

# Hanford Site Confined Space Procedure (HSCSP)

Prepared for the U.S. Department of Energy  
Assistant Secretary for Environmental Management

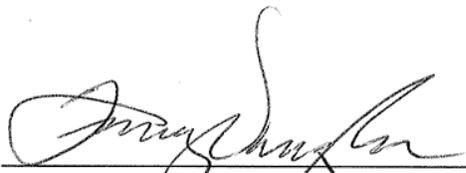


U.S. DEPARTMENT OF  
**ENERGY**

**APPROVED**

*By J. D. Aardal at 3:23 pm, Dec 21, 2010*

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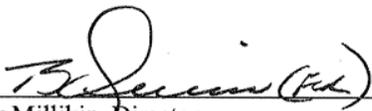
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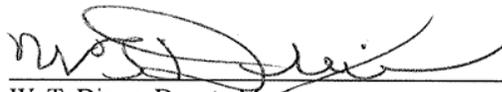
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## **1.0 PURPOSE AND SCOPE**

The Hanford Site Confined Space Procedure (HSCSP), herein called the Procedure, describes the process used by Hanford-site prime contractors and subcontractors performing confined space activities. This Procedure is based on the requirements of Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.146, "Permit-Required Confined Spaces" and 29 CFR 1926.

This procedure does not address the policies or internal procedures of the Hanford Fire Department (HFD) in their role as the designated emergency rescue service.

## **2.0 ROLES AND RESPONSIBILITIES**

### **2.1 Atmospheric Testing Person**

- Completes required Confined Space Training
- Trained and proficient on the atmospheric testing equipment used for monitoring
- Monitors atmospheric conditions in accordance with the sampling plan using direct reading instruments
- Completes appropriate forms

### **2.2 Authorized Entrant(s)**

- Completes required confined space training
- Understands the hazards identified for the confined space (including the mode, signs, physical and behavioral symptoms, and consequences of exposure) and how the hazards will be mitigated
- Familiar with, and can properly use, required equipment (e.g. personal protective equipment [PPE], ventilation, communication equipment)
- Maintains communication and alerts the attendant whenever any warning signs or symptoms of exposure to a dangerous situation are recognized and/or a prohibited condition exists
- Exits from the confined space when any of the following occur
  - An order to evacuate is given by the attendant or entry supervisor
  - Any warning signs or symptoms of exposure to a dangerous situation are recognized
  - A prohibited condition exists
  - An evacuation alarm is activated

### **2.3 Attendant**

- Completes required Confined Space Training
- Monitors only a single space
- Understands the hazards that may be encountered during entry and the mode, signs, physical and behavioral symptoms, and consequences of exposure
- Continuously maintains an accurate count of authorized entrants within the Permit Required Confined Space (PRCS) on the Hanford Confined Space Entry Log (A-6005-719)
- Remains outside the PRCS during entry operations until relieved by another attendant and performs no other duties that may interfere with the primary duty to monitor and protect the authorized entrants

- Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate
- Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space
- Monitors atmospheric conditions, as assigned
- Orders the authorized entrants to evacuate the permit space immediately under any of the following conditions
  - A prohibited condition is detected
  - The behavioral effects of hazard exposure are identified in an authorized entrant
  - A situation outside the space could endanger the authorized entrants
  - All required duties of the Attendant cannot be effectively and safely performed
- Summons HFD for rescue and emergency services when authorized entrants may need assistance to escape from PRCS hazards
- Performs non-entry rescue as specified in the rescue plan
- Warns unauthorized persons approaching the PRCS that they must stay away
- Advises unauthorized persons that they must exit immediately if they have entered the PRCS
- Informs authorized entrants and the entry supervisor if unauthorized persons have entered the PRCS

#### **2.4 Cognizant Supervisor/Manager**

- Completes required Confined Space Training
- Ensures prime contractor and subcontractor employees assigned to duties associated with a PRCS entry have been provided training, as outlined in Appendix B, *Confined Space Training Requirements*
- Ensures confined space entries are coordinated and controlled per this Procedure
- Identifies when training and/or retraining are necessary prior to performing work
- Ensures the requirements and work practices detailed in this Procedure are implemented
- Coordinates with Safety and Health Professionals to identify facility or project Confined Spaces
- Ensures all affected personnel are trained on non-entry rescue equipment as specified in the rescue plan

#### **2.5 Entry Supervisor**

- Completes required Confined Space Training
- Understands the hazards that may be encountered during PRCS entry (including the mode, signs, physical and behavioral symptoms, and consequences of exposure) and how the hazards will be mitigated
- Verifies, by checking that the appropriate information has been completed on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin

- Verifies that the HFD is notified for rescue services and the means for summoning them are operable
- Removes unauthorized individuals who enter, or who attempt to enter, the PRCS during entry operations
- Determines, whenever responsibility for a PRCS entry operation is transferred, that entry operations remain consistent with the terms of the permit and that acceptable entry conditions are maintained
- Determines, at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained
- Terminates the entry and cancels the permit
- Serves as an attendant or as an authorized entrant, when necessary, if trained and equipped as required for each role fulfilled
- Passes duties to another entry supervisor during the course of an entry operation, when necessary
- Provides a copy of the canceled permit to Safety and Health at completion of entry

## **2.6 Facility/Project Manager**

- Completes required Confined Space Training
- Takes ownership of the area or project
- Ensures the requirements and work practices detailed in this Procedure are implemented
- Provides final authorization for entry into a PRCS (or delegate)
- Provides final authorization for downgrading of a PRCS (or delegate)

## **2.7 Safety and Health Professional**

- Completes required Confined Space Training
- Performs and documents confined space hazard evaluations
- Participates in the development of the Confined Space Entry Permit (A-6005-717)
- Assists in determining confined space retrieval systems, as necessary
- Provides atmospheric testing equipment that is calibrated and maintained in accordance with the Industrial Hygiene procedures and the manufacturer's operating manual
- Ensures accuracy and maintenance of Hanford Confined Space Hazard Identification Form (A-6005-724) and the records resulting from evaluations and surveys of the workplace for confined spaces
- Performs atmospheric monitoring as needed
- Develops the sampling plan for atmospheric testing in accordance with the Industrial Hygiene procedures and the hazard analysis
- Ensures atmospheric testing is conducted by trained personnel who can demonstrate proficiency in the use of atmospheric testing equipment to be used for entry
- Provides oversight of subcontractor confined space evaluations and entry permitting

### 3.0 TRAINING REQUIREMENTS

Prime contractor and subcontractor employees assigned to duties associated with a PRCS entry shall be provided training, as outlined in Appendix B, *Confined Space Training Requirements*.

Employees shall acquire the understanding, knowledge, and skills necessary to safely perform PRCS entries.

Training shall be provided prior to an employee's first assignment to a PRCS entry or if there is a change in the employee's assigned duty.

Employees shall be retrained whenever:

- PRCS operations change such that a hazard is introduced that the employee has not previously been trained
- An employee declares, or employer believes, there are inadequacies in the employee's knowledge or use of this Procedure
- An employee declares or the employer believes there have been deviations from this Procedure

When procedural changes are developed those changes shall be communicated to affected workers. All affected workers shall be trained to these changes.

