recognition programs and processes that focus on positive reinforcement to shape both supervisor and individual contributor behaviors using primarily positive reinforcement of desired behaviors. We will, however, also clarify when and how to use negative consequences when appropriate to hold people accountable for their behaviors and performance. Being able to effectively hold people accountable is a requisite skill for a manager or supervisor in a strong nuclear and safety culture. WTP managers and supervisors must be able to do that effectively. The accountability model developed in Section IV.D will be integrated into the corrective actions in this section. We have already begun adding a behavioral component into individual performance management plans which will be strengthened and implemented across the project as part of this plan.

Past experiences in driving culture change have indicated that using outside expertise in Organizational Dynamics (OD) to help the sponsors plan and implement change is essential. Ineffective change management leads to organizational distrust and a weakened NSQC. OD professional help with experience in improving NSQC and organizational performance will be used to assist the senior management team, sponsors, and the change agents assigned to implement the changes in this plan. The OD professional will also provide individual leadership coaching to the management team as well as training on effective management of change in organizations.

Corrective Actions In Progress

The 2012 NSQC project goals have been flowed down to individual performance management plans for a portion of the project team. Specifically, individuals were to identify 1-3 specific behaviors required for a strong NSQC that they need to improve with their supervisor and incorporate them into their 2012 performance plan. This effort is being monitored by Human Resources to judge its effectiveness.

The project has also delivered Safety Conscious Work Environment (SCWE) training to all managers and supervisors within the last 9 months. A course is in development to extend that training to all employees and to incorporate it into orientation training for new hires.

As mentioned above, poorly planned and executed implementation of change results in organizational mistrust. The project has developed a standardized process for planning and communicating major changes. This process has been captured in two primary guides (*24590-WTP-GPG-MGT- 0019 and 24590-WTP-GPG-MGT-0021*) designed to facilitate implementation of the Recognition, Awareness, Desire, Knowledge, Ability and Reinforcement (RADKAR) change management model to ensure that changes are appropriately analyzed, pre-planned and implemented. Awareness training on this process has been provided to senior managers and the review of potential opportunities for application of the RADKAR process is a standing agenda

item for the bi-weekly Project Executive Review Board (ERB). By the end of 2012 functional organizations will identify change agents who will receive specific training on how to facilitate the management of change.

Near Term Corrective Actions (CA)

CA: E-1 Establish Managerial/Supervisory Behavioral Competencies

Determine and formalize the managerial and supervisory behavioral competencies needed to reinforce a strong NSQC as a flow down from the Integrated Safety Management System. This effort will provide an excellent opportunity for the BNI/URS and DOE leadership teams to work together to develop a common set of behavioral competencies for the project's leadership team.
Completion: Fourth Quarter CY 2012

CA: E-2 Provide Professional Organizational Development Assistance to the Management Team

Hire an Organizational Development professional with nuclear safety culture change experience to assist the management team in planning and implementing culture change and the major change initiatives in this plan, as well as to provide individual coaching.
Completion: Complete

CA: E-3 Annual NSQC Behavior Goals for All Employees

Annually incorporate 1-3 NSQC behavioral goals and agreed upon measures into all employee annual reviews (AR), performance management plans (PMP), or development plans (DP).
Completion: Goal incorporation for 2012 will be completed in a phased approach. This process will be streamlined in 2013 when all BNI employees are using the same performance review system.

CA: E-4 Develop and Begin Delivery of a Common Leadership Development Curriculum

Develop and begin delivery of a leadership development curriculum that is targeted at all managers and supervisors on the WTP project which is focused on improving the leadership skills needed to foster a strong NSQC as well as improving organizational performance.
Initial Delivery: First Quarter CY 2013

CA: E-5 Establish Formal Behavioral Feedback Process

Institute graded feedback process for all managers and supervisors on their behaviors to be conducted at least once annually which is reviewed with their supervisor and used to pinpoint behavioral improvements to be incorporated into their performance plan.
Begin Process: Fourth Quarter CY 2012

CA: E-6 New Hire Orientation & Organizational On-boarding Process

New hire orientation (presentations and required reading) will be reviewed and updated to align with the NSQC Improvement effort.
Completion: First Quarter CY 2013

CA: E-7 Employee SCWE Training

Develop and deliver SCWE awareness training for all employees as part of their initial and continuous training programs.
Begin Implementation: Fourth Quarter CY 2012

Long Term Actions to Assess Effectiveness

The quantitative data collected from the graded feedback process implemented in CA: E-5 will be collated and trended by the Human Resource organization annually. This data will be shared with the management team as well as the nuclear safety review board to determine effectiveness of these actions and any additional potential additional actions that are required.

F. WTP Construction Site-Unique Issues

Objective: Identify the construction site-specific issues identified in the HSS assessment and surveys that will not be addressed by the other five Strategic Improvement Areas and develop and implement those additional actions needed to positively impact nuclear safety and quality culture in Construction activities.

Executive Sponsor: S. Overton, Manager of Construction

Analysis

After reviewing the HSS report, supplemental report and the Craft Survey results, WTP management identified several issues which are unique to the site and which they believe need to be addressed to positively impact the site NSQC for the remainder of the construction phase of the project. Superintendent Leadership and Accountability for a Just Culture, and Craft Performance Rating System were identified as the areas of improvement which if addressed, could have the most positive impact on the site NSQC going forward and include the following focus areas:

- Inconsistent application of work rules
- Respectful Work Environment at Construction Site
- Opportunities for and environment supporting raising of issues
- Communication of Site Issues and Information
- Craft Performance Rating System

Craft Performance Rating System

The HSS report identified that during interviews with construction craft personnel, there was widespread dissatisfaction with the rating system used for most crafts workers which defines the ratings that are used as a major factor in decisions about promotions and reductions in force. There is a perception that the rating system is arbitrary, and unfairly implemented in a way that inhibits or penalizes the raising of safety and quality issues. This was cited as a particularly important factor in many craft workers' views of the safety culture.

The Independent Oversight team's focus group discussions related to the ratings indicates that construction superintendents consider the BNI performance rating system to be complex, but more

effective than the previous seniority system. Craft personnel are rated primarily by their superintendents based on input from foremen and general foremen on three broad factors: safety, job knowledge, and initiative. However, craft workers, foremen, and general foremen strongly believe that the craft rating and ranking system is poor, inconsistent, and unfair. They cite several concerns about inconsistent application, insufficient input from the persons most knowledgeable of the worker's performance, and insufficient communication of the reasons for the ratings received. The Independent Oversight team determined that although BNI has a guide (WTP Craft Employee Evaluation Guide) describing the rating system, most craft, including foremen and general foremen, are not aware of it and the superintendents receive no formal training on rating and ranking the craft.

Superintendent Leadership and Accountability Training for Fostering a Just Culture

The HSS report identified that there is a perception of a lack of trust and/or respect at the superintendent level of management.

