



## Department of Energy

Washington, DC 20585

June 25, 2010

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DNF SAFETY BOARD

The Honorable Peter S. Winokur  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue NW, Suite 700  
Washington, DC 20004-2901

Dear Mr. Chairman:

On March 12, 2010, the Defense Nuclear Facilities Safety Board forwarded an evaluation performed by your staff of activity-level work planning at the Hanford Tank Farms. The letter requested a report outlining actions taken or planned by Washington River Protection Solutions, LLC (WRPS) and the Office of River Protection (ORP) to address the work planning and control deficiencies detailed in your staff's report.

The Department of Energy (DOE) Headquarters, ORP and WRPS understand your staff's concerns and have taken action to address the issues identified in the report. Enclosure 1 to this letter provides an overview of the actions planned or taken in response to the work planning and control issues identified by your staff. We are confident that these actions will strengthen the work planning, the control program, and overall Integrated Safety Management (ISM) at Hanford's Tank Farms.

The ORP Facility Representative Assessment Activities conducted last summer identified similar issues. ORP issued a Concern, the highest category of an issue to WRPS in September 2009. Some of the concerns included less-than-adequate work packages, inadequate procedures, and work stoppages resulting from inadequacies, workers performing steps out of sequence, workers not performing required steps, and work being performed outside of their requirements. WRPS submitted corrective action plans (CAP) to address the Concern. DOE is working with WRPS to ensure that implementation of the CAP will address our mutual concerns with work control and procedural use and result in strong implementation of ISM. DOE will continue to engage with your staff as corrective actions are taken and completed.

Additionally, Environmental Management (EM) issued Work Planning and Control Guidelines on April 7, 2010, to all of EM's field sites. The Department endeavors to understand your staff's concerns and looks forward to working together toward a common solution. These guidelines serve as a model for their work planning and control programs and are enclosed (Enclosure 2) for your information.



If you have any questions, please contact me or Dr. Steven L. Krahn, Deputy Assistant Secretary for Safety and Security Program at (202) 586-5151.

Sincerely,

A handwritten signature in cursive script that reads "Inés Triay".

Inés R. Triay  
Assistant Secretary for  
Environment Management

Enclosures

cc: D. Chung, EM-2  
M. Gilbertson, EM-3 (Acting)  
S. Olinger, ORP  
M. Campagnone, HS 1.1

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Enclosure 1

DNF SAFETY BOARD

## **Actions in Response to Work Planning and Control Issues**

The following table provides a summary of the issues identified in the Defense Nuclear Facilities Safety Board (Board) letter to the Office of Environment Management (EM) dated March 12, 2010, along with the actions being taken to address each issue. An approximate completion date is also provided for information. These corrective actions have been entered into the respective Department of Energy (DOE) and Office of River Protection (ORP) and contractor corrective action management systems.

### Generation of the Work Planning and Control Issue Corrective Action Plan:

On September 28, 2009, DOE-ORP issued a Concern regarding the Washington River Protection Solutions (WRPS) process for work instruction development and use. Initially, five corrective actions were developed to correct deficiencies with the processes used for work instruction development and use. Subsequent to issuance of the Common Cause Analysis report and partial implementation of the corrective actions, discussions between ORP staff and WRPS staff indicated a need to strengthen corrective actions pertaining to procedure use. Additionally, WRPS and ORP staff recognized continued deficiencies where less-than-adequate work packages and procedures have been released for work resulting in work being stopped, workers performing steps out of sequence, workers not performing steps when they are required to be performed, and work being performed to incorrect requirements. Similar issues were identified by the Board's letter dated March 12, 2010.

This document outlines actions taken and planned to improve Conduct of Operations within Tank Farms including field execution, oversight, procedure adherence, implementation, and addresses recommendations made by ORP staff and deficiencies identified by the Board in March 2010.

**Board Issue:**

Overall concern the Hanford Tank Operations Contractor has not adequately institutionalized ISM at the activity level.

**DOE and WRPS Action:**

This overall concern will be corrected as the work control issues below are addressed and the Integrated Safety Management System (ISMS) description is updated to ensure changes have a lasting effect. The latest individual corrective action is estimated in September 2010 with an effectiveness review planned for January 2011.

**Deficiency Noted during the Board Staff Reviews:**

The DOE ISMS verification was underfunded and did not thoroughly evaluate the completeness of the ISMS description.

**DOE Action:**

DOE believes that the ISMS verification team was appropriately funded and had the resources, in both time and staffing needed to adequately perform the review. Additionally, ORP plans to perform another ISMS assessment for the annual ISMS review in August, 2010.

**Deficiency Noted during the Board Staff Reviews:**

WRPS's work planning directives are unnecessarily complex and confusing.

**WRPS Action:**

The work planning and instruction development directives were revised using a team approach. The revision is documented in the Work Control (WC) section of the Corrective Action Plans (CAP) in WC1. The associated training is documented in WC2, WC3 and WC5. These have been completed. An overall effectiveness review (WC4) is planned for January 2011.