### 4.0 PROCEDURE

#### 4.1 Initial Assessment and Identification of Confined Space

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Facility/ Project Manager	1.	Ensure that work places are evaluated to determine if there are any confined spaces. <ul style="list-style-type: none"><li>• A space that is locked with a cover or panel, or requires special tools or equipment for entry, does not meet the criteria for posting or evaluation of a confined space until it becomes accessible.</li><li>• For decommissioned facilities where confined space(s) are located behind a locked security fence or locked building, a Hanford Confined Space Hazard Identification Form (A-6005-724) is not required where these alternate controls are established to prevent access/inadvertent entry into such spaces. Plans for re-entry shall require an evaluation using the Hanford Confined Space Hazard Identification Form (A-6005-724).</li></ul>
	2.	Document each confined space under their jurisdiction and/or ownership.
	3.	Determine owners for any identified spaces that have not been assigned ownership.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Cognizant Supervisor/Manager	4.	<p>Determine the classification if a potential confined space has been created as a result of a modification, construction, or maintenance activity.</p> <ul style="list-style-type: none"> <li>• Inform Facility/Project Manager of the new confined space</li> <li>• During such activities, ownership and classification of temporary or newly constructed confined spaces shall be the responsibility of the Cognizant Supervisor/Manager</li> </ul>
	5.	<p>Complete the following if a new confined space is identified or if a hazard evaluation is to be performed on an existing confined space.</p> <ol style="list-style-type: none"> <li>a. Do not allow entry into the confined space until a hazard evaluation is performed, the space is classified, and the appropriate controls are in place.</li> <li>b. Request a Safety &amp; Health Professional to perform a confined space hazard evaluation using the Hanford Confined Space Hazard Identification Form (A-6005-724).</li> </ol>
Safety & Health Professional	6.	<p>Ensure that the Hanford Confined Space Hazard Identification Form (A-6005-724) Sections 1-4 are completed and maintained as the hazard evaluation documentation for each identified confined space.</p> <p><b>NOTE:</b> <i>Spaces identified and evaluated prior to implementation of this Procedure do not require completion of Form A-6005-724 until the space is re-evaluated or entered.</i></p>
	7.	<p>Maintain the original Hanford Confined Space Hazard Identification Form per company-specific record management policies and send a copy to the requesting individual.</p>
	8.	<p>Maintain a copy of the Hanford Confined Space Hazard Identification Form for each identified confined space as an inventory of existing PRCs and non-permit confined spaces for each facility/operation.</p>

- |                               |  |
|-------------------------------|--|
| Cognizant Supervisor/ Manager | <p>9. Post a label with the following language (or equivalent language) on all potential entry points if the space is identified as a PRCs (any of the boxes in Section 3, item 2, of A-6005-724 are checked).</p> <p style="text-align: center;"><b>“DANGER – PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER”</b></p> <p><i>NOTE: If the confined space dimensions or configuration does not permit conventional attachment of signs, then other effective means may be used to inform employees of the space location and hazards.</i></p> <p>10. Post a label with the following language (or equivalent language) on all entry points if the space is identified as a non-permit-required confined space.</p> <p style="text-align: center;"><b>“WARNING-CONFINED SPACE, DO NOT ENTER”</b></p> |
| Cognizant Supervisor/ Manager | <p>11. Reassess confined spaces modified as a consequence of a construction activity (see step 4.1.5).</p>   |
| Facility/ Project Manager     | <p>12. Ensure a Hanford Confined Space Hazard Identification Form (A-6004-724) is completed and the confined space is posted after the completion of construction activities.</p>  |

#### 4.2 Emergency Response and Rescue for Permit-Required Confined Spaces (PRCSs)

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Safety & Health Professional	1.	Document the retrieval/rescue plan on the Hanford Confined Space Entry Permit (A-6005-717). If it is determined that retrieval/rescue equipment would increase the overall risk of entry, or would not contribute to the rescue of the entrant, include this determination on the permit.
Cognizant Supervisor/ Manager	2.	Provide 24 hour notification to HFD when standby services are needed at the work site.
Cognizant Supervisor/ Manager	3.	Notify HFD Dispatch (373-2745) prior to entry to provide information from the Hanford PRCs Entry Notification Form (A-6005-718) and to provide access to all PRCs from which rescue may be necessary.

- 4. Provide non-entry confined space retrieval/rescue equipment that meets the requirements of 29 CFR 1910.146(k) (3), if required on the Hanford Confined Space Entry Permit, and ensure that a first aid/CPR trained individual is present at the location and is a non-entrant.
- Employee
- 5. Perform non-entry retrieval/rescue in accordance with retrieval/rescue plan when confined space entrants are unable to exit without assistance.

**4.3 Permit-Required Hanford Confined Space Entry**

This section describes the process for entering into PRCS. Each permit for confined space entry applies to a specific operation, location, work package, and date valid.

The duration of the permit may not exceed the time required to complete the assigned task or the job identified on the permit. If planned work will continue for more than one shift, the permit may be approved for a single shift extension, provided all of the following conditions apply.

- 1. No new hazards are identified or introduced into the space.
- 2. There are no changes in work scope or permit prescribed work controls.
- 3. Pre-entry testing is performed, at a minimum, prior to each shift and acceptable entry conditions exist.
- 4. Re-entries are authorized and documented on the Hanford Confined Space Entry Permit (A-6005-717).
- 5. Changing personnel does not introduce hazards or modifications of the original planning assumptions or controls.
- 6. Permit requirement controls are reviewed with personnel.

If the re-entry conditions are not met, a new permit is required.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Cognizant Supervisor/ Manager	1.	Identify the need to enter a confined space as part of the work planning process.
	2.	Obtain a copy of the Hanford Confined Space Hazard Identification Form (A-6004-724) for the space to be entered.

*Note: If the Hanford Confined Space Hazard Identification Form (A-6004-724) is missing have a Safety & Health professional complete an assessment.*

3. Complete the following if the Hanford Confined Space Hazard Identification Form (A-6004-724) identifies the space as a non-permit confined space.
  - a. Document the evaluation and controls for entry in Section 5 of the form to ensure the task has not changed the classification of the space.
  - b. Proceed to Section 4.9, *Non-Permit Confined Space Entry Process*.
4. Complete the following if the Hanford Confined Space Hazard Identification Form (A-6004-724) identifies the space as a PRCS; contact Safety and Health and request completion of a Hanford Confined Space Entry Permit (A-6005-717).

Safety &  
Health  
Professional

5. Participate in the Job Hazard Analysis/Job Safety Analysis process.
6. See Section 4.6, *Entry to Confined Space with Atmospheric Hazard Only (Alternate Entry)* if the only hazard or potential hazard in the PRCS is the atmosphere and it is controlled by continuous forced or exhaust air ventilation
7. See Section 4.7, *Downgrading a Permit-Required Confined Space* if the confined space hazard(s) identified during the Job Hazard Analysis/Job Safety Analysis process can be eliminated.
8. Complete a Hanford Confined Space Entry Permit (A-6005-717) if the confined space hazards cannot be eliminated.

Cognizant  
Supervisor/  
Manager

9. Review and approve the Hanford Confined Space Entry Permit (A-6005-717) by signing and dating in Section 4.
10. Ensure workers and safety professionals are involved in planning work activities and controls associated with confined space entry (including walk-down by affected individuals, except where an increased hazard is created for the affected individuals).
11. Designate a qualified/trained Entry Supervisor.

Facility/Proje  
ct Manager

12. Review and authorize the Hanford Confined Space Entry Permit by signing and dating in Section 4.

Entry  
Supervisor

13. Verify all controls, work instructions, and equipment prescribed on the Hanford Confined Space Entry Permit (A-6005-717) are ready for implementation. (See Appendix C, "*Hazard Controls/Work Practices*").
14. Notify HFD prior to entry using the Hanford PRCS Entry Notification Form (A-6005-718) and include the following information.
  - Time of the planned entry
  - Location of the space
  - Anticipated hazards
  - Special considerations for rescue from the space
15. Assign Entrant(s) and Attendant(s).
16. Brief all entry team members and support personnel on the hazards associated with the entry and the details of the permit requirements per Appendix D, *Pre-job Review for Confined Space Entry Work*.
17. Ensure each attendant is responsible for monitoring only one confined space.
18. Ensure that each employee entering the confined space, or the employee's authorized representative, is provided an opportunity to observe the pre-entry testing and any subsequent testing and monitoring of the confined space.