The HSS report indicated that Building Superintendents have different interpretations of management expectations. The feeling conveyed is that there is a lack of communication between facilities and that leads to inconsistencies in work practices and application of work rules. The perceived lack of communication between facilities is thought to hinder consistent implementation of changing expectations leading to confusion among the craft workforce. The report also expressed that there seem to be different rules in different buildings and that individuals at all levels of the organization are inconsistently held accountable for behavior. Certain interviewees cited that in some functional groups there is a perception of a patronizing and demeaning attitude on the part of some supervision with respect to how they are being treated regarding safety issues.

Several interviewees indicated that, while supervision and management claim there will be no retaliation for identifying issues, most people choose not to speak up. There is a strong perception that you will be labeled or red flagged and some individuals indicated that they were transferred to another area by their supervision after having raised concerns. Some interviewees indicated a fear of retaliation if they were to use the ECP. They perceive that it is not anonymous and that information is shared without their permission. Some interviewees did indicate that the event around the whistleblower incident of last year was still on their minds and subtle references to similar consequences were raised as potential inhibitors to their raising concerns.

Individuals don't always get the reasons behind events but rather just a simplified explanation. Interviewees questioned the flow down of communication and indicated that they believed it could be better, e.g., supervisors always meet, but yet they don't always hear anything; someone goes to the weekly Construction meeting, but they don't get any information about it; information regarding the decisions and status of the whistleblower event have been lacking.

Corrective Actions In Progress

Work has started on near-term improvements to the craft rating system. Construction management is re-evaluating the implementation of the craft rating system to ensure that the process is perceived as fair and non-retaliatory for workers raising safety or quality concerns, including allowing workers to have more information about how the ratings were established and providing periodic feedback on their performance. Revision of the craft rating system includes:

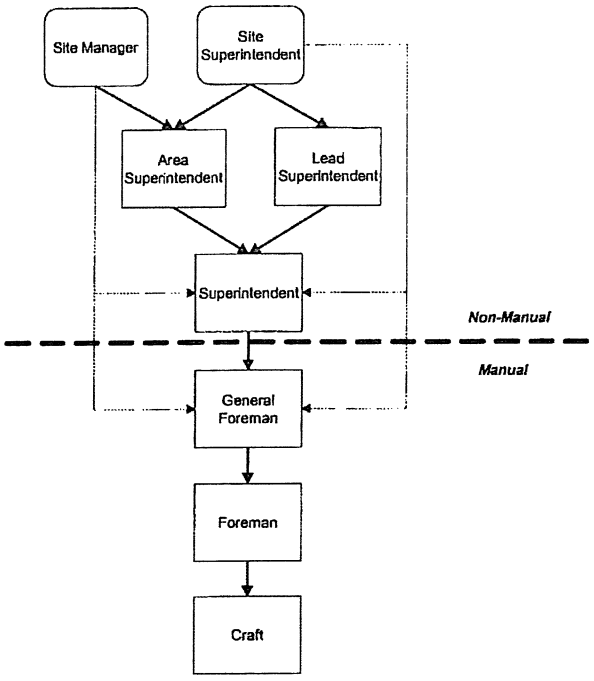
1. Development of an enhanced rating system based on input from building trades, superintendents and craft personnel.

2. Development of an implementation guide for the revised craft rating system outlining rating criteria and guidelines.
3. Roll out and communication of the revised rating system to current project personnel emphasizing how to obtain a rating and how to improve a rating.
4. Incorporation of the craft rating system information into new-hire orientation.

The HSS report identified a perceived communication barrier between field non-manual supervision and their manual counterparts. In order to overcome this perception, construction management is developing a near-term plan to better align communication, transparency, and understanding between field supervision and workers by:

- Increasing supervision understanding and use of Human Performance Improvement principles and tools
- Developing Field Supervision employee engagement sessions to include craft supervision
- Improving worker understanding and recognition of safety and quality value integration into project cost and schedule considerations

Flow down and implementation of the items listed above will be driven by the site superintendent and will target the superintendents. The planned flow down is as follows:



Construction management is also currently working with Bechtel Corporate Construction on long-term improvements to the Superintendent Leadership Workshop course to increase Superintendent awareness and leadership interaction thus ensuring project superintendents receive training in the areas of concern voiced in the HSS report. Areas of focus include:

1. Primary duties and responsibilities of a superintendent and field engineer
2. Communication styles and how they impact performance

3. Developing schedule and cost control of work and tools and their application
4. Role of a superintendent and field engineer as the leader of the team and how the Performance Based Leadership (PBL) process helps your team succeed
5. Superintendent and field engineer responsibilities regarding the contract and subcontracts and cost awareness, quality and safety as a value
6. Emphasizing the Bechtel Leadership Model

Near Term Corrective Actions

CA: F-1 Improve the Craft Rating System

Develop and begin administration of an enhanced craft performance rating system.
Begin Delivery: Fourth Quarter CY 2012

CA: F-2 Continue Superintendent Leadership Workshops

Continue delivery of an enhanced Superintendent Leadership workshop to new WTP superintendents which addresses the issues raised in the craft feedback surveys as well as their assessed developmental needs.
Begin Delivery: Fourth Quarter CY 2012

Long Term Actions To Assess Effectiveness

Construction will administer assessments (to include surveys and/or questionnaires) and leverage results from the NSQC craft surveys to evaluate the effectiveness of corrective action implementation as well as identify areas for continuous improvement.

V Recommendations for Coordinated Actions with DOE

In order for certain of the corrective actions contained in this plan to be fully effective and to result in the teamwork that is needed to successfully execute this project, BNI has identified specific areas where we recommend that BNI WTP and DOE management work together in the implementation of our respective corrective action plans. These areas and our recommendations are as follows:

1. Project Values

The HSS January 2012 report, Part 1 Recommendation 2, indicated that DOE ORP, DOE WTP and BNI need to evaluate and develop core values for moving forward. We believe that the joint development of common project values upon which the leadership behaviors for the project are based will be very beneficial to ultimate project success and therefore recommend that this effort be accomplished jointly. (See CA: B-1)

2. Roles, Responsibilities, Accountabilities, and Authorities (R2A2s)

The HSS January 2012 report, Part 1 Recommendation 4, indicated that both ORP and BNI need to develop accountability models for their organization. The BNI/URS management team considers this as a very high priority for the project and intends to devote significant effort to clarify and enforce the R2A2s within the project. It is clear, however, that in order for these efforts to be effective, the interfaces with DOE pertaining to its various roles on this project, i.e., as the Client, the Operator, and the Regulator must be clarified, communicated, and effectively enforced for the project to succeed. We strongly recommend that, as part of the implementation of the new DOE Project Management Plan for WTP and the One System concept, a series of joint sessions be held so that the management teams can clarify the R2A2s of their teams and their interfaces with each other. Included in these discussions should be gaining clarity and alignment on responsibility for relationship management with the various external stakeholders of the project. (See CA: D-2 and D-6)

