Procedures

DOE-0344

Hanford Site Excavating, Trenching and Shoring Procedure (HSETSP)

Revision 4, Change 1

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CHANGE SUMMARY

Description of Change

Changes to allow the use of an automated permitting process; Formatting and grammatical changes made to improve readability of the document

DOE-0344
Revision 4-1

Hanford Site Excavating, Trenching and Shoring Procedure (HSETSP)

Prepared for the U.S. Department of Energy

Assistant Secretary for Environmental Management

CHANGE SUMMARY

Justification for revision: This revision is to allow for the use of an automated permitting process.

General Changes:

1. Changes to allow the use of an automated permitting process.
2. Formatting and grammatical changes made to improve readability of the document

Section	Change Details
Signature Page	Signature lines updated to reflect changes in leadership
Table of Contents	Page numbers were updated
Various	Active links to places outside the document were removed, as Site Wide Standard procedures no longer use active outside links
2.0	In third paragraph, changed language after *"concrete core drilling"* to *"...replacement of posts, or other penetrations that are in the original location and are equal to or less than the original depth and diameter."* Also removed *"blind penetration"* from note.
3.0	Deleted *"publication"* and replaced with *"completion of an integrated implementation plan"*
5.0	Note modified so that it no longer reads like an action step
5.1	Added *"or environment"* to the end of the first sentence; deleted last sentence of note that referred reader to Appendix B
5.1.3	Added *"Responsible Person"* to the actionee column
5.1.4	Modified Step 4 by changing language to *"Ensure hazards are analyzed and a ground scan is considered as part of the work planning and execution process."* A note was also added to this step to clarify that the Safety and Health Organization will review/approve the hazards analysis.
5.1.9	Modified language from *"in accordance with supervisory directions and safe work practices"* to *"within identified controls and in accordance with safe work practices."*
5.2	Added a note to say that consultations should be started as soon as possible so that evaluations will be completed before it impacts work schedules.
5.2.1	Removed note about allowing time for biological activity/seasonal considerations; also changed *"environmental reviewer who will sign the excavation permit Block 11"* to *"applicable Environmental Compliance Officer (ECO)"*

Section	Change Details
5.2.3	Deleted language in Step 3 regarding consulting applicable waste site owner
5.2.4	Deleted *"applicable Environment Compliance Officer (ECO)"* and changed *"Groundwater/Vadose Zone group* to *"well coordinator."*
5.2.5	Modified last sentence from *"Include the approved document in the job hazard analysis or the work package"* to *"Include this documentation in the work package"*
5.3.1	Moved note from end of section to the beginning; in the first bullet removed *"outside culturally sensitive areas"* and *"305 mm"*
5.3.2	Modified the last sentence of the second paragraph from *"The approved document must be included in the job hazard analysis of the work package"* to "*Include this documentation in the work package."* Also removed the following sentence and two bullets from this section
5.3.3	Many of the steps modified to account for the use of the automatic permitting system
5.3.3.4	Modified to reflect changes in how a permit number will be obtained; added a note to introduce the two applications used in the automated permit process The numbering of steps changed slightly in this section due to addition and deletion of steps
5.3.4.6	Note added to account for non-applicable reviewers; simplified previously existing note by deleting language deemed to be unnecessary
5.3.4.7	Information separated into two separate lettered bullets to increase clarity
5.3.4.8	Modified language for increased readability
5.3.4.9	Section 5.3.4.10 in previous revision. Deleted original step 9, as it applied to paper form; former step 10 becomes 9 and two notes are added regarding use of the SEPA system
5.3.4.12	Added text on SEPA system
5.3.4.13	Inserted step about automatic permitting process
5.3.4.14	The previous step 14 that discussed indicating controls on the permit/signing and dating, was deleted.
5.3.4.14	Previously step 17 in the last revision, this step was modified to specify that the first bullet applies to only selected reviewers, while the second bullet applies to all reviewers. The first sentence also clarifies that this step take place *"During review cycle…"*A note was also added to direct responsible person to contact Company Permit Coordinator and language was modified
5.3.4.15	Added a new step that permit originator should review all comments and ensure all supporting documents have been attached to the e-Form.