Employees

19. Review the requirements of the Hanford Confined Space Entry Permit (A-6005-717).

Safety &  
Health  
Professional/  
Atmospheric  
Testing  
Person

20. Conduct or oversee atmospheric testing as prescribed in Appendix E, *Atmospheric Testing for Confined Spaces*.
21. Complete Section 3 of the Hanford Confined Space Entry Permit (A-6005-717).

Entry  
Supervisor

22. Authorize entry into the confined space by completing the following.
  - a. Verify all pre-entry activities are complete
  - b. Verify pre-entry atmospheric monitoring of the space indicates that conditions are within acceptable limits
  - c. Verify all sections of the Hanford Confined Space Entry Permit have been completed and contain all required signatures (Sections 1 thru 4)
  - d. Verify HFD is available to perform rescue service
  - e. Verify the means to summon rescuers (e.g. radio, cell phone) are available and operable
  - f. Verify HFD is present before beginning the entry if required by the Hanford Confined Space Entry Permit
  - g. Sign the Hanford Confined Space Entry Permit in section 4
23. Enter the date that the confined space entry activities start on "Date Valid" line of Section 1 on the Hanford Confined Space Entry Permit (A-6005-717).
24. Maintain the Hanford Confined Space Entry Permit at the entrance of the confined space and make it available to all authorized entrants.
25. Terminate the entry immediately if any of the following conditions apply.
  - Acceptable entry conditions in or near the space are not present
  - The HFD is unavailable or becomes unavailable for response
26. Complete Section 5 of the Hanford Confined Space Entry Permit (A-6005-717) if the entry must be terminated due to unacceptable entry conditions or unavailability of HFD.

Attendant

27. Establish and maintain a Hanford Confined Space Entry Log (A-6005-719) to record each individual's confined space entry, exit, and duty.
28. Ensure all personnel associated with the entry are recorded on the Hanford Confined Space Entry Log.

Entry  
Supervisor

29. Perform the following, as required, during the duration of the entry activity.
  - a. Ensure entry operations and conditions are maintained in accordance with the Hanford Confined Space Entry Permit (A-6005-717).
  - b. Take appropriate measures to remove unauthorized personnel who are in or near the space. (Entry is restricted to personnel listed on the Hanford Confined Space Entry Log and members of the rescue team.)
  - c. Ensure problems encountered during an entry operation are documented on the permit.
  - d. Ensure HFD is available for rescue operations by contacting the Department prior to entry.
  - e. Ensure the name and signature of the relieving supervisor is recorded on the Hanford Confined Space Entry Permit (A-6005-717) when the duties of entry supervisor are transferred during the course of entry. (Signature indicates verification of the required conditions specified in the Hanford Confined Space Entry Permit.)
  - f. Serve as attendant if qualified and when applicable and so designated in the Hanford Confined Space Entry Log.

Attendant

30. Order entrants to evacuate the confined space immediately, if any of the following occur.
  - A condition that is not allowed on the permit (e.g., interruption of ventilation)
  - Activation of an alarm on the atmospheric testing equipment
  - Behavioral effects of hazard exposure or an uncontrolled hazard in the space
  - A situation outside the space that could impact the safety of the entrants and attendants
  - The entry supervisor requests an evacuation
  - Attendant must leave the workstation and cannot be replaced by another qualified attendant
  - Attendant cannot perform all required duties safely and effectively

31. Summon HFD under any of the following circumstances.
- Rescuers are required to enter the confined space
  - Rescue involves retrieval of an injured person
  - Attendant needs help performing a non-entry retrieval of the confined space occupants
  - Medical assistance is required
  - Entrant is unable to perform self-rescue
  - If unable to establish communication between Entrant(s) and Attendant

The Attendant shall stand by to inform the rescue team of all hazards associated with the confined space.

32. Perform the following if an unauthorized person approaches a PRCS to enter while entry is underway.
- Warn unauthorized persons approaching the PRCS that they must stay away
  - Advise the unauthorized persons that they must exit immediately if they have entered the PRCS
  - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the PRCS
33. Do not allow tasks or duties to be performed that will interfere with the primary responsibilities of monitoring the entrant's status and alerting the entrants of the need to evacuate the space.
34. Perform the following, as required, during the duration of the entry activity.
- a. Remain stationed outside the confined space during entry operations until relieved by another attendant.
  - b. Ensure all duty changes are documented on the Hanford Confined Space Entry Log (A-6005-719).
  - c. Continuously monitor activities inside and outside the confined space to determine if it is safe for entrants to remain in the space.
  - d. Communicate with entrants as necessary to monitor entrant status.
  - e. Perform non-entry rescue, if necessary, as specified on the permit (e.g. rescue is performed without entering confined space).

Entrants

35. Sign the Hanford Confined Space Entry Log (A-6005-719) for each entry/exit.

Entry  
Supervisor

36. Complete the following to perform confined space entrant functions, as required.
  - a. Understand and implement required measures for work control as defined on the Permit.
  - b. Use all equipment and tools safely and in the manner for which they were designed.
  - c. Communicate with attendant, as necessary, to facilitate the monitoring of entrant status and conditions in the PRCS.
  - d. Alert the attendant if a hazardous or prohibited condition is identified.
  - e. Exit from the PRCS as quickly as possible when ordered to evacuate or an evacuation alarm is activated.
37. Complete all entry operations.
38. Verify all entrants have exited the space.
39. Ensure that temporary barricades and any other equipment associated with the entry have been removed, if applicable.
40. Conduct Post-Entry Review.
41. Ensure any unusual conditions encountered during the entry operation are recorded on the Hanford Confined Space Entry Permit (A-6005-717).
42. Record (on the Hanford Confined Space Entry Permit, Section 5) any feedback information that may be useful to future work activities in the confined space.
43. Cancel the permit per Section 4.4, *Cancelling a Hanford Confined Space Entry Permit*, after completion of the Entry.

#### 4.4 Cancelling a Hanford Confined Space Entry Permit

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Entry Supervisor	1.	Complete, sign, and date Section 5 of the Hanford Confined Space Entry Permit (A-6005-717).
	2.	Attach the Hanford Confined Space Entry Log (A-6005-719) to the canceled Hanford Confined Space Entry Permit.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Facility/ Project Manager OR Cognizant Supervisor/ Manager Cognizant Supervisor/ Manager	3.	Conduct a post review of the permit, with assistance from Safety & Health Professional, if entry operations are canceled due to conditions not allowed by the permit or if unusual conditions are encountered during the entry.
	4.	Send a copy of completed Hanford Confined Space Entry Permit (A-6005-717) (including Hanford Confined Space Entry Log [A-6005-719]) to the Safety and Health Organization.
	5.	See Section 6.0, <i>Records</i> , for disposition of original Hanford Confined Space Entry Permit (A-6005-717).

#### 4.5 Atmospheric Testing for Confined Spaces

Atmospheric testing shall be performed by Industrial Hygiene or atmospheric testing personnel.