3. Management and Supervisor Behaviors

As part of our corrective actions to align management and supervisor behaviors with those needed for a strong NSQC, we will develop a list of specific, pinpointed behavioral competencies that will be included in performance plans and reinforced through management and supervisory development activities. The joint development of these competencies and the development workshops would be very beneficial to the project, if for no other reason than to assure that the DOE and WTP project leadership is exhibiting consistent behaviors to the entire project work force. (See CA: E-1)

4. Timeliness of Issue Resolution

The BNI team's ability to resolve issues in a timely manner is often linked to DOE's role in the decision-making process. As part of the efforts to clarify the R2A2s between DOE and BNI/URS WTP, specific attention needs to be devoted to clarifying decision-making authority that is held by DOE and the process to be used to expedite and finalize those decisions so that they do not become re-opened later. (See CA: C-5,-6 and -9)

VI Management of the Improvement Plan

Once the actions for the comprehensive plan have been approved they will be incorporated into the existing Nuclear Safety and Quality Culture Plan (24590-WTP-PL-MGT-10-0001). WTP action tracking systems will be used to track progress of implementing actions. Metrics will be developed to gauge progress in improving the overall Project NSQC. The Plan will retain its structural alignment with the focus areas (Leadership, Employee Engagement, and Organizational Learning) and attributes of the EFCOG/DOE ISMS model. Since its inception, the WTP NSQC Plan has contained an appendix showing the cross-walk between the ISMS Guiding Principles and Supplemental ISMS Safety Culture Elements with the NSQC Focus Areas and Attributes.

Progress will be tracked through oversight by the NSQC Monitoring Panel, the Project's Executive Review Board (ERB), and the to-be-formed offsite Safety Review Board (see CA: B-4). In addition to the annual management assessment of NSQC required by 24590-WTP-GPP-MGT-061, *WTP Nuclear Safety Culture*, the Monitoring Panel will commission assessments, either internal or external, as deemed necessary to address specific areas of weakness and to evaluate effectiveness of actions completed against the comprehensive plan. It is anticipated that the most accurate measurement of Project NSQC will come from project-wide employee surveys. Results from the Pulse Surveys will provide insights in the interim.

Consistent with methodology employed by commercial nuclear power plants, WTP will establish an external oversight group of industry and regulatory experts to provide independent assessment and advice to the Project Director (CA: B-4). This group will convene at the Project at least semi-annually and provide a written report of their conclusions and recommendations.

In order to more fully integrate NSQC into the routine Project business, a portion of the monthly Project Review will be set aside for review of key indicators of NSQC progress. This meeting, attended by both Project and local DOE staff, will ensure the proper balance between safety, quality, cost and schedule is maintained. The Project will maintain open communication with DOE to ensure transparency and will welcome feedback and insights.

As actions are completed, lessons are learned, and needed course corrections are identified, the NSQC Plan tracked action items and applicable project implementing procedures will be kept up to date. As a minimum, the Plan will be updated on a semi-annual basis until the majority of actions are completed.

Appendix A: Cross Reference Matrix of Reports to Corrective Actions

HSS Independent Oversight Assessment
of Nuclear Safety Culture and Management of Nuclear Safety
Concerns at the Hanford Site Waste Treatment and Immobilization Plant
(January 2012)

Report ID	Description	Page Number	Plan CA
Part 1 Recommendation 1	WTP needs to establish a safety culture competence commensurate in priority to science, engineering, and project management competencies.	xi	Entire Plan
Part 1 Recommendation 2	The WTP project organizations (ORP, DOE-WTP, and BNI) need to evaluate and clearly delineate core values for moving forward. The development and definition of these values must be made with the engagement of individuals at all organizational levels across all functional groups to ensure alignment throughout the organization.	xii	B-1
Part 1 Recommendation 3	ORP (including DOE-WTP) and BNI each need to develop, implement, and continuously monitor their own safety culture, including SCWE, using the organizationally defined values as the foundation.	xii	B-4
Part 1 Recommendation 4	ORP and BNI need to develop accountability models for their organizations.	xiii	D-2
Part 1 Recommendation 5	ORP and BNI can both benefit from employee engagement in many of the activities that they regularly conduct.	xiii	E-5 B-1 B-2 A-6
Part 1 Recommendation 6	Working with ORP and DOE-WTP, BNI should enhance capabilities in behavioral sciences to assist BNI senior management in addressing problems involving organizational behaviors and interfaces.	xiii	E-2
Part 1 Recommendation 7	ORP, DOE-WTP, and BNI should ensure that senior managers understand the need for and direct implementation of systematic approaches to change management in order to avoid or mitigate potential negative consequences resulting from significant changes in project plans, processes, and/or organization.	xiv	E-2
Part 2 Recommendation 1	Evaluate and address factors that adversely impact the design and safety basis processes.	xv	A-1thru7
Part 2 Recommendation 2	Develop and implement a strategic approach to enhance management's and the professional staff's understanding of DOE expectations for the nuclear design and safety basis processes.	xv	A-1thru7
Part 2 Recommendation 8	Strengthen the implementation of the corrective action management program.	xvii	C-2
Part 2 Recommendation 9	Strengthen the implementation of the BNI employee concerns program.	xviii	C-3

Report ID	Description	Page Number	Plan CA
Part 2 Recommendation 10	Strengthen the BNI differing professional opinion program.	xviii	C-1
Part 2 Recommendation 11	Strengthen the BNI management workplace visitation program.	xix	E-1 E-4
Part 2 Recommendation 12	Evaluate and address selected aspects of safety management processes governing the work of construction craft workers.	xix	F-1 F-2
5 – Factors Affecting the Safety Culture	**Nuclear Design and Safety Basis Processes**		A-1thru7
	Longstanding and Continuing Inconsistencies in Contractual Requirements	27-28	
	DOE and BNI Communications about the Applicability of DOE-STD-3009	28-30	
	Inadequacies in the Current PDSA and Safety Basis Process	30	
	Insufficient Planning and Management Support for Developing the Safety Bases	30-31	
	Tension between E&NS and Engineering	31-32	
5 – Factors Affecting the Safety Culture	**Construction Activities**		F-1 F-2
	Potential for Schedule Pressure to Impact Safety and Quality	33	
	Performance Rating System	33	
	ORP Oversight of Worker Safety	33-34	

Supplemental Volume
HSS Independent Oversight Assessment
of Nuclear Safety Culture and Management of Nuclear Safety
Concerns at the Hanford Site Waste Treatment and Immobilization Plant
(January 2012)