Section	Change Details
5.3.4.15 and 5.3.4.16	Deleted previous steps 15 and 16, which directed the Permit Reviewer to assist the Responsible Person
5.3.4.17	Changed actionee to only responsible person, and replaced *"the person responsible for the facility"* with *"the Facility/System Owner;"* also modified the last sentence and separated it as a note
5.3.4.18	Wording changed and note added to reflect the change to the SEPA system
5.3.4.18	Previously step 21 (in rev 3) and 18 (in this document) this step was deleted from this section and moved to step 2 of 5.4.1
5.3.4.19	Wording was modified
5.3.5	Added section to account for Permit revisions
5.4.1.1	Deleted note about biological/ecological reviews being good for a limited number of months, also replaced *"to ensure compliance with specified construction windows…"* with *"for any operating restrictions."*
5.4.1.2	Moved step 21 in rev 3 (18 in this procedure) from 5.3.4 to step 2 of this section; Also deleted the last paragraph and moved to a new step 7
5.4.1.4	Added *"(U-Dig Ticket #)"* to step c.
5.4.1.5	Deleted *"for the respective plant"* at the end of last sentence
5.4.1.7	Added a new step 7 from language that was deleted from step 2, changed the actionee to responsible manager
5.4.2.1	Removed hyperlink to PDF of a work package
5.4.2.4, 5	Deleted *"environmentally protective boundaries are established"* and moved it into a separate step (5); in step 4, language was replaced with *"execution of work per formal Hazard Analysis"*
5.4.3.8	Deleted reference to Appendix F
5.4.3.9	Added a new step 9 to address potential of hazardous atmospheres
5.4.3.10	Previously 5.4.3.9. In the first sentence, replaced *"will be…"* with *"will have the potential to be…"*
5.4.3.10	Previously 5.4.3.9. Deleted *"Evaluate any unplanned damages, injury, releases, etc., for input to the reporting of occurrences;"* Also, inserted specific reference to Electrical Safety Program
5.4.3.11	Previously 5.4.3.10. Replaced end of first sentence with *"activities that have the potential to encroach within 50 feet of BPA power lines."*
5.4.3.14	Previously 5.4.3.13. Added a reference to the Fall Protection Procedure
5.4.3.15	Deleted this step to remove reference to confined space.

Section	Change Details
5.4.3.17	Deleted the word "exposed" from the first bullet
5.4.3.18	Under the second bullet, added a new sentence to the second sub-bullet stating that "*Employees who wear electrical insulated gloves shall be adequately trained."* Also, removed the last sentence of the second sub-bullet and formatted it as a Note
Sources	Added references for DOE-0346, DOE-0360 and S687928-TECH_PM_003, also renamed from References and created two subsections, requirements and references, in order to remain consistent with formatting in SWS procedures. Also removed the year from the APWA and ASTM references
Appendix A	Modified wording to reflect the new system of submitting documents electronically
Appendix B, Definitions	Added definitions for *"adjacent facility," "e-Form," "Shoring" "Site Excavation Permit Application (SEPA), "*and *"Site Excavation Permit Number (SEPN), "*and Revised Definition of *"National Environmental Policy Act (NEPA) Documentation"* and deleted all but first two sentences of *"QMap"* to reflect recent changes
Appendix B, Acronyms	Added an acronyms list
Appendix D	Added reference to other sections of the document in the 2nd paragraph; Added to note that multiple reviews may be required
Appendix D	Language added/deleted to better apply to automatic process, included changing reference to sign and signature, to approve and approval Added descriptions of Blocks 1-9 that were previously in Attachment 2
Appendix D, Block 10	Added *"Design Authority"* to the block title, and added language to expand upon who qualifies as a design authority or technical representative
Appendix D, Block 13	Deleted listing of specific places on site where facility-specific steam generating plants are located
Appendix D, Block 14A	Revised and deleted language
Appendix D, Block 14B	Deleted last sentence that refers to Excavation Permit Coordinator and changed *"Facility Owner and the Contractor's Utilities Group" to "Facility Owner's Subject Matter Expert"*
Appendix D, Block 15	Deleted last sentence
Appendix D, Block 16	Specifies telecommunications contractor as *"Hanford or Pacific Northwest National Laboratory (300 Area) telecommunications contractor."*

Section	Change Details
Appendix D, Block 17	Deleted first two sentences
Appendix D, Block 21	Re-wrote entire section to reflect the change in the block from "Land and Use Planning/600 Area Landlord" to "Real Estate Services."
Appendix D, Block 25	Added a new final sentence *"Approval signifies the permit has been completed and constraints can be achieved."*
Appendix F	Appendix deleted
Appendix F	Previously Appendix G; deleted language from the first paragraph of the Appendix to modify language for excavation procedure (appendix was originally from Electrical Safety procedure).
Appendix G	Previously Appendix H
Attachment 1	Updated HAMMER name
Attachment 2	Previously attached paper copy of the site form was replaced with a screenshot of the SEPA E-form (which includes name change made to block 21) and an example of the printed SEPA form

This Change Summary contains only the changes made to this revision. Previous Change Summary detailing all historical changes for this document is available by contacting Integrated & Site Wide Safety Systems (I&SWSS).