Any personnel entering the space or their authorized representative shall be provided an opportunity to observe the pre-entry testing.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Industrial Hygiene	1.	Determine atmospheric testing requirements.
	2.	Document the Sampling Plan and atmospheric testing requirements or applicable survey identification number from the IH database on the Hanford Confined Space Entry Permit (A-6005-717).
Industrial Hygiene/ Atmospheric Testing Person	3.	Verify calibration and maintenance of instruments
	4.	Record instrument calibration data on the Hanford Confined Space Entry Permit (A-6005-717, Section 7) or the appropriate IH survey database. (See Appendix E, <i>Atmospheric Testing for Confined Spaces</i> , for monitoring protocols)
	5.	Record all initial atmospheric test results on the Hanford Confined Space Entry Permit (A-6005-717, Section 3). (See Appendix E, <i>Atmospheric Testing for Confined Spaces</i> , for monitoring protocols)

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
	6.	Test and record readings of the space in accordance with sampling plan requirements.

#### 4.6 Entry to Confined Space with Atmospheric Hazard Only (Alternate Entry)

The following steps are for alternate entry when the only hazard or potential hazard in the PRCS is the atmosphere, which is controlled by continuous forced or exhaust air ventilation. Complete a Hanford Confined Space Entry Permit (A-6005-717) and check the box in Section 1 indicating Alternate Entry.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Cognizant Supervisor/ Manager	1.	Verify that the only hazard posed by the PRCS is an actual or potential hazardous atmosphere.
Industrial Hygiene	2.	Develop the sampling plan and document the data on the Hanford Confined Space Entry Permit (A-6005-717).
Cognizant Supervisor/ Manager	3.	Eliminate any conditions making it unsafe to remove the cover to the confined space.
	4.	Guard the confined space opening with a railing, temporary cover, or other temporary barrier to prevent an accidental fall through the opening and to protect personnel working in the space from foreign objects that may enter.
Industrial Hygiene	5.	Test the internal atmosphere with a calibrated direct reading instrument prior to the introduction of forced or exhaust air ventilation, for oxygen content, flammable gases and vapors, and potential toxic air contaminants (in that order).
Cognizant Supervisor/ Manager	6.	Ensure that continuous forced or exhaust air ventilation is placed in service to eliminate any atmospheric hazard, directing it to those areas personnel are working in, and keeping it in service until all personnel have exited the space. The air supply shall be from a clean source and may not increase the hazards in the space. See Appendix C, <i>Hazard Controls/Work Practices</i> , Section 4.0.
Safety & Health Professional/ Atmospheric Testing Person	7.	Test and record readings of the space, prior to entry and in accordance with sampling plan requirements, to ensure the continuous forced or exhaust air ventilation is preventing the accumulation of an atmospheric hazard.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Cognizant Supervisor/ Manager	8.	Verify the space is safe for entry and authorize entry by completing Section 4 of the Hanford Confined Space Entry Permit (A-6005-717).
		<b>NOTE:</b> <i>Although using Alternate Entry methods does not require a Rescue Team, Rescue Plan, Attendant, or Entry Supervisor, the Job Hazard Analysis/Job Safety Analysis may indicate the need for additional protective measures.</i>
	9.	Ensure the following are performed if an uncontrolled hazardous atmosphere is detected during entry. <ul style="list-style-type: none"> <li>• Each employee shall leave the space immediately</li> <li>• The space shall be evaluated to determine how the hazardous atmosphere developed</li> <li>• Measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entries take place</li> </ul>
	10.	Cancel the permit per Section 4.4, <i>Cancelling a Hanford Confined Space Entry Permit</i> , after completion of the Alternate Entry.

#### 4.7 Downgrading a Permit-Required Confined Space

This section describes how a space classified as a PRCS may be temporarily downgraded (re-classified) to a non-permit confined space when the confined space no longer poses an actual or potential hazard.

**NOTE:** *Control of atmospheric hazards through forced exhaust air ventilation does not constitute elimination of the hazards.*

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Safety & Health Professional	1.	Conduct required entries into the PRCS prior to re-classification in accordance with Section 4.3, <i>Permit Required Hanford Confined Space Entry</i> .
	2.	Perform hazard evaluations for the purposes of reclassification.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Cognizant Supervisor/ Manager <b>And</b> Safety & Health Professional	3.	Ensure that a PRCS is temporarily reclassified to a non-permit confined space only if <b>all</b> of the following conditions are met. <ul style="list-style-type: none"> <li>a. Changed conditions in the PRCS to be re-classified will not pose an actual or potential atmospheric hazard.</li> <li>b. Atmospheric testing has been performed and documented to ensure that the PRCS to be re-classified poses no actual or potential atmospheric hazards.</li> <li>c. Hazards that originally caused the space to be classified as a PRCS have been eliminated and remain eliminated during entry operations.</li> <li>d. Planned work introduces no hazards into the reclassified PRCS that would trigger designation as a PRCS.</li> </ul>
Safety & Health Professional	4.	Complete a Hanford Confined Space Entry Permit (A-6005-717) as follows. <ul style="list-style-type: none"> <li>a. Describe potential hazards of the space in Section 2.</li> <li>b. Describe method(s) authorized to eliminate hazards prior to entry in Section 2.</li> <li>c. Check downgrade box in Section 1.</li> <li>d. Sign and date Section 4.</li> </ul>
Cognizant Supervisor/ Manager	5.	<ul style="list-style-type: none"> <li>a. Verify methods to eliminate the hazards have been implemented.</li> <li>b. Initial Section 2.</li> </ul>
Facility/ Project Manager	6.	Authorize downgrade of the space by completing Section 4 on the Hanford Confined Space Entry Permit (A-6005-717).
Cognizant Supervisor/ Manager	7.	Brief all entry team members and support personnel of the permit requirements per Appendix D, <i>Pre-job Review for Confined Space Entry Work</i> .
	8.	Document completion of the following on the downgraded Hanford Confined Space Entry Permit (A-6005-717) immediately prior to the planned entry into the space. <ul style="list-style-type: none"> <li>• All specified pre-entry hazard elimination activities have been accomplished (Section 2 of Permit)</li> <li>• All applicable sections of the Permit are completed</li> </ul>
	9.	Authorize entry into the downgraded confined space by signing the downgraded Hanford Confined Space Entry Permit (A-6005-717) in Section 4.

**NOTE:** *A signed Hanford Confined Space Entry Permit is the official authorization for downgrading a PRCS.*

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
	10.	Post the downgraded Hanford Confined Space Entry Permit at the entrance of the confined space.
Entrants	11.	Exit the confined space immediately if an unplanned hazard arises within the space and report the hazard to the Cognizant Supervisor/Manager.
Cognizant Supervisor/ Manager	12.	Re-evaluate the confined space if an unplanned hazard arises and determine if the space shall be re-classified as a PRCS.
	13.	Complete the following after all entry activities have been completed. <ul style="list-style-type: none"> <li>a. Verify all entrants have exited the space.</li> <li>b. Ensure any temporary barricades are removed.</li> <li>c. Return the space to service, as applicable.</li> </ul>
	14.	Review Permit for completeness.
	15.	Cancel the permit per Section 4.4, <i>Cancelling a Hanford Confined Space Entry Permit</i> , after completion of the entry.

#### **4.8 Multi-Employer Entries**

Hanford confined space entry involving employees of more than one prime contractor or subcontractor working in a space simultaneously shall be coordinated by the work authorizing organization (such as the facility/project manager, the prime contractor, or other entity with responsibility for the confined space) to ensure that all work is conducted safely.

- Personnel involved in the confined space entry shall be informed of hazards that may be introduced by other workforces
- Entry shall be authorized by issuance of a single Permit
- Workers participating in a multi-employer entry shall attend a single pre-job briefing coordinated by the designated entry supervisor

#### 4.9 Non-Permit Confined Space Entry Process

This section describes the process for entry into confined spaces identified as a non-permit confined space on the Hanford Confined Space Hazard Identification Form (A-6005-724) and the use of a Job Hazard Analysis/Job Safety Analysis.