Report ID	Description	Page Number	Plan CA
C.4 Finding 1	BNI has not been fully effective in implementing its corrective action management process for documenting, evaluating, and resolving safety issues as required by DOE Order 226.1B, Implementation of Department of Energy Oversight Policy; BNI procedure WTP-GPP-MGT- 043, *Corrective Action Management*; the WTP Assurance Program Description CASP-MGT-06-0001; and BNI QA Manual, WTP-QAM-QA-06	63	C-2

Independent Safety and Quality Assessment Team
Assessment and Recommendations
for Improving the Safety and Quality Culture at the
Hanford Waste Treatment and Immobilization Plant

Report ID	Description	Page Number	Plan CA
Finding 1	Evidence of pockets of a Chilled Atmosphere Adverse to Safety - Evidence of pockets where DOE and Contractor Management Suppress Technical Dissent	40	E-1 E-2 E-5
Finding 2	Lack of Effective and Timely Disposition of Technical and Safety Issues	42	C-1thru 9
Finding 3	Safety Construct Implementation does not Support Project Schedule Supporting Statements	43	A-7
Finding 4	Communications not Fully Supportive of Safety Culture	44	B-1 B-2
Recommendation 1-1	Implement an improved nuclear safety culture that is strong, visible, reliable, and forward-looking across all the organizational structures of WTP, in a manner consistent with the mission and with safety being the dominant criterion intrinsic to the discharge of design, construction, and operation activities	41	Entire Plan
Recommendation 1-2	Implement a program to address and formally resolve, in a timely manner, isolated cases that could lead to a chilled environment adverse to safety.	41	C-3 E-5
Recommendation 2-1	BNI should establish an effective, visible, and consistently implemented process for the timely disposition of safety and technical issues in a manner commensurate with the safety significance of the activity, including capturing, tracking, managing, providing suitable feedback, communicating, and establishing closure actions. This process should include conflict resolution.	43	C-1 thru 9
Recommendation 2-2	BNI should implement a simple-to-follow corrective action program matching the above program for timely disposition of issues and the demands of the project, with periodic feedback mechanisms and accountability to a designated project executive.	43	C-2
Recommendation 3-1	Nuclear safety must permeate all the project structures and enable project execution with sound cost and schedule goals. As a result, mission critical parameters will show continuous improvement and the project nuclear safety culture will be dominant and visible.	44	Entire Plan
Recommendation 3-2	A management directive regarding the dominance of the overall safety construct for this fast-track design-build project is needed, including the associated impact on project execution and safety. The directive should be well communicated externally and internally, to promote the understanding of how safety design issues and safety oversight are being integrated into project execution.	44	B-1 B-2
Recommendation 3-3	The Department and BNI should implement specific project management oversight processes to fully align nuclear safety with project execution.	44	B-4

Report ID	Description	Page Number	Plan CA
Recommendation 3-5	The Department and BNI should implement SCWE training for all project participants.	44	E-7
Recommendation 3-6	The Department and BNI should implement ECP enhancements to increase effectiveness of and confidence in these programs.	44	C-3
Recommendation 4-1	The Department and BNI should improve communications with stakeholders and the public to establish better understanding of project issues, ongoing safety issues and their resolution, the status of safety culture, and its commitment to accomplish the mission within a well-articulated, overall safety construct.	44	B-2
Recommendation 4-2	The Department and BNI should establish safety management and safety culture indoctrination and training at every level of the project such that a common language and common objectives are achieved.	44	B-1 B-2 E-1 E-3 E-6
Recommendation 4-3	BNI should establish a communication program dedicated to identifying, tracking, and determining resolution of every issue in its corrective action program, thereby ensuring responsive and timely communication to issue originators during the process.	44	C-6

Defense Nuclear Facilities Safety Board
Recommendation 2011-1,
Safety Culture at the Waste Treatment
and Immobilization Plant

Report ID	Description	Page Number	Plan CA
Finding 1	A Chilled Atmosphere Adverse to Safety Exists	2	Entire Plan
Finding 2	DOE and Contractor Management Suppress Technical Dissent	4	E-1 E-2 E-5

Assessment of the 2011 Opinion
Survey Results for Manual and Non-Manual Employees
November 2011 – Prepared by Pillsbury

Report ID	Description	Page Number	Plan CA
Observation 1	Issues take too long to get resolved at WTP.	16	C-1thru 9
Observation 2	Cooperation among various departments on this project.	16	E-2
Observation 3	Employees are treated fairly and consistently on this project.	3	E-1thru 6
Observation 4	I am confident "zero tolerance" policy against retaliation is enforced.	3	E-1thru 6
Observation 5	I believe there is trust & respect on this project.	3	E-1thru 6

Appendix B: Response to Finding 1 of Independent Oversight Assessment of Nuclear Safety Culture and Management of Nuclear Safety Concerns at the Hanford Tank Waste Treatment and Immobilization Plant (WTP)

(Formal Response Transmitted to DOE by CCN 244424)

Identified Finding

BNI has not been fully effective in implementing its corrective action management process for documenting, evaluating, and resolving safety issues as required by DOE Order 226.1, *Implementation of Department of Energy Oversight Policy;* BNI procedure WTP-GPP-MGT-043, *Corrective Action Management;* the WTP Assurance Program Description CASP-MGT-06-0001; and BNI QA Manual WTP-QAM-QA-06.

Discussion

In analyzing the information in the 2012 HSS Report, it is apparent that a number of issues discussed were identified in previous assessments by the Department of Energy (DOE), the Office of Health, Safety and Security (HSS) or Bechtel National, Inc. (BNI). As a result, several causal analyses that were conducted and the associated corrective actions are currently being implemented and tracked in the Project Issues Evaluation Reporting (PIER) system. For the most part, these corrective actions are focused on process improvements as well as organizational capability to execute those processes. These previously identified corrective actions and their associated PIERS are discussed in the Cause Analysis and Corrective Action sections of this document, and outlined in the commitment table at the close of this response.

Since the October 2010 HSS Report, BNI has been working to understand and address the organizational and process barriers related to timely issue identification and resolution, as well as the underlying drivers for a less than "fully effective" implementation of its corrective action management processes. As part of our development of the *Nuclear Safety and Quality Culture (NSQC) Comprehensive Corrective Action Plan* (24590-WTP-PL-MGT-12-005) BNI evaluated further the causes of this problem. BNI identified other contributing factors that clearly indicate that the problem goes beyond the processes themselves and has roots in the Project culture. The analyses of these cultural issues and their associated corrective actions are incorporated into the Plan submitted to DOE under separate cover.

The corrective actions contained herein are intended to specifically address the subject of the Finding. BNI believes that as the NSQC Comprehensive Corrective Action Plan is implemented, in concert with the actions contained in this response, the result will be the effective implementation of a robust corrective action management program.

