



# **EM-1 Requested HSS Special Review**

***Nuclear Safety Culture at the Hanford Waste Treatment  
Plant -- August-September 2010***

**Patricia Worthington**

**Ali Ghovanlou**

**Office of Health and Safety**

**December 1, 2010**



# Overview



- Formal request by the Assistant Secretary for the Office of Environmental Management, Dr. Ines Triay via a memorandum dated July 30, 2010
- Formation of a special review team by Mr. Glenn Podonsky, DOE's Chief Health, Safety and Security Officer
  - Multi-disciplinary team of subject matter experts led by Patricia Worthington, Director, Office of Health and Safety (HS-10)
  - Timely coordination and communication with various affected stakeholders
  - Subjected to rigorous internal HSS quality review process
  - Complete activities and prepare report by early October 2010



# Premise



- WTP, like all other DOE sites, is required to have a work environment where an employee can raise questions or concerns relative to nuclear safety without fear of reprisal



# Review Scope



- Evaluated processes in place to collect, track, evaluate, and correct nuclear design and engineering safety concerns and issues for WTP
- Interviewed a large sample of individuals and organizations directly involved with the nuclear safety design and engineering aspects of WTP
  - Office of River Protection
  - WTP Federal Project Director and Integrated Project Team
  - Prime contractor Bechtel National, Inc., and major subcontractors
  - Other individuals and groups, including volunteers
- HSS review was designed to complement DNFSB and the DOE Inspector General's effort



# WTP Nuclear Safety Culture Evaluation Framework



- HSS review focused on ORP and BNI management of nuclear safety concerns, and the prevailing nuclear safety culture
- The “design oriented” framework was comprised of a composite of relevant elements of DOE/EFCOG, NRC, INPO, VPP and ISM
  - Leadership – organizational and human performance
  - Identification and resolution of problems
  - Safety conscious work environment
- Interview questions and discussion topics were developed using elements/sub-elements of DOE/EFCGO model
- Detailed questions and discussion topics on management of technical issues were based on HSS past experiences in the area of feedback and improvements



## WTP Safety Culture Elements/Attributes



Safety Culture Elements	Attributes
<p><b>Leadership -- Organizational</b></p>	<ul style="list-style-type: none"> <li>• Safety Policies with challenging expectations are in place</li> <li>• Safety missions and functions throughout all organizational levels, along with R2A2s have been developed, communicated, understood and accepted</li> <li>• Management has been proactive in creating suitable environments for               <ul style="list-style-type: none"> <li>○ Continuous learning</li> <li>○ Change Management</li> <li>○ Team work</li> <li>○ No fear of retribution</li> </ul> </li> </ul>
<p><b>Leadership – Human Performance</b></p>	<ul style="list-style-type: none"> <li>• Personal responsibility, accountability for safety is recognized and accepted</li> <li>• Decision making is conservative               <ul style="list-style-type: none"> <li>○ Nuclear technology is recognized as unique with strict requirements for formality</li> <li>○ Nuclear safety undergoes constant examination</li> <li>○ Priorities between safety and mission are balanced</li> <li>○ Residual risks are understood (including technical uncertainties and their potential impacts), accepted and communicated to stakeholders</li> </ul> </li> <li>• Leaders demonstrate commitment to safety               <ul style="list-style-type: none"> <li>○ Managers are present, engaged and accessible</li> <li>○ Managers “walk the talk”</li> </ul> </li> </ul>



## WTP Safety Culture Elements/Attributes



Safety Culture Elements	Attributes
<b>Problem Identification/Resolution</b>	<ul style="list-style-type: none"><li>• <b>Corrective action program is mature</b><ul style="list-style-type: none"><li>○ Performance is monitored through multiple means</li><li>○ Safety culture is an explicit area of focus</li></ul></li><li>• <b>Operating experience is used effectively</b></li><li>• <b>Self-assessments and independent assessments are performed and are effective</b></li><li>• <b>Corrective action management includes determination of effectiveness of resolved issues</b></li></ul>
<b>Safety Conscious Work Environment</b>	<ul style="list-style-type: none"><li>• <b>Avenues for raising concerns exist/ employees have been trained on how to use them</b></li><li>• <b>Employees are willing to raise concerns</b><ul style="list-style-type: none"><li>○ Trust permeates the organization</li><li>○ Questioning attitude is encouraged</li></ul></li><li>• <b>Management is proactive in detecting/preventing retaliations</b></li></ul>



# Summary of Results



- ORP personnel interviewed by the team expressed positive beliefs that the nuclear safety culture within ORP is strong and improving, although small number of individuals indicated continuing concerns
- Several areas of improvement were found for BNI and its subcontractors, but it was also observed that an appropriate framework has been established and initiatives are underway to further improve the nuclear safety culture at WTP
- Processes for managing and closure of technical nuclear safety issues were found to be effectively implemented.
- Attention is warranted to ensure sustainability and continuous improvement of the WTP nuclear safety and quality culture.



## Recommendations -- ORP



- Based on the outcome of the Federal Project Director's WTP Assessment Report, **ORP should institutionalize the processes and formally define the roles and responsibilities and clarify interfaces** between the WTP Federal organization and the other ORP organizations (e.g., Engineering and Nuclear Safety, Environmental Safety and Quality, and Tank Farm Project) .



## Recommendations -- BNI



- Perform a systematic assessment of the existing processes for identifying and resolving nuclear safety issues, with particular emphasis on root cause analysis of problems involving the initial identification of issues.
- Establish a formal change management process that identifies the actions needed to ensure that safety programs are not degraded by changes in project status or priorities.
- Identify mechanisms to strengthen trust among the workforce and better communicate information to employees.
- Include actions and elements in the development and implementation of the invigoration Plan to ensure that it results in sustainable and continuous improvement in the nuclear safety and quality culture at the WTP.
- Examine all credible concerns, even those that may not be wide-spread, to ensure that the nuclear safety culture does not degrade over time.