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Safety & Health Professional	1.	Evaluate the potential affect planned work activities may have on the space configuration. <ol style="list-style-type: none"> <li>a. If the planned work activities <b>will not</b> introduce space hazards or affect the space configuration, proceed as a routine work package</li> <li style="text-align: center;"><b>OR</b></li> <li>b. If the planned work activities <b>will</b> introduce space hazards or affect space configurations, see Section 4.3, <i>Permit Required Hanford Confined Space Entry</i>.</li> </ol>
	2.	Complete Section 5 of the Hanford Confined Space Hazard Identification Form (A-6004-724).
Cognizant Supervisor/ Manager	3.	Verify that the configuration of the confined space is the same as stated on the Hanford Confined Space Hazard Identification Form (A-6004-724).
	4.	Sign and date Section 5 of the Hanford Confined Space Hazard Identification Form (A-6004-724).
	5.	Ensure that hazards associated with work activities in non-permit confined spaces are managed in accordance with this Procedure and in compliance with other applicable OSHA standards by completing a Job Hazard Analysis/Job Safety Analysis.
	6.	Brief all entry team members and support personnel on the hazards associated with the entry and the requirements of Appendix D, <i>Pre-job Review for Confined Space Entry Work</i> .
Safety & Health Professional/ Atmospheric Testing Person	7.	Test the atmospheric conditions to ensure conditions are safe for entry, if requested.
	8.	Document test results in the work package.

## 5.0 CONTROL AND REVIEW OF DOCUMENTS

<i>Actionee</i>	<i>Step</i>	<i>Action</i>
Safety & Health Organization	1.	<p>Maintain the following documents.</p> <ul style="list-style-type: none"> <li>• Hanford Confined Space Hazard Identification Forms</li> <li>• Copies of canceled Hanford Confined Space Entry Permits               <ul style="list-style-type: none"> <li>○ Copies of canceled Hanford Confined Space Entry Permits shall be maintained for at least twelve (12) months</li> </ul> </li> </ul>
	2.	<p>Review the Program to ensure that employees participating in entry operations are protected from permit space hazards by reviewing the canceled permits retained under step 4.4.4 within one year after each space entry and revise the implementation process as necessary.</p> <p><b>NOTE:</b> <i>Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.</i></p> <p>Submit review/assessment to appropriate assessment organization.</p>

## 6.0 RECORDS

The following records are generated during the performance of this procedure:

<b>Record Description</b>	<b>Submittal Responsibility</b>	<b>Retention Responsibility</b>
Hanford Confined Space Hazard Identification Form (A-6004-724)	Safety and Health Organization	Project Safety & Health
Hanford Confined Space Entry Permit (A-6005-717)	Cognizant Supervisor/Manager	Operations as part of Work Package
Hanford Confined Space Entry Log (A-6005-719)	Cognizant Supervisor/Manager	Operations as part of Work Package
Hanford PRCS Entry Notification – Hanford Fire Department (A-6005-718)	Cognizant Supervisor/Manager	Operations as part of Work Package
Memos documenting annual reviews of Confined Space Permits	Safety and Health Organization	Quality Assurance

## **7.0 SOURCES**

### **7.1 Requirements**

1. 10 CFR 851, “Worker Safety and Health Program.”
2. 29 CFR 1910.146, OSHA, “Permit-Required Confined Spaces.”
3. 29 CFR 1926.21(b) and Subpart M, “Safety and Health Regulations for Construction.”

### **7.2 References**

1. DOE-0336, Hanford Site Lockout/Tagout
2. DOE-0344, Hanford Site Excavation Trenching & Shoring Procedure
3. National Fire Protection Association (NFPA) 70, National Electrical Code
4. NFPA 70E, Standard for Electrical Safety in the Workplace
5. American Conference of Governmental Industrial Hygienists (ACGIH) TLV’s
6. ANSI Z117.1-2009 Safety Requirements for Confined Spaces
7. ANSI Z49.1 Safety in Welding and Cutting

## Appendix A: Definitions

<b>Alternate Entry</b>	Entry into a confined space that has only atmospheric hazard that can be controlled by continuous forced or exhaust air ventilation.
<b>Atmospheric Testing Person</b>	A person qualified to conduct monitoring of atmospheric conditions who works under the direction of a supervisor or company qualified industrial hygienist. (See Appendix E, <i>Atmospheric Testing for Confined Spaces</i> )
<b>Attendant</b>	An individual who is stationed outside a PRCS who monitors the authorized entrants and performs other attendant functions. (See Section 2.3, <i>Attendants</i> )
<b>Authorized Entrant</b>	An employee authorized to enter a PRCS.
<b>Cognizant Supervisor/Manager</b>	The person responsible for the execution of work and/or has the authority to release work or work packages (e.g. Line/Construction Manager or Field Work Supervisor).
<b>Confined Space</b>	A space that: <ul style="list-style-type: none"><li>• Is large enough and so configured that an employee can bodily enter and perform assigned work</li><li>• Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry)</li><li>• Is not designed for continuous employee occupancy</li></ul>
<b>Entry (into a confined space)</b>	When any part of a person's body breaks the plane of the PRCS.
<b>Entry Supervisor</b>	The person responsible for determining if acceptable entry conditions are present at a PRCS where entry is planned, for authorizing entry, for overseeing entry operations, and for terminating entry as required.
<b>Facility/Project Manager</b>	The person at the facility/project with the authority to ensure all hazards are identified and mitigations for hazards are implemented.

**Hazardous Atmosphere**

An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from any of the following causes.

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL)
- Airborne combustible dust at a concentration that meets or exceeds its LFL

*NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52m) or less.*

- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent
- Toxic, corrosive, or asphyxiate substances present in airborne concentrations that have a reasonable potential to cause death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects

*NOTE: Refer to Occupational Safety and Health Administration (OSHA) Subpart G and Subpart Z permissible exposure limit (PEL) or American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) or Hanford established limits.*

- Any other atmospheric condition that is immediately dangerous to life or health (IDLH)

*NOTE: Posting a space as a radiological work area does not meet the 29 Code of Federal Regulations 1910.146(b) definition of a hazardous atmosphere, thus would not in and of itself require classification of a space as a permit-required confined space.*

**Immediately Dangerous to Life or Health (IDLH)**

Any condition that poses an immediate or delayed threat to life, would cause irreversible adverse health effects, or that would interfere with an individual's ability to escape unaided from a permit space.

**Lower Flammable Limit (LFL) or Lower Explosive Limit (LEL)**

Lowest concentration of a substance in the air (usually expressed in percent by volume) that will produce a flash or fire when an ignition source (heat, electric arc, or flame) is present. At concentrations lower than the LEL, propagation of a flame will not occur in the presence of an ignition source.

**Non-Permit Confined Space**

A confined space that does not contain, or have the potential to contain, atmospheric hazards or any other hazards capable of causing death or serious physical harm.

**Permit-Required  
Confined Space  
(PRCS)**

A confined space that has one or more of the following characteristics:

- Contains, or has a potential to contain, a hazardous atmosphere
- Contains a material that has the potential for engulfing an entrant
- Contains an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls
- Contains a floor which slopes downward and tapers to a smaller cross-section
- Contains any other recognized serious safety or health hazard

**Safety & Health  
Professional**

An Industrial Safety/Industrial Hygiene representative that provides guidance and oversight to implement the confined space requirements.

**Work Package**

A package consisting of forms, documents, procedures, permits, work instructions, etc., as required by a work control process and utilized by workers to accomplish a defined task. For construction project work, the work order/project controlling document is the work package.