Background

To clearly understand the nature of the process issues raised in the 2010 HSS report, the Project Manager initiated a Six Sigma Black Belt process improvement project (PIP). Both the champion and black belt

assigned to carry out the improvement project evaluation were independent of the corrective action program management group. The PIP team recognized the lack of a visible, uniform NSQC culture that supported a strong issues and corrective action management policy at the senior leadership level. Results from the report were provided informally in the April/May 2011 time period, with recommendations to address both culture and process insufficiencies in the following six key areas:

- establish clear management direction for the use of the PIER system
- improve the negative perception of PIERs
- establish clear PIER requirements
- increase PIER Review Committee (PRC) screening committee authorities and activities
- improve handling of significance level D PIERs
- improve the online PIER module

The employee opinion survey results, which were prepared for BNI by Pillsbury in November 2011, *Assessment of the 2011 Opinion Survey Results for Manual And Non-Manual Employees,* and the initial feedback from *Independent Safety and Quality Assessment Team Report* (CCN 238473) were made available in the August/September 2011 time period. With this additional information, the Manager of Quality & Performance Assurance requested senior management support to initiate a PIER User Working Group (PUWG) to help prioritize and further define the list of needed improvements from the PIP team to include consideration of the feedback from the survey and the independent team report.

The PUWG was made up of individuals from a cross-section of line and functional support organizations vested in making the BNI business processes and its corrective action processes more effective. In December 2011, results were formally issued in a report 24590-WTP-RPT-MGT-11-015, *WTP PIER Users Working Group Recommendations*. Improvements, which were approved for implementation from the PUWG report, related to management oversight and process improvements are documented in the PIER system.

Cause Analysis

Primary Cause: The Corrective Action Management process, as documented in 24590-WTP-GPP-MGT-043, and management oversight of the implementation of the policy, guidance and expectations for the program is not well-defined, understood, or enforced, and as a result is not sufficient to provide for effective and timely resolution of issues.

Contributing Cause(s): In analyzing the 2012 HSS Report and Finding, BNI decided the best approach for investigating and understanding the issue was to separate it into three areas: 1) DOCUMENTING, 2) EVALUATING, and 3) RESOLVING. In addition, BNI reviewed the 2010 HSS Report to see if any missed opportunities or common themes existed between the two reports that should also be included in this cause analysis. Two carryover themes from the 2010 HSS Report were discussed as continuing concerns in the 2012 HSS Report, causing BNI to add 4) SIGNIFICANCE LEVEL CHANGES, and 5) TRENDING as additional areas.

Five unique problem statements were developed to capture the variety of elements. Each problem statement was analyzed using the cause analysis Why Staircase methodology, and apparent causes were identified. In some cases, a cause analysis had been performed for issues documented as Level B PIERs, or for recommendations made by the PIP or PUWG teams.

1) DOCUMENTING: Two causes were identified, which are A) management has not delivered a consistent NSQC message focused on issues management and the value of organizational learning, which

is demonstrated by documenting problems beyond the standard approach of "find" a problem—"fix" the problem; and, B) multiple BNI business processes for addressing Engineering, Procurement, and Construction (EPC) problems exist, and the interfaces between the business processes and the corrective action management program are not adequately defined because management did not recognize the opportunities being missed by not linking the systems.

2) EVALUATING: There are two apparent causes, which are A) management lacks relevant information to make the necessary decisions related to prioritizing issue evaluation; and, B) training and knowledge retention required to develop effective corrective actions is less than adequate.

3) RESOLVING: The apparent cause is that revision two of the Corrective Action Management procedure was less than adequate in providing guidance for developing effective corrective actions, pointing to a consistent need for objective evidence, and giving specific direction for the associated responsibility of verifying PIER corrective action(s) and subsequently reviewing and documenting PIER closure statements.

4) SIGNIFICANCE LEVEL CHANGES: The apparent cause identified that the criteria for determining significance levels, coupled with a risk-adverse conservative approach in applying them, leads to a greater frequency of changes in PIER significance levels once the investigative actions are finished than is typically expected.

5) TRENDING: The cause analysis determined that due to an inadequate management oversight and process emphasis on the value of periodically evaluating data for trends at a cross-functional level, the trending program has been less than adequate in investigating institutional cross-cutting trends and standardizing aspects of the trending process across organizations.

Corrective Actions

Several of the following corrective actions were in progress when the 2012 HSS Report and the subject Finding were issued. While a number of the actions have been completed, the corrective actions listed here are drawn from multiple sources, including actions from the 2010 HSS Report, previous DOE Findings, internally identified deficiencies and enhancements, and new actions added as a result of the 2012 HSS Report. The following provides a summary of the corrective actions contained in the relevant PIERs, as well as, the additional corrective actions that are being added as a result of BNI's analysis for this Finding.

1) DOCUMENTING:

Publish a Management Policy Regarding WTP Issues Management

Definitively spell out BNI executive management's direction and expectations regarding issue identification, documentation and resolution, including communication with issue originators. Policy, 24590-WTP-G63-MGT-015, *Issues and Corrective Action Management*, issued Fourth Quarter CY 2011. Completed, Reference 24590-WTP-PIER-MGT-11-0745-C, Journal Entry 2.

Define Interfaces between Multiple BNI Issues Management Processes

PUWG examined 43 BNI business processes, both formal and informal, to determine if they were sanctioned issues management processes, and if they interfaced with 24590-WTP-GPP-MGT-043, *Corrective Action Management*. This was completed in First Quarter CY 2012.

The PUWG recommended further evaluation of 22 of the 43 processes to determine the level of interface appropriate for inclusion in an Integrated Corrective Action Management system. This was documented in a PIER. Each of the 22 processes was traced from its governing procedure to the corrective action management process and the trending analysis process to ensure alignment across these processes. Where additional language was needed to demonstrate an interfacing relationship actions were assigned to the process owners to revise their procedures. Reference: 24590-WTP-PIER-MGT-10-1200-C, 24590-WTP-PIER-MGT-12-0095-D, and 24590-WTP-PIER-MGT-11-0745-C.

Strengthen the Corrective Action Process Steps for Documenting Issues as a PIER

Clearly identify in 24590-WTP-GPP-MGT-043, *Corrective Action Management,* those procedure steps related to issue identification and documentation from those directing corrective action management steps to reduce the intimidating nature of the current procedure. Include information related to other business processes used for issues identification and documentation, and how to access them. Revise Hanford General Employee Training materials used for manual and non-manual employees to strengthen understanding of the value of raising and documenting issues, problems or recommendations in a PIER or in another business system as appropriate. The objective is to simplify the actions to be taken by individuals who want to document a problem and need to know what issue management process to use. Reference: 24590-WTP-PIER-MGT-10-1200-C, 24590-WTP-PIER-MGT-11-0642-D, 24590-WTP-PIER-MGT-12-0144-D.