**Deficiency Noted during the Board Staff Reviews:**

WRPS's hazard analysis process is not well defined or executed.

**WRPS Action:**

The hazard analysis process has been improved. Procedure Usage and Implementation (PU) CAP items PU5 and PU6 discuss revisions to the process, including the development of a Job Hazards Checklist which is being used to assist in complete hazard analysis. This work and the associated training (PU8) have been completed.

**Deficiency Noted during the Board Staff Reviews:**

A team approach to walkdowns, verifications, and hazard analysis is not adequately employed.

**WRPS Action:**

The hazard analysis process has been improved. CAP PU5 and PU6 discuss revisions to the process, including re-emphasis on the team approach to hazard analysis. This work and the associated training (PU8) have been completed.

**Deficiency Noted during the Board Staff Reviews:**

A highly skilled workforce modifies work procedures ad hoc when procedures cannot be performed as written.

**WRPS Action:**

This is being corrected by improving the written procedures and setting clear conduct of operations expectations and then holding workers accountable to those expectations. Procedure development improvements are discussed above and in the WC section of the CAP. The Field Execution and Oversight (FE) section of the CAP includes establishment of a Con Ops Mentor (FE2) and Con Ops Coaches (FE8) as well as improved management oversight (FE1, FE3, FE4, FE 5, FE 6 and FE7).

**Board Issue:**

Until recently, ORP had not been sufficiently involved in the oversight of WRPS's work planning and control.

**DOE Action:**

While the ORP Facility Representatives cover this area, they have a wide range of oversight scope. In 2009 the Board identified Work Planning and Control issues at the Idaho Operations Office. One of Idaho's corrective actions was to hire a dedicated subject matter expert (SME) to provide programmatic oversight of contractor work planning and control processes. DOE ORP recognized the benefits of a dedicated SME in this area and began the recruiting and selection process. In the reference letter to DOE, the Board acknowledges the recent hire of a work planning subject matter expert and that ORP had documented significant problems with the development and use of work instructions. The Board also noted that WRPS had implemented revisions to improve work planning and control.

**Board Issue:**

Ultimately, the ISMS description will have to be updated before any changes can have real and lasting effect.

**DOE and WRPS action:**

WRPS will update the ISMS description to capture the effective performance improvements prior to the annual review.

**Board Issue:**

DOE-Headquarters (HQ) should enhance ORP's oversight of work planning and control by providing tools to assist in identifying problems and driving corrective actions.

**DOE Action:**

DOE-HQ has developed Lines of Inquiry for Oversight of Work Management. These were developed over the past year in coordination with the National Nuclear Security Administration and has been provided to the field office for use and evaluation.

## CORRECTION ACTION PLAN ACTION MATRICES

### Corrective actions developed in response to WRPS-PER-2009-1954

| Action   | Reference          | Action Owner   | Estimated Completion           |
|--|--------------------|----------------|--------------------------------|
| <b>WP1.</b> Using a team approach (Planners, Field Work Supervisors, Operations Personnel, Engineering and Procedure Developers), TFC-OPS-MAINT-STD-02, "Work Planning and Work Instruction Development," and TFC-OPS-OPER-STD-01, "Technical Procedure Format and Preparation Standard," was developed to implement a consistent requirement set that defines the level of detail of work package instructions and technical procedures.  | WRPS-PER-2009-1954 | E. M. LaRock   | Completed<br>February 16, 2010 |
| <b>WP2.</b> Training courses 356248 and 356249 were developed to reflect revision and generation of TFC-OPS-MAINT-STD-02 and TFC-OPS-OPER-STD-01. Target audience included Field Work Supervisors, Technical Procedure Writers and Planners.   |                    | L. J. Keith    | Completed<br>April 6, 2010     |
| <b>WP3.</b> Provide training to Planners, Field Work Supervisors, Shift Managers, and Operations Engineers on courses 356248 and 356249.<br><br>In addition, course 356250 was developed for presentation to craft personnel to highlight work process revisions.  |                    | E. M. LaRock   | Completed<br>June 14, 2010     |
| <b>WP4.</b> Approximately six months following completion of all corrective actions, perform an evaluation of the effectiveness of corrective actions. An example of review methods include:<br><br><ul style="list-style-type: none"> <li>• Review of work packages/operating procedures to ensure the requirements set identified in CATPR-01 are incorporated.</li> <li>• A review of recent events.</li> <li>• Interview of Field Work Supervisors, Planners, Field Workers, etc..</li> <li>• Review of Management Program Observation results.</li> </ul> |                    | T. R. Reynolds | ECD<br>January 6, 2011         |
| <b>WP5.</b> A presentation was prepared and presented by the WRPS Work Control Manager that identified the minimum expectations for work instruction review for each Subject Matter Expert that performs work instruction review.  |                    | D. W. Brown    | Completed<br>January 14, 2010  |



The following matrix provides a listing of corrective actions taken or planned to improve Conduct of operations within Tank Farms to include field execution and field oversight, and procedure adherence and implementation. Planned corrective actions are documented in a Problem Evaluation Request (PER) in the WRPS Issues Management System. Planned corrective actions have been documented in WRPS-PER-2010-1130 for tracking and retention of closure evidence. Actions identified as “completed” are available per the corresponding Reference.