## Appendix B: Confined Space Training Requirements

General Training for permit required confined space (PRCS) shall include:

- Occupational Safety and Health Administration (OSHA) regulations pertaining to PRCS
- Department of Energy (DOE) 0336, *Hanford Site Confined Space Procedure*
- A physical demonstration by the employee performing the duties they are assigned associated with a PRCS

In addition to the above requirements, training specific to authorized entrants, attendants, entry supervisors and atmospheric testing person shall contain the following.

1. Authorized entrant training shall include:
  - Hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure to such hazards
  - The proper use of testing and monitoring equipment for atmospheric hazards
  - The proper operation of ventilating equipment for obtaining and maintaining acceptable entry conditions
  - The use of communication equipment that may be used during PRCS entries
  - Personal protective equipment (PPE) equipment specific to PRCS entries
  - Lighting equipment specific to PRCS entries
  - Purging, inerting, and flushing equipment specific to PRCS entries
  - Additional equipment necessary for safe entry into a PRCS
  - Communication requirements of the authorized entrant
  - Situations in the PRCS that require the entrant to alert the attendant
  - Situations in the PRCS that require the entrant to exit the PRCS
2. Attendant training shall include:
  - Hazards that may be faced during PRCS entries, including information on the mode, signs or symptoms, and consequences of exposure to such hazards
  - The possible behavioral effects of hazard exposure on authorized entrants
  - The proper use of testing and monitoring equipment for atmospheric hazards
  - The attendant's responsibility to maintain an accurate count of authorized entrants in the PRCS
  - The attendant's responsibility to remain outside the PRCS
  - The attendant's responsibility to monitor entrant status and to alert entrants of the need to evacuate if required
  - The conditions that would require an attendant to evacuate entrants from a PRCS
  - When to summon rescue or other emergency services
  - The actions to perform if an unauthorized person approaches or enters a PRCS
  - The limitations associated with the attendant's duties

3. Entry supervisor training shall include:
  - Hazards that may be faced during PRCS entries, including information on the mode, signs or symptoms, and consequences of exposure to such hazards
  - The requirements that must be completed before endorsing a PRCS permit and allowing entry into the PRCS
  - The conditions under which a PRCS permit may be terminated
  - The Entry Supervisors responsibilities associated with rescue services
  - The Entry Supervisors responsibilities associated with unauthorized individuals who enter or attempt to enter the PRCS
  - Responsibilities to ensure PRCS entry operations remain acceptable and consistent with the PRCS Permit
  
4. Designated atmospheric testing persons training shall include:
  - The proper use, application, and limitations of the instrumentation to be used
  - Field calibration and performance checks of instruments
  - Anticipated hazardous contaminants
  - Instrument operation
  - Knowledge of alarm set points
  - Actions required when an alarm occurs
  - Related documentation requirements

## Appendix C: Hazard Controls/Work Practices

Below is a partial list of potential hazards and methods of control/elimination to be considered. Refer to Occupational Safety and Health Administration (OSHA)/company/utility specific guidelines for more in-depth applications.

### 1.0 Elimination or Control of Confined Space Hazards

For permit-required confined space (PRCS) entries, controls shall be assigned commensurate with the risk and dependent on the hazard(s). Controls shall be determined based on whether the hazard will be eliminated prior to entry or controlled prior to and during entry. When feasible, hazard control/reduction shall be implemented by:

1. Redesigning tasks so that entry into a confined space is unnecessary
2. Using accepted engineering control measures
3. Applying administrative controls and work practices
4. Prescribing personal protective equipment (PPE)

Ensure that recommendations for controls or work practices are prescribed with consideration to any additional hazards that the control may introduce.

Ensure that prescribed protective measures do not interfere with the ventilation requirements for the space, means of ingress or egress, or rescue methods.

### 2.0 Electrical Vault Entry

Current carrying power conductors in electrical vaults and circuits passing through or terminating in the vaults (which meet the criteria of a confined space as defined in Appendix A, *Definitions*) shall be de-energized and locked/tagged out prior to entry, unless it is determined during the planning process that there is no electrical hazard. (This does not apply to large spaces like cable spreader rooms, which present no inherent electrical hazards.) If de-energizing is infeasible or creates a greater hazard the following shall be completed prior to personnel entry.

- Provide written justification on the Confined Space Permit for why the conductors cannot be de-energized
- Prepare a work plan, including a Job Hazard Analysis/Job Safety Analysis
- A Safety and Health Professional and a Qualified Electrical Worker shall review and approve the work plan and justification

**NOTE:** *Confined spaces containing energized but adequately protected conductors do not necessarily constitute a PRCS.*

### 3.0 Isolation/Tagout Requirements

1. Evaluate energy sources/materials, including equipment not connected to an energy source but having unguarded movable parts.
2. Consider outside sources that could introduce a hazardous substance into the space.
3. If sources are determined to be potentially hazardous to the entrants, then isolate in accordance with DOE-0336, *Hanford Site Lockout/Tagout*.

4. Examples of hazardous energy include electrical, mechanical, hydraulic, pneumatic, chemical, and thermal energies, in addition to potential energies such as compressed gases, springs, or suspended objects.
5. Acceptable means of isolation include
  - Blanking or blinding
  - Misaligning or removing sections of lines, pipes, or ducts
  - A double block and bleed system
  - Lockout/tagout of all sources of energy
  - Blocking or disconnecting all mechanical linkages

#### **4.0 Purging/Flushing/Ventilation Requirements**

1. Prior to entry, ensure confined spaces are emptied or otherwise purged of flammable, injurious, or incapacitating substances, as feasible.
2. If safe levels cannot be achieved, additional ventilation or other engineering controls shall be implemented to reduce contaminants to the lowest level possible and adequate PPE shall be provided.
3. Pure oxygen shall not be introduced into the space for purposes of ventilation or to improve the breathing air quality.
4. If flammable gases, vapors, or combustible dusts are present, ventilating equipment shall be approved for use in the specific hazardous location (see the National Fire Protection Association [NFPA]).
5. Test the atmosphere prior to and during ventilation of the space to ensure acceptable entry conditions. If the ventilation system shuts down, entrants shall leave the space and not re-enter until approved by a Safety and Health Professional.
6. Continuous ventilation or local exhaust ventilation of the confined space shall be provided and maintained during welding, painting, and other operations that generate air contaminants. If ventilation is not possible or feasible, alternative protective measures shall be developed by line management and a Safety and Health Professional.
7. The ventilation arrangement for the space must preclude the entry of atmospheric contaminants into the ventilation intake and the exhaust of contaminants into adjacent work areas.

#### **5.0 Welding, Cutting, and Heating**

1. Welding and cutting performed in a confined space requires the use of a Hot Work Permit.
2. Ensure that fire hazards, flammable and toxic atmospheres have been controlled.
3. Inert gases may be present due to welding processes and air should be continuously tested for oxygen depletion.

4. ANSI 749.1, *Safety in Welding and Cutting*, specifically prohibits the placing of gas bottles or welding machines in confined spaces. Practice is to place break points for the leads and hoses (if necessary) and the entry point. The only gas bottles allowed in a confined space are SCBA's or Escape bottles.

## **6.0 Fall Protection and Retrieval**

1. Provisions for fall protection and retrieval systems shall be based on the hazard analysis. See company-specific fall protection requirements.
2. Fall protection and retrieval system components consist of personal protective gear (e.g. harness), connecting devices (e.g. retracting lifelines, retrieval devices), and approved anchorages (e.g. tri-pod).
3. Emergency retrieval equipment shall only be used to lift injured personnel from a vertical confined space.
4. Material hoists shall be approved for use and separate from the anchorage systems used for fall protection.
5. Devices, such as combination retractable lifeline/retrieval devices, may meet both fall protection and emergency rescue functions.