2) EVALUATING:

Strengthen the Performance Improvement Review Board Process

Revise 24590-WTP-GPP-MGT-034, *Performance Improvement Review Board*, to clarify roles, responsibilities, and management focus areas, and to ensure a shared understanding of the objective of the meetings is institutionalized. Incorporate a standard methodology for meeting agendas with standing line items related to corrective action management, periodic topical reviews, oversight of cause analysis, corrective action issues, extent of condition determinations, and effectiveness reviews based on risk, hazard, and/or critical significance. Include trend reporting and performance monitoring to manage effective implementation of the corrective action processes and program. Reference: 24590-WTP-PIER-MGT-12-0342-D.

Streamline and Clarify the Corrective Action Management Process

Revise 24590-WTP-GPP-MGT-043, *Corrective Action Management* to clarify and streamline administrative direction; provide clear direction and expectations for including objective evidence when closing a PIER; and include common cause as an optional analysis approach. Clarify effectiveness review elements for a definitive declaration of effectiveness conclusions. Procedure was revised and issued in January 2012 and again in February 2012 to address these objectives. Completed. Reference: 24590-WTP-PIER-MGT-11-0642-D, 24590-WTP-PIER-MGT-11-0681-D.

Implement improvement actions to provide instruction to the PIER Review Committee (PRC) members and information to managers responsible for confirming significance determinations in applying criteria; improve understanding of applying cause codes and their direct correlation to PIER actions; applying a graded approach to extent of condition; differentiate subjective terms for various types of actions; and establish clear procedure direction for closing PIERs at the PRC meeting. Reference: 24590-WTP-PIER-MGT-11-0642-D, 24590-WTP-PIER-MGT-11-1230-C.

Develop Department Level Expertise for Corrective Action Implementation Processes and the PIER System Module

In the various EPC departments, select a set of individuals to become subject matter experts knowledgeable in both the corrective action management processes and mechanics of interfacing with the PIER module. The objective is to diminish the negative perceptions associated with addressing PIERs by providing responsive, local resources. Reference: 24590-WTP-PIER-MGT-12-0299-D.

Simplify the PIER Module

Evaluate unfinished PIER system online help tools and PIER module recommendations from the PUWG to establish importance and determine which enhancements will be pursued. Determine the priority changes, and produce an execution plan with forecast schedule for completion. Areas to be considered are: system response time, system generated direction statements, user help tools, and logic of process flow and clarity. In addition, increase the ability of the system to provide information or data relevant to developing performance measures and trend reporting for oversight. Reference: 24590-WTP-PIER-MGT-12-0300-D, 24590-WTP-PIER-MGT-12-0301-D

Strengthen Cause Analysis Program and Processes

Implement program and process improvements to transition the cause analysis requirements from a guide to a management procedure, apply a graded approach to cause investigations, increase the rigor in cause analysis activities and process steps, add common cause evaluations, develop and deliver a cause analysis techniques training to select individuals. Establish by procedure the qualifications, mentoring, and refresher requirements for Cause Analysts. Institute a team of qualified root cause specialists to perform cause analyses consistent with current nuclear industry standards. Individuals are to participate in root cause actions across the project, as well as significant apparent cause actions. Select and train personnel. Modify processes to incorporate the necessary changes. Reference: 24590-WTP-PIER-MGT-11-0140-C, 24590-WTP-PIER-MGT-11-0745-C.

3) RESOLVING:

Enhance Training, Workshops, and Communication Materials

To help ensure issues are documented and resolved effectively expand current training, workshops, and communication materials related to corrective action management to foster a greater understanding of the requirement to document issues, the correlation between cause codes and action development, and accountability for verification of actions or PIER closures. Include discussion of the need to provide rationale or justification statements when making changes or deviating from what was assigned. Reference: 24590-WTP-PIER-MGT-12-0158-B.

Strengthen Procedure Steps to Provide Objective Evidence and Perform Verification

Modify steps in 24590-WTP-GPP-MGT-043, *Corrective Action Management*, to include specific direction to provide objective evidence that demonstrates actions taken to close a PIER action. Clarify roles, responsibilities and expectations for PIER action verification and PIER closure statements. Improve guidance for developing effectiveness review criteria, ensure the criteria is developed when the cause analysis is completed and, add effectiveness review forms to the procedure to improve consistency and institute a structured approach. Reference: 24590-WTP-PIER-MGT-11-0642-D.

4) SIGNIFICANCE LEVEL CHANGES:

Strengthen Criteria for Determining Significance Levels of PIERs

Benchmark other DOE, Bechtel and URS corrective action programs against the WTP Quality Assurance Manual (QAM) and 24590-WTP-GPP-MGT-043, *Corrective Action Management*, with respect to the criteria used to determine a significance level for an issue. Evaluate the changes in significance levels to

identify the driver for the changes, and analyze results to determine if a deficiency exists. Make procedure changes deemed necessary based on the outcome of the benchmarking efforts. Ensure alignment between QAM language the procedure direction. Reference: 24590-WTP-PIER-MGT-11-1230-C.

5) TRENDING:

Strengthen the Trending Analysis and Reporting Processes

Strengthen 24590-WTP-GPP-MGT-050, *Trend Analysis and Reporting* to increase the focus on project level, cross-cutting trending and improved trending analysis; increasing data evaluation opportunities that could identify possible trends, identifying interfacing BNI business processes requiring trending evaluations, establishing a project-wide standard format for presenting trend analyses. In parallel with this effort, establish management expectations for trending and analysis work required of the owning organizations. Reference: 24590-WTP-PIER-MGT-12-0158-B.

Extent of Condition.

Extent of condition encompasses implementation of the corrective action management processes across the WTP organizations.

Table of Corrective Action(s) Determined to Correct the Cause(s) and Prevent Further Findings

Text in brackets [ ] is provided for clarity of the action.

WTP Commitment Table

BNI Action **24590-WTP-PIER-MGT-12-0158-B**	**Evidence of Completion**
24590-WTP-PIER-MGT-12-0158-B, Action 10 • Modify the significance level of those project issues evaluation reports (PIER) that are open as of the date of this response, and that are being used to demonstrate performance to the Finding as listed in this table to a level C, B, or A in line with the criteria in 24590-WTP-GPP-MGT-043, *Corrective Action Management.*	Action as stated in this response is completed, verified and captured in 24590-WTP-PIER-MGT-12-0158-B, Action 10.
24590-WTP-PIER-MGT-12-0158-B, Action 11 • Review results from Common Cause Analysis conducted to address 24590-WTP-PIER-MGT-12-0457-A to determine if additional actions are required once the analysis is completed.	Action as stated in this response is completed, verified and captured in 24590-WTP-PIER-MGT-12-0158-B, Action 11