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TABLE OF CONTENTS

1.0 PURPOSE

The Hanford Site Excavating, Trenching and Shoring Procedure, herein referred to as the Procedure, promotes safe work practices by establishing the minimum requirements and authorizations for working in and around excavations and trenches. The Procedure provides for the planning, permitting, administration, execution, and completion of excavation activities.

2.0 SCOPE

This Procedure is applicable to employees performing administration, planning, and field execution of excavation work.

Excavations include any operation in which earth, rock, or other material in the ground (below original grade) is moved, removed or otherwise displaced by means or use of any hand tools, mechanical equipment or explosives.

This Procedure is **not** intended to address requirements relating to blind penetration work (concrete core drilling), replacement of posts, or other penetrations that are in the original location and are equal to or less than the original depth and diameter.

NOTE: *The performance of such activities may involve hazards similar to traditional excavation work and may require the performance of scope definition, hazard identification, analysis, and mitigation prior to performing work.*

3.0 IMPLEMENTATION

This Procedure is effective upon completion of an integrated implementation plan.

4.0 REQUIREMENTS

All excavation activities performed on the Hanford Site shall comply with the requirements of the Occupational Safety and Health Administration (OSHA) regulations in Title 29 Code of Federal Regulations (CFR) Part 1926, Subpart P, "Excavations;" 10 CFR 851, *Worker Safety and Health Program*; and the Department of Energy (DOE) M 450.4-1, *Integrated Safety Management System Manual*.

The Hanford Site classifies soil as Type C, per 29 CFR 1926, Subpart P. Soil that is considered any other classification must be verified by a Hanford Site Prime Contractor's Registered Professional Engineer (RPE) prior to excavation.

5.0 PROCEDURE

Prior to conducting excavation activities, all requirements applicable to the scope of work shall be reviewed to ensure that appropriate requirements are implemented. The steps outlined in the action tables in Sections 5.1 through 5.4.4 do not have to be completed in the order listed; however, all steps must be considered for each excavation.

NOTE: *Appendix A, Excavation Process Flow diagram, provides an overview of the process. Definitions used in this Procedure are listed in Appendix B, Definitions & Acronyms.*

5.1 Preparing for and Performing Emergency Excavation Work

An emergency excavation is any excavation that requires immediate action to prevent or minimize potential harm to personnel, property or environment.

NOTE: *Excavation permits are not required when the excavation is determined by the Responsible Person, and approved by management, to be an emergency and immediately necessary to ensure worker safety or to protect the environment, site systems, services, or structures.*

Actionee	*Step*	*Action*
Responsible Person	1.	Before conducting any walk down or completing hazards identification, if performing emergency excavation within an area posted for radiological hazards or which has the potential to involve radiological hazards, notify the radiological control point of contact of the sponsoring project or organization.
	2.	Notify the appropriate Prime Contractor environmental organization for evaluation of environmental impact.
Facility/ System Owner **Or** Responsible Person	3.	Perform a walk down of the work site and review any applicable information. Clearly define the scope of work, the hazards, potential environmental impacts, and controls to the workers assigned responsibility for conducting the emergency excavation.
Responsible Person	4.	Ensure hazards are analyzed and a ground scan is considered as part of the work planning and execution process. **NOTE:** *The Safety and Health Organization will review and approve the hazard analysis.*
	5.	Notify applicable system, facility, and utility owners, and/or applicable off-site utility companies directly.
	6.	Notify the Hanford Patrol Operations Center (**509-373-3800**), if the emergency excavation is within 100 yards of a security protected area.
	7.	Notify the Site Excavation Coordinator within 24 hours of beginning work that an emergency excavation is in progress. Go to the Excavation Safety Program Website for contact information.