### Field Execution and Oversight

| Action  | Reference               | Action Owner   | Estimated Completion          |
|---|-------------------------|----------------|-------------------------------|
| <b>FE1.</b> Base Operations instituted a rotating schedule to perform Directed Management Observations in support of improved work control process.   | WRPS-1000378.1          | T. R. Reynolds | Completed<br>March 1, 2010    |
| <b>FE2.</b> The position of a Conduct of Operations Mentor was established and filled. The role of the Conduct of Operations Mentor is to provide management oversight to ensure a strong conduct of operations discipline is maintained throughout the operations organization and to provide direction and mentoring for proper implementation. | WRPS-PER-2010-0285      | T. R. Reynolds | Completed<br>January 29, 2010 |
| <b>FE3.</b> Directed Management Observation Programs (MOPs) are communicated directly to the Conduct of Operations mentor. Results are evaluated and used as feedback to the workforce as well as identify focus areas for subsequent directed MOPs.  | WRPS-1000378.1          | T. R. Reynolds | Completed<br>March 1, 2010    |
| <b>FE4.</b> A web-based training module 353537, “Improving Management Observation at Tank Farms,” was developed and disseminated to WRPS managers to improve the effectiveness of field oversight activities.   | Course Number<br>353537 | L. J. Keith    | Completed<br>March 31, 2010   |

| Action   | Reference               | Action Owner                     | Estimated Completion           |
|--|-------------------------|----------------------------------|--------------------------------|
| <p><b>FE5.</b> Base Operations and Tank Farm Projects Senior Supervisory Watch (SSW) Oversight expectations were communicated in February 2010. Expectations for roles and responsibilities were also included.</p>  | WRPS-0900248.3          | T. R. Reynolds/<br>R. D. Gregory | Completed<br>February 24, 2010 |
| <p><b>FE6.</b> A series of SSW training briefings were conducted by the Conduct of Operations Mentor. Briefing material included a review of the SSW purpose, procedural requirements, SSW Lessons Learned, MOP expectations, and tips for responding to outside agency comments/questions.</p>  | WRPS-PER-2010-0285      | F. A. Schmorde                   | Completed<br>February 26, 2010 |
| <p><b>FE7.</b> Training course 352012, "Tank Farms Field Supervision," was developed and is in the process of dissemination to WRPS managers. Currently, five of ten training sessions have been completed.</p>  | Course Number<br>352012 | S. M. Sax                        | ECD<br>September 2010          |
| <p><b>FE8.</b> Establishment of Conduct of Operations coaches. Four coaches have been assigned among the different projects. Coaches will observe radiological control practices, work planning, procedure compliance, communications, barriers, and work culture/climate. Results of observations will be consolidated and evaluated monthly to gauge consistency, identify good practices, identify areas warranting improvement, etc.</p> | WRPS-PER-2010-1130      | S. M. Sax                        | Completed<br>April 12, 2010    |
| <p><b>FE9.</b> In effort to sustain attendance at the Conduct of Operations Council, the requirement to have a backup present at the COO council meeting was discussed at the last meeting and will be added to the meeting notice sent out to the council members. Additionally, a slide to the WRPS tailgate company presentation requesting bargaining unit volunteers for joining the council was issued.</p>                            | WRPS-PER-2010-0279      | D. J. Saueressig                 | Completed<br>April 12, 2010    |

| Action  | Reference                 | Action Owner          | Estimated Completion                |
|---|---------------------------|-----------------------|-------------------------------------|
| <p><b>FE10.</b> Base Operations is in the process of performing organization realignment. This will establish a more project oriented structure, increase ownership of work and employee involvement, and improve overall productivity.</p>   | <p>WRPS-PER-2010-1130</p> | <p>T. R. Reynolds</p> | <p>Completed<br/>June 14, 2010</p>  |
| <p><b>FE11.</b> Base Operations opened a second Radiological Control manager position. This will provide for increased oversight of radiological control operations in the field.</p>   | <p>WRPS-PER-2010-1130</p> | <p>T. R. Reynolds</p> | <p>Completed<br/>June 1, 2010</p>   |
| <p><b>FE12.</b> Focused in-field observations of radiological control practices are on-going to observe and correct worker performance. A scorecard will be developed for performance metrics and results will be presented to the Executive Safety Review Board.</p>   | <p>WRPS-PER-2010-0532</p> | <p>K. J. Collins</p>  | <p>Completed<br/>May 20, 2010</p>   |
| <p><b>FE13.</b> As part of the continuing effort to improve the physical condition and housekeeping of TOC areas, a focus on facilities program has been initiated. On a weekly basis, resources are routinely assigned to work identified deficiencies that require minimal resources (4 NCOs, 2 RCTs). Every few months, a dedicated facility focus window is established for 2-3 days where significant resources (crane crews, maintenance craft, etc.) are assigned to major cleanup activities. This program along with a continued emphasis on job site restoration at the completion of work activities will result in improved conditions.</p> | <p>WRPS-PER-2010-0280</p> | <p>S. L. Metzger</p>  | <p>Completed<br/>March 31, 2010</p> |