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
24590-WTP-PIER-MGT-12-0158-B • Expand current training, workshops, and communication materials related to elements of corrective action management and issues management to foster greater understanding of the requirement to document issues, the correlation between cause codes and action development, and accountability for verification of actions or PIER closures. Include discussion of the need to provide rationale or justification statements when making changes or deviating from what was assigned. • Strengthen trend management procedure to increase the focus on Project-level cross-cutting trending and add additional focus on trending analysis as well as identifying trends. • Establish and institutionalize management expectations for trending, trend analysis, and trend reporting required by WTP project management, line and functional organizations. • Trend Working Group develop of a method of presenting the trending activities in a logical and consistent method that provides confidence that the "right" things are being reviewed, analyzed, and reported. • Beyond the Contractor Assurance Information System, trending activities are expanded to other tracking systems that are under the umbrella of an Integrated Corrective Action Management. • Revise 24590-WTP-GPP-MGT-050, *Trending Analysis and Reporting*, to incorporate changes described in actions described in this PIER.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0158-B.
24590-WTP-PIER-10-1200-C • Develop a Project-wide communication providing the results of Action 1. • Revise 24590-WTP-GPP-MGT-050, *Trend Analysis and Reporting*, as appropriate to Actions 1 and 2.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-10-1200-C. The PIER is closed. Action 1 in PIER 10-1200 is completed. The text reads as follows: *More clearly define what information should be captured in the PIER system for project-wide trending in support of developing safety and other key project-wide performance indicators and integrating the information for management.*

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
24590-WTP-PIER-MGT-11-0745-C • Issue policy, 24590-WTP-G63-MGT-015, *Issues and Corrective Action Management Policy.*	Completed. 24590-WTP-PIER-MGT-11-0745-C, Journal Entry 2, is completed per issuance of policy, which can be obtained from the Bechtel National, Inc., (BNI) records system.
24590-WTP-PIER-MGT-12-0095-D • Track completion of the Integrated Corrective Action Management (ICAM) actions for process owners via ATS-12-0261 through ATS-12-0267 and ATS-12-0271. • Identify and modify business processes that interface with 24590-WTP-GPP-MGT-043. Direct appropriate changes to those processes that support a fully integrated issues management program. Complete the actions for performance assurance as a result of the ICAM meetings with the business process owners. Procedure 24590-WTP-GPP-SS-005, *Reporting Security Incidents* - Verify procedure 24590-WTP-GPP-MGT-043 to ensure PIERs are not closed to this procedure. If so, correct 24590-WTP-GPP-MGT-043; otherwise, no additional action is needed. Procedure 24590-WTP-GPP-MGT-008, *Stopping Work* - Verify procedure 24590-WTP-GPP-MGT-043 to ensure PIERs are not closed to this procedure. If so, correct 24590-WTP-GPP-MGT-043; otherwise, no additional action is needed. • Review the business and informal processes initially screened by the PUWG as not part of ICAM based on the development of the new ICAM levels to determine if any should be included as part of ICAM. Procedures 24590-WTP-GPP-MGT-041, *External Assessment Process*, and 24590-WTP-GPG-ENG-0125, *Engineering Safety System/Permit Misalignment and Technical Issues Identification Management,* have been recommended to be included by various reviewers of the ICAM results. • Institutionalize the Integrated Corrective Actions Management Program by documenting in appropriate processes the interface of WTP Business Processes that handle issues and the Corrective Action Program.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0095-D.
24590-WTP-PIER-MGT-11-0745-C • Using gathered data (from Actions 1-3 in the PIER),	Actions as stated in this response are completed, verified, and captured in 24590-

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
complete a capability model and determine the capacity of the organization to meet management expectations, considering that 45 days is an operational standard in nuclear facilities. For ongoing design and construction programs, a 45-day analysis time for a root cause analysis (RCA) and cause consequence analysis (CCA) may be too short. Recommend WTP standard cycle time. • Data analysis for the past three years indicates that the apparent cause evaluation (ACE) time has decreased from 68 to 33 days. Validate the management expectation of 30 days analysis time for an ACE and document this in the appropriate procedures as the WTP standard. • Evaluate the need for a causal analysis mechanism that can be used by work groups to determine the cause for significance level-C PIERs to help ensure "find-and-fix" issues have corrective actions designed to address recurrence. If need exists then make changes to the appropriate procedure. • Develop a cause analysis procedure. Cause analysis is addressed in 24590-WTP-GPP-MGT-043, *WTP Corrective Action Management*. Currently, it refers to the RCA lead to use the 24590-WTP-GPG-MGT-004, *Cause Analysis*. The procedure should use the input from Action in this PIER as input for expected cycle time for completion of cause analysis, as appropriate. In addition, the new procedure should provide specifics on other aspects of RCA, CCA, and ACE. • Develop and implement a qualification standard for Cause Analysis leads. Qualifications for leading an RCA and an ACE are to include criteria for maintaining qualification. Document requirements in a procedure. • Complete a WTP Needs Analysis Worksheet per 24590-WTP-GPP-CTRG-007 on form 24590-CTRG-F00025, Rev 0, and send to Training for further instructions. • Develop a cause analysis training to increase user expertise. • Establish a core group of cause analysts and select personnel to execute the qualification process.	WTP-PIER-MGT-11-0745-C. Action 1 for PIER 11-0745 is completed. The text reads as follows: *Investigate the issues described in the PIER and determine the extent of the condition. Based on the investigation recommend actions to apply to the issue.* *"Include in the investigation an assessment of the classification and processing of Level B PIERs in order to explain the decrease in the number of Level B's over the past several years."* Action 2 for PIER 11-0745 is completed. The text reads as follows: *Collect benchmarking feedback related to completion for RCAs, CCAs (common cause analysis), and ACEs from other Bechtel / DOE sites as applicable; look for sites with construction related activities.* Action 3 for PIER 11-0745 is completed. The text reads as follows: *Collect data from previously conducted WTP RCA and CCA teams to understand cycle time factors.*

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
24590-WTP-PIER-MGT-12-0144-D • Create a PowerPoint presentation with updated training information for the Craft CORE training. Send the presentation to the person responsible for incorporating this information into the training. Limit presentation to ten slides.	Action as stated in this response is completed, verified, and captured in 24590-WTP-PIER-MGT-12-0144-D.
24590-WTP-PIER-MGT-11-0140-C • Make use relevant outputs of the current Corrective Action Process Improvement Project (PIP) to modify 24590-WTP-GPP-MGT-043, Corrective Action Management to include a discussion of Common Cause Analysis as one of the Project's causal analysis tools.	Action as stated in this response is completed, verified, and captured in 24590-WTP-PIER-MGT-11-0140-C.
24590-WTP-PIER-MGT-12-0342-D • Revise 24590-WTP-GPP-MGT-034, *Performance Improvement Review Board* to clarify meeting objective, what constitutes a quorum, expected outcomes, responsibilities, accountability, and management focus areas are adequately defined. • Develop standing agenda, institutionalize in procedure, with items that are mandatory for each meeting, those that would be on a periodic meeting review schedule, topical items, project trends, corrective action performance monitoring.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0342-D.
24590-WTP-PIER-MGT-09-0676-B, Action 18 • Evaluate the extent of condition elements and the associated direction in procedure 24590-WTP-GPP-MGT-043 and any available training. The evaluation will review for clarity of understanding in the areas of specifying, communicating, and executing the extent of condition evaluations in actions and closure documentation. Determine whether improvements are needed, and implement any that are identified. Evidence of completion of this activity will be by documented evaluation results either attached to the PIER or referenced by the PIER if available in the project document control system. Updated procedure 24590-WTP-GPP-MGT-043 is retrievable in project document control system. Updated training materials, if applicable, are available in Training records. Records of training completion will be available through Training.	Action as stated in this response is completed, verified, and captured in 24590-WTP-PIER-MGT-09-0676-B, Action 18.