## **7.0 Excavations and Trenches**

1. Each situation shall be evaluated separately to determine whether the requirements for confined space entry apply to the anticipated work.
2. The Cognizant Supervisor/Manager, with assistance from a Safety and Health Professional shall determine if this procedure is applicable.
3. Excavations and trenching shall be conducted in accordance with DOE-0344, *Hanford Site Excavation, Trenching and Shoring Procedure*.

## **8.0 Personal Protective Equipment (PPE)**

1. PPE selection, as determined by a Safety and Health Professional, shall be appropriate for the conditions and configuration of the confined space based upon results of the hazard evaluation.
2. Confined space entrants whose work requires respiratory protection shall be fit tested, trained, and medically cleared in accordance with the appropriate contractor program/procedure.

## **9.0 Requirements for Equipment and Tools**

1. For requirements on the use of hand tools, portable power tools, power actuated tools, and portable power equipment see the appropriate contractor program/procedure.
2. In confined spaces, ground fault circuit interrupters shall be used with all power tools that are not double insulated and when using extension cords and temporary electrical lighting.
3. If flammable liquids, gases, or vapors are present, use only tools, lighting, communications equipment, and other electrical equipment that is approved for use in the specific hazardous location.
4. Ladders, scaffolding, and staging shall be designed, placed, and used in accordance with appropriate procedures.

## **10.0 Illumination Requirements**

1. All lighting used in spaces containing or having the potential to contain flammable vapors or explosive dusts shall be approved for use in hazardous atmospheres. This requirement also applies to low voltage lighting such as droplights.
2. Install temporary lighting per National Electric Code (NEC) requirements.
3. Lighting shall be sufficient to ensure that entrants are able to see clearly, avoid potential hazards, and exit the space quickly in an emergency.

## **11.0 External Hazards**

1. When entrance barriers are removed from “below grade” confined spaces, the opening shall be guarded with a railing, temporary cover, or barrier to prevent personnel or objects from falling into the space.
2. Motorized vehicles and other equipment or adjacent activities that may introduce an atmospheric hazard to the confined space shall be positioned in a manner that does not compromise the safety of the confined space entrant.

## **Appendix D: Pre-Job Review for Confined Space Entry Work**

Employees doing work in a confined space must be advised of the potential hazards and methods that are used to eliminate/control the hazards. The following are provided to assist in effective pre-job briefings.

1. For entry into a non-permit confined space, the following topics shall be presented.
  - Rationale for space classification
  - Requirements of atmospheric testing
  - Job hazards specific to work in the space and how hazards shall be controlled (reference Job Hazard/Safety Analysis)
  
2. For entry into a Confined Space with Atmospheric Hazard Only (Alternate Entry), the following topics shall be presented.
  - Atmospheric hazards identified prior to and after ventilation
  - Controls in place to eliminate atmospheric hazard
  - Discussion of the hazard(s), including signs/symptoms of exposure
  - Requirements of atmospheric testing
  - Job hazards specific to work in the space and how hazards are to be controlled (reference Job Hazard Analysis/Job Safety Analysis)
  
3. For entry into a Downgraded Permit Space, the following topics shall be presented.
  - Hazards originally causing the permit-required confined space (PRCS) classification
  - Process by which the hazard(s) shall be eliminated to allow downgrading
  - How the downgrade shall be implemented in the job so workers shall be assured controls are in place prior to entry
  - Job hazards specific to work in the space and how hazards shall be controlled (reference Job Hazard Analysis/Job Safety Analysis)
  
4. For entry into a PRCS, the following topics shall be presented.
  - Hazards causing classification as PRCS
  - Discussion of the hazard(s), including signs/symptoms of exposure
  - Requirements of PRCS permit
  - A review of the duties and responsibilities of personnel, including the Entry Supervisor, Attendant(s), Atmospheric Testing Person, and Entrant(s).
  - Provisions for retrieval and rescue (e.g. who is designated, how notified)
  - Job hazards specific to work in this space and how hazards are to be controlled (reference Job Hazard Analysis/Job Safety Analysis)

## Appendix E: Atmospheric Testing for Confined Spaces

1. Perform atmospheric testing by completing the following steps.
  - a. Perform testing as prescribed by the Hanford Confined Space Entry Permit (A-6005-717).
  - b. Notify Entry Supervisor or attendant immediately if testing indicates the presence of a hazardous atmosphere in the confined space.
2. Sequence of testing:
  1. Oxygen content
  2. Flammable gases/vapors
  3. Toxic gases/vapors (as prescribed by the permit)

**NOTE:** *Even when oxygen deficiency is not an identified hazard, oxygen concentration must be monitored because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen deficient atmosphere.*

3. Use of mechanical ventilation.

When portable mechanical ventilation is used, perform atmospheric testing first with the ventilation off, and subsequently with the ventilation on.
4. Stratified atmospheres.

When testing for entries involving atmospheres that may be stratified, test the atmospheric envelope at a distance of approximately 4 feet in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress shall be slowed to accommodate the sampling speed and detector response.

**NOTE:** *Stratified atmospheres are a common characteristic of sealed spaces or areas that are not exposed to changing atmospheric conditions. Spaces with large access areas exposed to atmospheric wind conditions are highly unlikely to maintain stratified conditions.*

5. Large spaces or areas that cannot be isolated.

If the space configuration hampers effective atmospheric testing, as may occur with large spaces or spaces that cannot be isolated such as a sewer system, complete the following.

  - a. Perform pre-entry testing to the maximum extent possible before entry is authorized.
  - b. If entry is authorized, continuously test conditions in the areas where entrants are working.

**NOTE:** *Providing entrants with personal monitoring devices they are trained to use is one method of providing this continuous monitoring.*

## **Attachment 1: Hanford Site Confined Space Procedure Committee Charter**

The Hanford Site Confined Space Procedure (HSCSP) Committee is established to serve as the advisory group providing consensus direction for the consistent administration and implementation of the HSCSP, herein called the Procedure. The participating contractors and organizations are responsible for appointing representatives to the committee.

The Department of Energy (DOE) Richland Operations Office (RL), DOE Office of River Protection (ORP), and affected Contractors acknowledge that a joint committee provides the best approach for implementing a consistent, effective, and compliant interpretation of requirements for the Procedure. The parties agree to cooperate in a teambuilding manner to ensure that the full intent of the Procedure is met and will be responsibly carried out by their respective organizations.

### **1.0 Mission**

The mission of the HSCSP Committee is to ensure consistent and standard application of the Procedure to promote and maintain a safe work environment. The Committee shall achieve this consistent approach through sharing best practices, lessons learned, and matters that affect multiple contractors to foster continuous improvement.

### **2.0 Committee Structure/Membership/Qualification**

The Committee shall be comprised of two primary representatives each from the following prime contractors to the DOE at Hanford.

- Mission Support Contract (MSC)
- Plateau Remediation Contract (PRC)
- River Corridor Closure Contract (RCCC)
- Tank Operations Contract (TOC)

One representative shall be the contractor's Technical Representative for the Procedure as determined by their contractor; the second representative shall be a Hanford Atomic Metal Trades Council (HAMTC) representative (as appointed by the HAMTC President or delegate).

In addition, one representative each from the following organizations shall be appointed to serve on the Committee.

- Central Washington Building and Construction Trades Council (CWB&CTC) (as approved by the Union President or delegate)
- HAMTC

These representatives comprise the voting membership. An alternate member shall be identified to serve during any absence of a primary representative. The alternate shall have the same authority as the primary representative.