## Procedure Usage and Implementation

| Action  | Reference   | Action Owner         | Estimated Completion                |
|---|---|----------------------|-------------------------------------|
| <p><b>PU1.</b> WRPS performed a Safety Stand Down on April 12, 2010. The purpose of the Safety Stand Down was to communicate results of an Independent Assessment performed on the current state of the Tank Operations Contract (TOC) and WRPS path forward to continuous improvement.</p>   | <p>Path to Continuous Improvement Initiative Overview</p> | <p>S. M. Sax</p>     | <p>Completed<br/>April 12, 2010</p> |
| <p><b>PU2.</b> Management Assessment FY2010-OPS/TFP-M-0172, "Conduct of Operations," is in progress. The scope of the assessment will include a review of all 18 Conduct of Operations Chapters.</p>  | <p>FY2010-OPS/TFP-M-0172</p>                              | <p>S. L. Metzger</p> | <p>Completed<br/>June 15, 2010</p>  |
| <p><b>PU3.</b> TFC-OPS-MAINT-C-01, "Tank Operations Contractor Work Control," was revised as follows:</p> <ul style="list-style-type: none"> <li>• Re-define levels of work packages.</li> <li>• JHA checklist is required and developed work packages are subject to SME review and approval.</li> <li>• Strengthen feedback and improvement process.</li> </ul> | <p>TFC-OPS-MAINT-C-01</p>                                 | <p>C. A. Salinas</p> | <p>Completed<br/>March 1, 2010</p>  |
| <p><b>PU4.</b> TFC-OPS-MAINT-C-02, "Pre-Job Briefings and Post-Job Reviews," were revised to incorporate a process for formal documented post-job reviews (beyond those required by the As Low As Reasonably Achievable (ALARA)/Radiological process.)</p>  | <p>TFC-OPS-MAINT-C-02</p>                                 | <p>C. A. Salinas</p> | <p>Completed<br/>March 1, 2010</p>  |

| Action   | Reference           | Action Owner  | Estimated Completion       |
|--|---------------------|---------------|----------------------------|
| <p><b>PU5.</b> TFC-ESHQ-S_SAF-C-02, "Job Hazard Analysis," was revised as follows:</p> <ul style="list-style-type: none"> <li>• Clarify expectations for crafts, engineers, SMEs, and others to work together to fully identify and analyze hazards at the task level and implement effective controls.</li> <li>• Simplify forms and tools used in the Job Hazard Analysis (JHA) process.</li> <li>• Communicate requirements for conduct of field walk downs.</li> </ul>   | TFC-ESHQ-S_SAF-C-02 | C. A. Salinas | Completed<br>March 1, 2010 |
| <p><b>PU 6.</b> A JHA Checklist was developed to:</p> <ul style="list-style-type: none"> <li>• Identify and analyze all hazards associated with the tasks being performed.</li> <li>• Provides a tool to "road map" permits/plans that provide further detail on controls established.</li> <li>• Require supervisor and industrial safety approval.</li> </ul>  | A-6004-101          | C. A. Salinas | Completed<br>March 1, 2010 |
| <p><b>PU7.</b> TFC-OPS-OPER-C-13, "Technical Procedure Control and Use," was revised as follows:</p> <ul style="list-style-type: none"> <li>• Include expectations for additional participants based on the type of procedure and when task involves waste disturbing activities.</li> <li>• Include interface with TFC-ESHQ-S_SAF-C-02 which requires re-analysis of hazards when technical changes are made to a procedure.</li> <li>• Add criteria for SME review and approval for technical procedures and technical procedure changes.</li> </ul> | TFC-OPS-OPER-C-13   | T. H. Rahm    | Completed<br>March 1, 2010 |

| Action   | Reference   | Action Owner         | Estimated Completion                 |
|--|---|----------------------|--------------------------------------|
| <p><b>PU8.</b> Training was provided to the workers on the revised work control process including changes to Pre-Job Briefing and Post-Job Reviews, JHA process, JHA checklist, and Technical Procedure Control and Use requirements. Additionally, round tables are being conducted to obtain input from users to determine further enhancements necessary.</p>   | <p>TFC-OPS-MAINT-C-01<br/> TFC-OPS-MAINT-C-02<br/> TFC-ESHQ-S_SAF-C-02<br/> A-6004-101<br/> TFC-OPS-OPER-C-13<br/> Course Number 356248, Course Number 356249, and Course Number 356250</p> | <p>C. A. Salinas</p> | <p>Completed<br/> March 31, 2010</p> |
| <p><b>PU9.</b> Improve radiological planning by:</p> <ul style="list-style-type: none"> <li>• Modify ALARA Management Worksheet (AMW) to enhance guidance for work planners and radiological control manager oversight.</li> <li>• Add criteria for engineering controls to solidify a graded approach.</li> <li>• Implement ALARA risk screening process to address radiological risk ranking prior to the application of ALARA protective measures.</li> <li>• Modify AMW training to incorporate changes and reinforce expectations.</li> </ul> | <p>WRPS-PER-2010-0534</p>   | <p>L. M. Livesey</p> | <p>ECD<br/> June 30, 2010</p>        |