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
24590-WTP-PIER-MGT-11-0642-D • Improve or clarify the language contained in section 5.3 of 24590-WTP-GPP-MGT-043, Rev 2 regarding the expectation to document any potential process related to a safety or quality issue is documented within a PIER. • Clearly identify in 24590-WTP-GPP-MGT-043 those steps related to issue identification and documentation. Differentiate from procedure steps related to PIER management. • Evaluate, make a determination, and execute as necessary the request to generate a separate procedure for issue initiation from the extensive direction required for issues management. Document decision and rationale. • Develop an employee lanyard card that lists the steps to initiate a PIER on one side, and on the other side those business processes that interface with 24590-WTP-GPP-MGT-043 and manage issues or problems. • Clarify and specify role responsibilities and accountability for performing closure verification of PIER actions, and closure reviews of PIERs for acceptance of completion. • Clarify direction for types of PIERs and actions necessary to close a PIER at a PRC meeting. • Revise QAM to improve language on issue reporting. This action is completed upon submittal of the QAM Revision 11 to DOE for approval.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-11-0642-D.
24590-WTP-PIER-MGT-11-0681-D • MGT-043 [24590-WTP-GPP-MGT-043] is being updated including the effectiveness review section with a requirement for a definitive declaration of effectiveness conclusions.	24590-WTP-PIER-MGT-11-0681-D is closed; procedure 24590-WTP-GPP-MGT-043, Rev 03, *Corrective Action Management*, was issued with revised language in January 2012.
24590-WTP-PIER-MGT-11-1230-C • Analyze data to determine common causes for significance level changes. Add actions as needed based on results of analysis. • Evaluate results against information surveillances, if any. Provide analysis. • Benchmark significance level criteria in 24590-WTP-	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-11-1230-C.

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
GPP-MGT-043 against external sources and the WTP Quality Assurance Manual. • Clarify in Corrective Action Management procedure the definitions for subjective terms used in significance criteria based on benchmarking, e.g. "find and fix", minor adverse condition. • Revise Corrective Action Management procedure as appropriate to incorporate changes as a result of benchmarking analysis. • Provide instruction to PIER Review Committee members and information to WTP managers if changes are made.	
24590-WTP-PIER-MGT-12-0363-D • Incorporate information from yellow belt project (scheduled to be completed in early July) into this PIER. The Yellow Belt project's focused area is the time period from when a level A or B PIER is assigned to the Responsible Manager until its cause analysis results are presented to the Performance Improvement Review Board.	Action as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0363-D.
24590-WTP-PIER-MGT-12-0299-D • Write a roles, responsibilities, and competencies description for PIER process subject matter experts, or Performance Improvement Key Staff (PIKS). • Monitor PIKS performance success via monthly meetings for three months.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0299-D.
24590-WTP-PIER-MGT-12-0300-D • Evaluate unfinished PIER online help tool improvement recommendations from PUWG to establish importance. . • Determine priority using a balance of value and resource management, which is to include consideration of user needs and negative perceptions across the project related to the PIER system. • Develop execution plan with forecast schedule.	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0300-D.

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
24590-WTP-PIER-MGT-12-0029-B • Assess the extent of condition [where verification may have been less than adequate] by reviewing the sample set of the 99 externally identified issues documented in PIERs. If results from the initial set are unsatisfactory, the sample size will be expanded using statistical sampling methods. Objective evidence will be documented in surveillance. • Revise the Corrective Action Management procedure, 24590-WTP-GPP-MGT-043, to clarify the Responsible Manager's responsibility to process deviations from actions identified in commitment letters in accordance with procedure 24590-WTP-GPP-MGT-041. Objective evidence will be documented via a procedure change notice which will be attached to this PIER and retrievable in InfoWorks. • Issue a memo recommending that line management review their organization's Learning Management System training profiles for inclusion of procedures 24590-WTP-GPP-MGT-043 and 24590-WTP-GPP-MGT-041. The memo will include a reminder that it is each line manager's responsibility to determine if these procedures will be added to their direct report's training profiles. Objective evidence will be the documented memo attached to this PIER and retrievable in InfoWorks. • Update initial read and discuss training on 24590-WTP-GPP-MGT-043 to re-emphasize verification steps and to refer to 24590-WTP-GPP-MGT-041 for additional requirement for processing externally identified issues. Objective evidence will be documented and retrievable in InfoWorks. • The Quality and Performance Assurance Manager will conduct a briefing on verification of PIERs for functional managers (or their delegate) in Engineering, Procurement, Construction, and Environment and Nuclear Safety. Makeup sessions will not be conducted. Briefing materials and attendance sheets from briefing will be used to document the action is complete. Documentation will be retrievable in the project document control system. • As a follow on to the completion of Action 5 in this PIER. Functional managers (or their delegate) will be tasked with the flow down of verification	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0029-B.

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
responsibility information to individuals identified in the PIER system as personnel who have verified completed actions since January 2010 (under revision 2 of the Corrective Action Management procedure). Briefings will be scheduled until the required individuals receive this information. Attendance sheets from briefing(s) will be used to document the action is complete. Documentation will be retrievable in the project document control system. [This action was assigned to multiple managers to implement. Only one example is provided here.]	
24590-WTP-PIER-MGT-12-0301-D • Evaluate unfinished PIER module improvement recommendations from PUWG to establish importance and determine which enhancements will be pursued. Areas to consider are system response time, system generated direction statements, user help tools, and logic of process flow and clarity. • Determine specific areas of need for developing accurate performance measures, trend reporting, and user reports, to increase the ability of the system to	Actions as stated in this response are completed, verified, and captured in 24590-WTP-PIER-MGT-12-0301-D.

BNI Action 24590-WTP-PIER-MGT-12-0158-B	Evidence of Completion
provide information and/or relevant data. • Determine priority using a balance of value and resource management, which is to include consideration of user needs and negative perceptions across the project related to the PIER system. • Develop execution plan with forecast schedule.	

Date when all Corrective Actions will be completed, verified, and compliance to applicable requirements achieved.

April 30, 2013.