Actionee	*Step*	*Action*
Facility/System Owner	8.	Ensure control of known or expected hazards, then authorize or release the emergency excavation work.
Responsible Person	9.	Conduct the excavation work within identified controls and in accordance with safe work practices.
Facility/System Owner	10.	Update configuration documentation for use in future excavations with as-found and as-installed information provided by the Responsible Person or Competent Person.

5.2 Initial Planning for Normal (non-emergency) Excavation Work

NOTE: *The following consultations should be initiated as soon as possible to ensure evaluations are completed prior to impacting work schedules.*

Actionee	*Step*	*Action*
Responsible Person	1.	Consult with the applicable Environmental Compliance Officer (ECO) to determine what environmental requirements are applicable for the proposed excavation.
	2.	Consult with Radiological Work Screener, or owning project/activity Radiological Work Planner/Engineer, to determine the appropriate radiological controls required for the proposed excavation work.
	3.	Determine proximity of the excavation to existing waste sites by contacting one of the following: • The Environmental Data Management group (call 375-WIDS) • The Stewardship Information System (SIS) (call 372-9207) • Query the QMap tool on the Hanford Intranet (http://hgis.rl.gov/qmap/)
	4.	Determine if the intended excavation work will be conducted within 20 feet of existing groundwater wells to avoid causing damage and the potential for regulatory non-compliance issues. Consult with the Well Coordinator for guidance on controlling work near groundwater wells. **NOTE:** *QMap can be used to identify groundwater wells.*

Actionee	*Step*	*Action*
	5.	Request a geophysical evaluation/scan. Provide the surveying or scanning organization with a copy of the composite sketch to aid in locating existing utilities. Request refreshed ground markings during excavation activities, as required. For available scanning services, visit the Excavation Safety Program Website. Written justification for not requiring a geophysical evaluation/scan shall be approved by the Facility/System Owner, Technical Representative, or as required by the Prime Contractor and Safety Representative. Include this documentation in the work package.
Geophysical Evaluation/ Scanning Services	6.	Scan the area to be excavated, identify and mark underground obstructions on the ground and on paper or electronically, as requested by the project, to be included in the work package. Geophysical evaluation or scanning information is a part of the applicable work package; make the evaluation and/or scanning information available to workers at the excavation site for reference. Use appropriate ground marking color codes specified by the American Public Works Association (APWA 1997). The use of an alternative color code system is permissible only if clearly noted on the scan report. (Refer to Appendix C, *Color Code and Marking Standards.*)

5.3 Excavation Permit Preparation

Identify the need for an excavation permit (see Appendix A, *Excavation Process Flow*, for more information).

5.3.1 Exceptions

NOTE: *Excavation permit exceptions do not eliminate the need for ecological and cultural reviews.*

An excavation permit is required for all excavations, with the following exceptions:

- Hand digging or vacuum excavation that is less than 12 inches deep.
- Annual cutting and maintenance of existing firebreaks authorized by the Hanford Fire Department (HFD), except when performed inside protected areas as defined by Safeguards and Security. This authorization shall be in accordance with annual pre-fire planning.

- Leased and permitted land, easements, and right-of-ways on the Hanford Site that are under the control of state agencies, private companies, or public utilities, unless directed by DOE to use a permit.
- Excavation is determined to be an emergency (see Section 5.1, *Preparing for and Performing Emergency Excavation Work*, for a more detailed explanation).

5.3.2 Excavation Permit Waiver

Occasionally, it may be appropriate to request a waiver from the excavation permit process for excavations in areas that have been controlled by a single project. A geophysical evaluation/scan and engineering drawing research of the excavation area shall be done prior to requesting a waiver.

Written justification for not requiring an excavation permit must be approved by the Facility/System Owner, or Technical Representative, or as required by your company. Include this documentation in the work package.