| Action  | Reference                                | Action Owner   | Estimated Completion      |
|---|--|----------------|---------------------------|
| <p><b>PU10.</b> Improve Joint Review Group (JRG) Process by:</p> <ul style="list-style-type: none"> <li>• Improve consistency and rigor of the JRG by reducing number of JRG Chairpersons.</li> <li>• Developed qualification cards for JRG Chairperson and JRG voting members.</li> </ul>  | WRPS-PER-2010-0536                       | J. T. Rolph    | Completed<br>May 31, 2010 |
| <p><b>PU11.</b> Revise the ISMS System description to include the following:</p> <ul style="list-style-type: none"> <li>• Correct discrepancies between work planning and control processes in the ISMS description and those in the institutional level directives.</li> <li>• Address the process for development of technical procedures.</li> </ul>   | WRPS-PER-2010-1130                       | J. A. McDonald | ECD<br>July 31, 2010      |
| <p><b>PU12.</b> A major revision to TFC-PLN-05, "Conduct of Operations Implementation Plan," is underway. Revision to the plan will be worked in conjunction with the Conduct of Operations Management Assessment scheduled for completion on May 31, 2010. As such, TFC-OPS-OPER-CD-45 and TFC-PLN-05 will be evaluated in conjunction with TFC-PLN-05 and the Conduct of Operations Management Assessment to ensure adequate flow-down of requirements.</p> | WRPS-PER-2010-0281<br>WRPS-PER-2010-0505 | S. L. Metzger  | ECD<br>July 31, 2010      |

SEPARATION

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**Department of Energy**  
Washington, DC 20585

**APR 07 2010**

**MEMORANDUM FOR DISTRIBUTION**

**FROM:** DR. STEVEN L. KRAHN *SK*  
DEPUTY ASSISTANT SECRETARY FOR  
SAFETY AND SECURITY PROGRAM  
ENVIRONMENTAL MANAGEMENT

**SUBJECT:** Work Planning and Control Program Guidelines

Attached for your distribution and use are work planning and control program guidelines, which have been developed by the Office of Safety Operations Assurance (EM-22), in collaboration with their colleagues in the Field--based on the references cited in the guidelines. We believe that these guidelines represent a description of a mature work planning and control program. The guidelines should be useful to your contractors as a model for their work planning and control programs; during Phase I, Phase II and annual integrated safety management verifications; as well as to you, as a touchstone, in your regular oversight of those programs.

During site visits and formal assessments, EM-22 frequently evaluates sites' work planning and control processes, procedures and implementation. These guidelines should also help you to understand the expectations of those evaluations. If you have any questions or comments on the attached guidelines, please call me at (202) 586-5151, or Dr. Robert Goldsmith at (301) 903-4954.

**Attachment**

cc: I. Triay, EM-1  
D. Chung, EM-2  
F. Marcinowski, EM-3  
C. Wu, EM-21  
R. Goldsmith, EM-22  
D. Rack, EM-22  
M. Gilbertson, EM-50



**Distribution:**

David A. Brockman, Manager, Richland Operations Office (RL)  
Shirley Olinger, Manager, Office of River Protection (ORP)  
Jack R. Craig, Acting Manager, Savannah River Operations Office (SR)  
David C. Moody, Manager, Carlsbad Field Office (CBFO)  
William E. Murphie, Manager, Portsmouth/Paducah Project Office (PPPO)  
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Dennis Miotla, Acting Manager, Idaho Operations Office (ID)  
Gerald Boyd, Manager, Oak Ridge Office (OR)  
John R. Eschenberg, Assistant Manager, Oak Ridge Office (OR)

## **PROGRAMMATIC AND PERFORMANCE OBJECTIVE**

The Contractor has developed and implemented a comprehensive and effective work planning and control process.