Representatives from Volpentest HAMMER Training and Education Center (HAMMER) Training Department and AdvanceMed Hanford (AMH) shall attend meetings as non-voting

members to address matters pertaining to their respective areas of responsibility. An alternate member shall be identified to serve during any absence of a primary representative.

A Committee member's length of duty may be indeterminate, but rotation of representative assignments is encouraged by all parties.

A chair and co-chair shall be elected by a simple majority of the voting membership of the Committee every two years. The chair and co-chair may be reelected to their respective positions.

Meetings shall be open to others to observe and to give their organizations' impact, perspectives, and technical advice for consideration of the voting body, however, participation in consensus decisions resides solely with the Committee members described herein. The Committee has the authority to develop sub-committees and invite ad hoc participants as needed.

Representatives of RL and ORP shall be invited to participate at each meeting as non-voting attendees.

The MSC shall provide a recording secretary for the Committee. The recording secretary is a non-voting position that provides administrative support to the chairperson. A facilitator shall be provided by the MSC as requested by the Committee.

### **3.0 Functions of the HSCSP Committee**

The functions of the Committee shall be:

- Assist the MSC with the maintenance of the written Procedure
- Communicate and submit Procedure changes to RL and ORP through the MSC
- Maintain the Committee charter and review annually
- Review and verify that training is consistent and appropriately covers the content of the Procedure
- Evaluate trends in performance and recommend actions for improvement
- Review confined space related events, issues, and lessons learned as appropriate
- Ensure distribution of lessons learned as necessary
- Maintain communication with the Contractor Confined Space/Safety Committees and collaborate to resolve worker level issues, concerns, or events in a way that maintains site-wide consistency
  - Since the core function of a Site-wide Safety Procedure is “worker protection,” it is imperative to have a structure that fosters and encourages input and feedback from the working level. Affected contractors shall convene a working level committee (also referred to as a lower tier committee) to discuss issues, concerns, or events that occur in the area of confined space within their organizations. These working level committees shall include equal representation of bargaining unit (as appointed by the bargaining unit president or delegate) and non-bargaining unit employees and ensure good communication up through each group’s representative(s) on the HSCSP Committee.

- Evaluate and recommend resolution for issues/disputes pertaining to the Procedure
- Issues shall not include any actions regarding applicable Collective Bargaining Agreements
- Recommend topics/information for communication to the workforce
- Provide Procedure status to the Senior Management Team (SMT) and DOE management when requested

#### **4.0 Roles and Responsibilities**

##### **4.1. Chair Roles and Responsibilities**

- Schedule meetings
- Facilitate meetings in an orderly fashion
- Limit disruptions
- Ensure meeting agendas are prepared
- Ensure meeting minutes are taken and comments are documented
- Function as a point of contact and spokesperson for the Committee
- Interface with other site-wide committees as necessary
- Ensure action item list is maintained and members complete their assignments in a timely manner
- Coordinate assignments of sub-committee(s)

##### **4.2. Co-Chair Roles and Responsibilities**

- Act as the Chair when the Chair is absent
- Perform roles and responsibilities as delegated by the Chair

##### **4.3. Member Roles and Responsibilities**

- Provide the chairperson with the identity of an alternate Committee member who is designated as the organizational representative
- Attend and participate in meetings when scheduled or notify their alternate when unable to attend
  - Alternates are responsible to attend and participate in meetings when the primary cannot attend
  - If the primary and alternate are both unable to attend, the Chair shall be notified
- Foster communication between the Committee and affected organizations relative to issue identification, interpretations, and consensus resolution
- Work in good faith toward consensus on issues without compromising safety or Procedure compliance
- Maintain a safety and requirements focus when addressing issues; avoid facility, craft, job function, or contractor biases when participating in discussions or voting
- Maintain current knowledge of the requirements of the Procedure
- Participate in issue discussions representing respective organization
- Bring up issues or speak in discussions only after being recognized by the chairperson
- Listen respectfully and refrain from interrupting others
- Refrain from disruptive side conversations

## **5.0 Meetings**

- Meet regularly as necessary, but no less than quarterly, via scheduled meetings
- Hold special meetings to address urgent or emerging issues
- Record and retain meeting minutes and action items, and distribute to the membership, alternates, and DOE
- Document and maintain record copies of voting decisions

## **6.0 Meeting Agenda**

- The chairperson shall ensure an agenda is prepared for each meeting, using input from the membership, and forward a copy to all members, alternates, and DOE in advance of the meeting time and date
- Action items shall be assigned and tracked

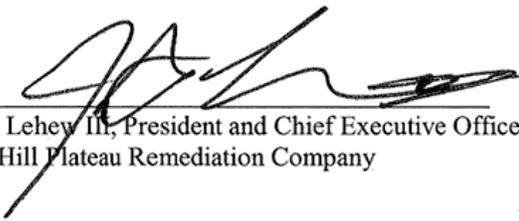
## **7.0 Quorum and Voting**

The Committee shall be considered to have a quorum when all Committee members who are eligible to vote (or their designated alternates) are present. One or more dissenting votes from the voting membership will be cause for an issue to elevate into a secondary phase of discussion and comment.

## **8.0 Secondary Phase of Discussion and Issue Resolution**

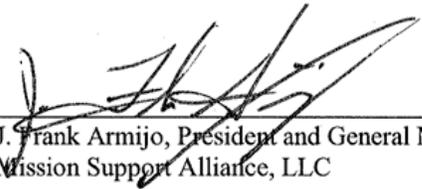
Matters not agreed upon by the Committee through the initial voting process shall be elevated to the secondary phase of discussion. This phase may include up to two additional meetings. Further discussion/investigation beyond the two additional meetings may be conducted if there is unanimous agreement by the Committee.

If consensus cannot be reached by the Committee, the issue may be elevated to the SMT and/or DOE. The SMT shall provide a status of their resolution process to the Committee at scheduled meetings.



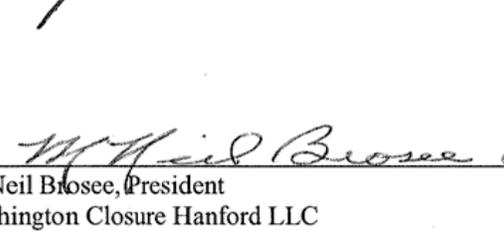
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John G. Lehey III, President and Chief Executive Officer  
CH2M Hill Plateau Remediation Company



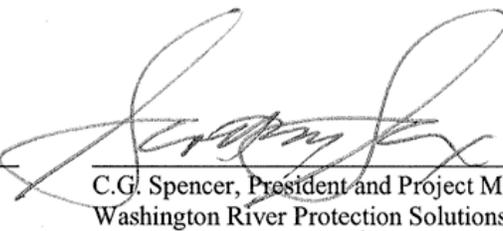
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J. Frank Armijo, President and General Manager  
Mission Support Alliance, LLC



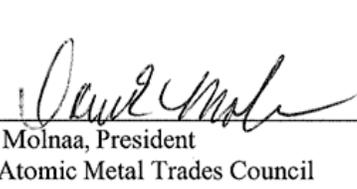
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M. Neil Brosee, President  
Washington Closure Hanford LLC



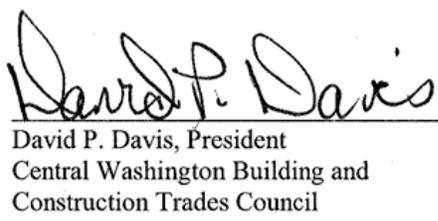
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C.G. Spencer, President and Project Manager  
Washington River Protection Solutions LLC



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David E. Molnaa, President  
Hanford Atomic Metal Trades Council



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David P. Davis, President  
Central Washington Building and  
Construction Trades Council