NOTE: *Excavation permit waivers do not eliminate the need for ecological and cultural reviews.*

5.3.3 Initiating the Excavation Permit

Actionee	*Step*	*Action*
Company Excavation Coordinator	1.	Provide interface between Site Excavation Coordinator and company personnel involved with work covered by this Procedure.
	2.	Provide advice to Responsible Person on need to obtain excavation permit.
	3.	Provide direction to originating person on how to fill out and obtain approvals on the excavation permit or perform these responsibilities.
Permit Originator/ Responsible Person	4.	Obtain excavation number; access the Site Excavation Permit Number [SEPN] system, provide Permit Requester registry information, and receive permit number via system generated e-mail. **NOTE:** *Hanford utilizes an automated electronic excavation permit process. There are two applications that make up the automated process*: *1. Site Excavation Permit Number [SEPN] System- This application registers Permit Requester information and generates the excavation permit number, and 2. Site Excavation Permit Application [SEPA]-This application creates and processes the excavation permit. Both applications are accessible via web links located in the*

Actionee	*Step*	*Action*
		Excavation Safety Program Website. *Further assistance can be obtained by contacting your company's Permit Coordinator or the Site Excavation Coordinator. The Excavation Safety Program Website provides instructions for the Permit Requester/Permit Reviewer and contact information.* Initiate permit preparations by creating and processing the excavation permit using the SEPA system.
	5.	Obtain or prepare a composite sketch (or line-crossing list with facility drawings) of the intended excavation area, including excavation boundaries, and identifying existing buried utilities/systems within a given area. Identify the location and ownership of utilities (e.g., electrical, water, sewer, etc.), Waste Information Data System (WIDS) sites, or other underground installations that may be encountered during excavation work.

5.3.4 Confirming the Accuracy of Permit Data, Drawing Research, Subsurface Interferences, and Obtaining Review Concurrence

Actionee	*Step*	*Action*
Responsible Person	1.	Notify the utilities owners of intent to perform excavation activities. Provide utilities owners with a composite sketch of excavation area and request identification of utility lines in area of excavation.
	2.	Ensure proper identification of underground objects within area of jurisdiction on the composite sketch.
	3.	Ensure that a qualified Radiological Work Screener or owning project/activity Radiological Work Planner/Engineer screens the excavation work scope to ensure that the appropriate radiological controls are implemented for the known or potential radiological hazards. (Refer to your applicable radiological control practices.)
	4.	Perform a physical walk down of the excavation area, involving the appropriate excavation work team and utility personnel as necessary. Observe work area conditions, completed scan interference markings, status of nearby systems, other job coordination, or interface issues.

Actionee	*Step*	*Action*
	5.	Ensure that a job hazard analysis of the excavation work scope and all associated activities is in development.
	6.	Obtain applicable *Hanford Site Excavation Permit* approvals for review/concurrence (permit blocks 10 through 25) as explained in Appendix D, *Instructions for Completing the Hanford Site Excavation Permit.* **NOTE 1:** *There could be some reviewers who are not applicable. The Responsible Person has the authority to make review category decisions. By determining a "not applicable" response for a specific review block, the Responsible Person is accepting responsibility for not obtaining a review by the designated reviewer.* **NOTE 2:** *Additional approval(s) may be necessary based on excavation site conditions.*
	7.	Registered Professional Engineer (RPE) approval is required when: a. Excavation activities near buildings/structures may cause property damage or pose additional hazards to employees. b. Excavation depth exceeds 20 feet; verify protective systems have been designed by an RPE when personnel are exposed to potential excavation hazards. **NOTE:** *29 CFR 1926.652 (Appendices A, B, D, and E), manufacturer specifications, other tabulated data, or design approved by an RPE are used for shoring or shielding support systems.*
	8.	Identify and contact owners of property that may be directly or indirectly affected by excavation activities (e.g. structures, utilities, waste sites, facilities, institutional controls). **NOTE:** *Give consideration to the possibility of tie-ins to/from adjacent buildings or areas. Ownership of buried utility lines may be the responsibility of either site utilities or of nearby affected facilities.*
Permit Reviewers	9.	Review all historical and current configuration documentation for area of discipline expertise, in relation to the geographical location being excavated.