### **Guidelines**

1. The contractor work planning and control procedure(s) is approved, implemented, and personnel are trained to the latest revision of the procedure(s).
  - a. Document Control records verify that work planning and control procedure(s) are approved and the latest revision has been implemented.
  - b. Training records or other documents indicate that appropriate personnel have been trained to the latest changes and/or revision of the work planning and control procedure(s).
2. Procedures adequately describe the methods for initiating, analyzing, developing, revising, and approving work control documents (WCDs).
  - a. Procedures adequately describe the process for requesting/initiating WCD.
  - b. The requested work activity scope and boundaries are defined in sufficient detail to allow the work planning team to determine the necessary job steps so that all hazards can be identified, appropriate controls established, and adequate work instructions developed.
  - c. Procedures address the process for screening of the requested work against the existing safety envelope and/or permits.
  - d. There is adequate guidance regarding the use of the "graded approach" in determining the type of WCD and associated levels of planning and detail based upon the activity's complexity, frequency, and/or risk.
    - 1) Graded approach is defined and there are limitations established regarding its use.
    - 2) Any type of work that is considered "exempt" from the work planning and control process is delineated in the work planning and control procedure, and its justification document is available for review.
    - 3) Each craft that will use the skill-of-the-craft, designation to exempt any proposed work from the established work planning process has delineated these exempt activities.
      - a) Skill-of-the-craft is defined for each craft including required proficiency, experience, knowledge, skill, and ability; and the type of work that can be safely performed without enhanced work planning.
      - b) Tasks determined to be skill-of-the-craft are evaluated prior to first time use to ensure that appropriate controls/work instructions are within the craft skill set.

## EM Work Planning and Control Guidelines

- e. Procedures address when an independent safety review of WCD is required.
- f. Procedures adequately describe the Emergency Work process and criteria.
- g. Procedures adequately describe the process for the work planner to develop the proposed WCD including:
  - 1) Criteria for work scope statement and associated boundaries.
  - 2) Performing initial scoping walkdown.
  - 3) Establishing the appropriate personnel for the work order planning team, based on the complexity, hazards, and frequency of the proposed work.
  - 4) Reviewing the Operating Experience/Lessons Learned database for similar/previous work activities/hazards and applicable lessons learned or best practices to be considered for integration into the work planning and hazards analysis effort.
  - 5) Clearly defining special tools or equipment to be used.
  - 6) Determining the need for special/mockup training.
  - 7) Researching procedures and/or vendor manuals.
  - 8) Developing draft work instructions (major steps) for the work order planning team to use during the hazard analysis and work instruction development.
  - 9) The work planning and control procedure(s) or the hazard analysis procedures establish adequate criteria for applying the graded approach in the development of a hazard analysis (e.g., automated hazards analysis, planner walkdown, a team walkdown, or a roundtable).
  - 10) The work planning and control procedure or hazard analysis procedure establish the priority/hierarchy of hazard controls (i.e., hazard elimination or mitigation, engineering controls, administrative controls, and Personal Protective Equipment (PPE)).
  - 11) Procedures adequately address the need to collectively document and analyze all the hazards, to determine any negative synergistic effects, to arrive at the optimum set of controls for the work being performed.
  - 12) Procedures provide adequate assurance that hazard controls remain in effect as long as the hazard exists (particularly important during Decontamination and decommissioning).
  - 13) If automated hazards analysis or generic hazards analysis is used, the process adequately describes how to customize the hazards and their associated controls for a particular WCD.
    - a) All the listed hazards and controls are relevant to the work.
    - b) The hazards and controls are specific to the work. If generic, there are provisions to account for job-specific hazards.
    - c) There is involvement of the planning team regarding the use and contents of automated hazards analysis (i.e., the work planner is not a single-point failure potential).

## **EM Work Planning and Control Guidelines**

- h. The procedures provide adequate details for the planner to develop a consistent, quality WCD (especially the work instructions).**
  - 1) There are established formats for WCDs, which contain the following minimum elements:**
    - a) Review and Approval**
    - b) Scope**
    - c) Precautions and Limitations**
    - d) Prerequisites**
    - e) Required Training**
    - f) Special/Mockup Training**
    - g) Special Tools or Equipment**
    - h) Drawings, Sketches, Illustrations**
    - i) Work Instructions**
    - j) Return to Service and/or Post Maintenance Testing Requirements (when applicable)**
    - k) Close-out**
    - l) Status Log**
  - 2) There are adequate instructions regarding the inclusion of all hazards and controls (generic and specific) in the WCD (i.e., job specific hazards and their associated controls are in the work instructions just prior to encountering the hazard while generic hazards, and controls may be included in the Precautions and Limitations section).**
  - 3) Guidelines are established for work instruction development and include the following minimum elements:**
    - a) Work instructions identify critical work steps and controls (i.e., steps with significant importance to safety, the safety basis, or are regulatory in nature).**
    - b) The work instructions are written in a clear, concise, user-friendly manner, are commensurate with the education and experience of the workers.**
    - c) There is a logical flow in the sequencing of the job steps and sub-steps.**
    - d) There are adequate instructions regarding the use of active versus passive work steps.**
    - e) There is only one action per work step.**
    - f) Warnings (potential personnel hazards,) Cautions (potential equipment or environmental damage,) and Notes (supplemental information) are used appropriately.**
    - g) No actions are directed by the Warnings, Cautions, and Notes.**
    - h) Hold Points and controls significant to safety are integrated into the work instructions.**

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- i) There are adequate instructions regarding worker compliance with sequence of work steps and sub-steps (i.e., are workers allowed to deviate from step-by-step compliance).
  - j) Generic references to work permits, procedures, vendor manuals, etc. are not used unless the work instruction specifies that the next work step is to be performed in accordance with the stated document, in its entirety or a specified part of the document.
  - k) There are adequate instructions regarding the use of "Not Applicable"
  - l) There are adequate instructions and criteria regarding equipment restoration, Return to Service and Post Maintenance Testing so that there is confidence that design and safety functions will be adequately performed.
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- i. The draft WCD requires peer or work control management review prior to distribution for concurrence and approval.
  - j. The procedure(s) adequately address the WCD change and revision process:
    - 1) Personnel authorized to request changes
    - 2) Form or process for requesting change
    - 3) Definition of administrative/editorial changes versus intent changes and the process for both types of changes
    - 4) Personnel authorized/required to concur and/or approve change requests
    - 5) Format of incorporating changes into WCD
    - 6) Criteria for reconvening the planning team for WCD changes
    - 7) Requirement to review existing hazard analysis after any changes to the WCD to determine if new hazards were created, any existing hazards were modified, or any existing hazards eliminated by the change
    - 8) Criteria for revisions to the WCD
    - 9) Brief/train workers on the changes
  - k. The process adequately describes the responsibilities and accountabilities of the personnel concurring with and approving the WCD.
  - l. The process requires a final WCD approval by work planning and control management.
  - m. The process requires a WCD approval by Operations prior to work, and the criteria for approval is adequately described (if not in the work planning and control procedures, in an Operations procedure).
  - n. The process describes who is ultimately responsible for the adequacy of the WCD (there is a need to establish accountability).
  - o. Line Management is responsible for verifying the training and qualification of the workers and supervisors.
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- 3. Hazard analysis (Job Hazards Analysis, Activity Hazards Analysis, etc.) and incorporation of hazard controls into the WCD.
    - a. Procedures adequately describe the hazard analysis process and its interface with the work planning and control process.
    - b. There is an adequate process to determine if appropriate personnel are involved in the hazard analysis.

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- c. The hazards and their associated controls are specific to the job. (Generic hazards that are already addressed by other programs dilute the effectiveness of the hazard analysis).
  - d. The controls for each separate hazard are identified individually (i.e., the format of the hazard analysis provides the cross-walk of all controls to their respective hazards; a column of hazards and a column of controls is unsatisfactory).
  - e. Hazards and controls from other safety program analyses (Documented Safety Analysis, As Low As Reasonably Achievable Job Review, Industrial Hygiene Exposure Assessment, etc.) have been considered and integrated into the hazard analysis, if appropriate.
  - f. The hazard analysis team performs "what if" scenarios during the walkdown/roundtable.
  - g. A hazard analysis developed for a model/standard WCD is evaluated and/or modified each time the model/standard WCD is used. Documentation is required as to the participants in the evaluation.
  - h. The WCD work instructions are written in such a manner that specific hazards and their associated controls can be readily identified (e.g., bolded, boxed, etc.).
  - i. The chosen method of implementing the hazard control from the hazard analysis into the WCD is appropriate. The stated hazard control in the hazard analysis may have several ways to implement the control into the WCD, but the intent of the control is maintained.
4. The work planning and control process involves appropriate personnel (planners, workers, supervisors, engineering, and health and safety professionals).
- a. The work planning and control procedure(s) provide adequate guidance regarding the selection of personnel on the planning team.
    - 1) A work control manager or equivalent, determines the composition of the planning team if a planning team selection matrix has not been developed.
    - 2) Procedure(s) emphasize the participation of workers and supervisors in the WCD development phase.
    - 3) Appropriate personnel/disciplines are involved in the scoping of the work and work instruction development of the WCD.
    - 4) Participation on the planning team is mandatory and the participating disciplines cannot "opt-out" without justification.
    - 5) Appropriate personnel (e.g., Superintendent, Supervisor, and Foreman) perform a "verification" walkdown prior to the approval of the WCD. This walkdown verifies that the WCD is "workable" and endorsed by craft supervision.
  - b. The procedure(s) provide adequate guidance regarding the involvement of Subject Matter Experts (SMEs) in the development of work instructions, such as:
    - 1) Radiological Protection for radiation/contamination surveys and radiological Hold Points.

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- 2) Engineering for equipment/system specifications and Preventive Maintenance Testing requirements.
  - 3) Safety/Industrial Hygiene for air monitoring, permitting, and PPE determinations.
  - 4) Fire Protection for design, equipment/component specifications, system requirements, performance criteria, etc.
  - 5) Quality Assurance for quality assurance/control inspection Hold Points.
  - 6) Nuclear Safety for safety basis requirements, limiting condition for operations (LCO) and specific administrative controls (SAC) conditions.
- c. The procedure(s) delineate who is required to review WCDs for closeout and the review criteria are clearly identified.

Note: Approval means that the WCD has been reviewed and is approved as a workable document. Release means that the WCD has been reviewed by the facility/area operations authority and the WCD can be performed.

5. Procedures adequately address WCD approval, release, performance, and closeout.
- a. Work activities are formally approved and scheduled on the Plan of the Day, or equivalent, to facilitate notification to affected personnel, resolution of scheduling conflicts, identification of resources and support required, prioritization with other work, and availability of required facilities and systems.
  - b. Examples of Shift Manager/Equivalent considerations for WCD release:
    - 1) Personnel safety
    - 2) Equipment repair/work urgency
    - 3) Impact of the work on LCOs and SACs
    - 4) Operability of redundant equipment
    - 5) Effect of work on other on-going activities
    - 6) Facility conditions required for equipment repair/work
  - c. Procedures address Foreman/Supervisor responsibilities including:
    - 1) Obtaining the release of WCD
    - 2) Performance of a pre-job walk-down to determine if present conditions still meet the scope of the WCD.
    - 3) Pre-Job Briefings, at a minimum, need to consider:
      - a) The briefing area promotes team member focus on the briefing
      - b) Attendance requirements
      - c) Scope and boundaries of the work
      - d) Review of initial conditions
      - e) Precautions and Limitations
      - f) Prerequisites
      - g) Task assignments
      - h) Verification of training
      - i) Hazards and controls/PPE
      - j) Major work steps



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- k) Error-likely situations
  - l) Procedural compliance
  - m) Questioning attitude of workers
  - n) Response to unexpected conditions/stop work authority
  - 4) Supervision of work activities to assure work is continuously within scope
  - 5) Presence during all critical steps of the WCD
  - 6) WCD changes
  - 7) WCD Status Log entries
    - a) Appropriate status of work progress
    - b) WCD changes, concurrences, approvals, and their associated dates
    - c) Description of unplanned stoppages and their resolution
    - d) Change in supervision
  - 8) Turnover requirements
  - 9) WCD close-out requirements
- d. Procedures address worker responsibilities and expectations.
- 1) Work is performed in accordance with the work control document.
  - 2) Personnel understand their stop work authority.
  - 3) Job steps are understood before performance of the step, for applicable WCDs.
  - 4) Job steps are performed as written.
  - 5) If job steps cannot be performed as written, the job is stopped.
  - 6) Job steps are documented complete (where designated) prior to performing the next step.
  - 7) Steps significant to safety are discussed prior to performing the step.
6. The contractor's work planning and control procedure(s) contains or references mechanisms for providing WCD lessons learned and feedback.
- a. There is an established process to capture worker and supervisor WCD feedback.
  - b. There is required follow-up by the planner for worker and supervisor feedback.
  - c. The work planning and control procedure(s) require a documented post-job review.
  - d. The planner is required to document changes to WCDs as a result of feedback.
  - e. There is an established process to initiate lessons learned.
  - f. There is an established process (i.e., identified databases or information sources) for planners to incorporate lessons learned into WCDs.
  - g. WCD feedback/lessons learned are tracked, trended, and made available for planner use.
7. The training and qualification requirements for work planners are established and implemented.
- a. An adequate selection, training, and qualification program exists for work planners.
    - 1) The work planner education, knowledge, and experience criteria in the position description are appropriate.

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- 2) Contractor, site, and/or facility specific training and qualification requirements are appropriate.
- 3) The program addresses mentoring, disqualification, and the remedial training process.
- 4) The Qualification Authority is at the appropriate management level.
- b. Work planner training contains, at a minimum, the following elements:
  - 1) Integrated Safety Management System Core Functions and Guiding Principles
  - 2) Roles, responsibilities, authorities, and accountabilities of interfacing organizations
  - 3) Work Planning and Control process procedures
  - 4) Hazard analysis process procedures
  - 5) Incorporation of hazard controls into WCD work instructions
  - 6) Conduct and appropriate use of walkdowns
  - 7) How to apply applicable requirements, standards, permits, regulations, etc. to work planning
  - 8) The appropriate use of SMEs
  - 9) Facilitation of planning team meetings, walkdowns, and round-tables
  - 10) Technical writing skills
- c. The program addresses the continuing training for work planners.

### References:

- 48 CFR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*
- 10 CFR 830, *Quality Assurance*
- 10 CFR 830.120.122 Criterion 5, *Performance/Work Processes*
- 10 CFR 851, *Worker Safety and Health Program*
- 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*
- DOE Order 440.1B, *Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees*
- DOE Order 433.1A, *Maintenance Management Program for DOE Nuclear Facilities*
- DOE Order 414.1A, *Quality Assurance*
- DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*
- DOE O 210.2 *DOE Corporate Operating Experience Program*
- DOE Policy 226.1, *Department of Energy Oversight Policy*
- DOE M 450.4, *Integrated Safety Management System Manual*
- DOE G 450.4-1B, *Integrated Safety Management System Guide*
- DOE 5480.19, *Conduct of Operations Requirements for DOE Facilities*
- DOE-STD-1030-96, *Guide to Good Practices for Lockouts and Tagouts*