Actionee	*Step*	*Action*
		NOTE 1: *SEPA assistance may be obtained by contacting your company's Permit Coordinator or the Site Excavation Coordinator, or referring to the Excavation Safety Program Website and viewing the "Permit Reviewer Instructions Guide."*
		NOTE 2: A *Permit Requester and any Permit Reviewer can attach applicable documentation using the SEPA "Attach File" feature. The attached documentation will remain with the specific permit and be archived into Integrated Document Management System (IDMS) when the permit is complete. Paper copy items must be scanned to make a .PDF file before attaching to the permit's e-Form. The attached document should be labeled with a descriptive document title that can be easily understood by all reviewers.*
	10.	Verify that reference documents and drawing numbers are properly noted on the *Hanford Site Excavation Permit* and attached as appropriate.
	11.	Verify that the location of items on the composite sketch matches the information provided to the Responsible Person and/or ground scan/field walk down information.
	12.	If needed, inspect the proposed excavation job site to physically review and confirm field locations of interferences, markings, and hazard controls, to ensure they coincide with configuration documentation, and to identify any conflicts (e.g. ownership, status, etc.). The SEPA provides a button ("Issues To Be Resolved") to communicate and resolve any issues.
	13.	Use the SEPA system to review and approve the permit. If there are any constraints, indicate any special controls, requirements, prerequisites, etc., including notification points of contact with phone numbers, as appropriate by using the SEPA "Approve with Comments" button. Your comments will appear in block 8 (Special Instructions and Comments) of the permit's e-Form.
		NOTE 1: *Hanford Site Excavation Permit approval(s) confirm that reviews of composite maps, excavation permit data, hazard controls, and other work documents/permits reflect acceptable conditions and that the work can be completed safely in consideration of their respective discipline or area of expertise.*

Actionee	*Step*	*Action*
Permit Originator/ Responsible Person	14.	During review cycle, contact the appropriate *Hanford Site Excavation Permit* reviewers for additional reviews and approval(s) when: • Changes or corrections to the permit may affect specific previous reviews or instructions (**selected reviewers**). • Changes to the work scope (e.g. area or dimension increases, or location changes, etc.) require an edit to the permit (**all reviewers**).
	15.	Review all comments and, if necessary, make sure the supporting documents have been attached to the e-Form.
	16.	Ensure that a Competent Person has been assigned to the excavation activity, as applicable.
Responsible Person	17.	When excavations are performed within or adjacent to an active or deactivated facility or waste site, the Facility/System Owner shall review and approve the *Hanford Site Excavation Permit*. **NOTE:** *If excavation will be adjacent to multiple facilities, this review/approval block may have several approvals.*
Responsible Manager	18.	Perform the final review and concurrence for the *Hanford Site Excavation Permit* by selecting the "Approve" or "Approve with Comments" button on the permit's e-Form. **NOTE:** *The SEPA posts the "Last Permitted Start Date" of the permit's e-Form. The date posted is 90 calendar days from the Responsible Manager's approval.*
	19.	Ensure a copy of the completed *Hanford Site Excavation Permit* is provided for the work package and any company document control service, if required by the individual Prime Contractor's procedures.

5.3.5 Permit Revisions

Actionee	*Step*	*Action*
	1.	If a permit revision becomes necessary, register the permit number through the SEPN system and follow the permit preparation process.

5.4 Performing Excavation Work

5.4.1 Confirming Readiness to Work

Actionee	*Step*	*Action*
Responsible Person	1.	Review the work package (as defined in Appendix B, *Definitions and Acronyms*) for any time or operating restrictions.
	2.	If the excavation does not begin by "Last Permitted Start Date," obtain a new review and concurrence from the Facility/System Owner and Responsible Manager, plus any affected utilities, verifying that no configuration changes have been made prior to beginning work. If the activity was started but was stopped/delayed for more than 90 days, obtain a review and concurrence from any affected utilities and Facility/System Owner and/or Responsible Manager prior to resuming work. This review is not required for projects that have clearly maintained control of the work area.
	3.	Ensure the work package correctly identifies the excavation work scope as defined in the *Hanford Site Excavation Permit*, as applicable.
	4.	Contact the free public Underground Utility Locate **1-800-424-5555** (Utility Notification Center) or access the website (http://www.callbeforeyoudig.org). Use of One-Number Locate Service (Utility Notification Center) is required by Washington State Law: *"The notice shall be communicated to the owners of underground facilities not less than two business days or more than ten business days before the scheduled date for commencement of excavation, unless otherwise agreed by the parties" (Revised Code of Washington [RCW] 19.122.030, One-Number Locate Service).* Notification will allow the utility companies (telecommunication cable company, Benton PUD, and natural gas company) time to physically locate and mark their lines and identify any underground interference. Be prepared to provide the following excavation location coordinate information to the Notification Center representative:

Actionee	*Step*	*Action*
		a. Identify the locate service for the Hanford Nuclear Reservation in south-central Washington State. b. Provide survey global positioning system (GPS) latitude/longitude coordinates (either NAT 27 or 83) if possible, or Township, Range and Section (reference Appendix E, *Site Map*) to the representative. c. Record the assigned service request number (U-Dig Ticket #) on the record copy of the excavation permit. **NOTE 1:** *RCW 19.122.080 allows for a waiver from the notification process by the underground facility owner, with respect to all or part of that underground facility owner's own facilities (for example, areas within fenced Hanford Tank Farms).* **NOTE 2:** *It is recognized that utility coordination can be an effective method for advance planning and design purposes. However, advance planning and design efforts do not eliminate the utility locate request and associated timing requirements noted above.*
	5.	Make direct contact with the affected on-site organizations a minimum of 24 hours before excavation begins (e.g., Facility/System Owners, emergency services, and building occupants). If affected organizations are within an operational plant, directly notify that plant's Operations Center/Shift Office.
	6.	Verify that completed scan ground markings remain visible. If markings have diminished or are not visible, request scanning services reapply ground markings.
Responsible Manager	7.	Long-term projects that extend beyond 12 months require the project's Responsible Person to review the *Hanford Site Excavation Permit* annually, and revise as necessary.

5.4.2 **Releasing Excavation Work**

Actionee	*Step*	*Action*
Facility/System Owner **Or** Responsible Manager	1.	When applicable, physically review the work package ground scan data and field markings (such as "locates").

Actionee	*Step*	*Action*
	2.	Establish expectations for maintaining excavation area and interference markings.
	3.	Ensure the facility/system is in the proper configuration to support excavation safety, including lockout/tagout requirements. Refer to DOE-0336, *Hanford Site Lockout/Tagout Procedure.*
	4.	Authorize or release excavation work through formal work control processes only after ensuring requirements for safe execution of work per formal hazard analysis.
	5.	Ensure environmentally protective boundaries are established as required.

5.4.3 Beginning Excavation Work and Establishing Protective Systems

Actionee	*Step*	*Action*
Responsible Person	1.	Ensure any required locks and tags are in place and underground hazardous energy sources (e.g., electrical, mechanical, chemical) are physically verified as isolated and controlled (e.g., safe to work check). Refer to DOE-0336, *Hanford Site Lockout/Tagout Procedure.*
	2.	Ensure that the building or facility operations work release has been provided to proceed with excavation.
	3.	Conduct a pre-job meeting to assure that affected excavation workers, including mechanical equipment operators, are briefed on all requirements and special conditions in the excavation area. Discuss shoring and other protective systems.
	4.	For excavation activities, a Competent Person may be assigned if there is evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. When an excavation activity is 4 feet or greater in depth, a Competent Person shall be assigned.

Actionee	*Step*	*Action*
Competent Person	5.	Implement the requirements of this Procedure and the requirements of 29 CFR 1926 Subpart P, "Excavations." Be able to recognize and abate potential hazards associated with the excavation. Halt any operation in the event of an emergency to correct unsafe work practices, or to initiate corrective action(s).
	6.	Conduct daily excavation area inspections in active excavation areas and maintain inspection logs. Daily inspections are not needed in areas where work will not be performed on or in the excavation that day (areas within the excavation permit that are on hold waiting for sample results, etc., and when no personnel are accessing the area). Increase frequency when conditions change due to rainstorms or other hazard-creating conditions. **NOTE:** *The Daily Excavation/Trenches Safety Inspection Log (A-6001-937 or equivalent) may be used.*
	7.	Determine and direct the installation of protective system methods (benching, sloping, shoring, and shielding) where the excavation depth is planned to exceed 5 feet or if the potential for cave-in otherwise exists at lesser depths.
	8.	Ensure that selection of protective shoring and shielding systems is in accordance with manufacturers' instructions, engineered designs, or in accordance with 29 CFR 1926.652, "Requirements for Protective Systems."
	9.	Establish and implement safe work practices before entry is made into an excavation that is subject to hazardous atmospheres. Excavations shall be evaluated by a competent person to ensure all recognized hazards (i.e. oxygen deficiency, toxic atmosphere, flammable atmosphere, mechanical hazards etc.) are documented in the work plan, adequately controlled and tested prior to employees entering excavations. An emergency rescue plan shall also be developed when these hazards may be encountered during excavation and associated work activities.
Responsible Person	10.	Contact Electrical Utilities to perform a site visit if the excavation work will have the potential to be performed within 20 feet of overhead power lines. Based on the site visit, exercise controls for any potential exposure of

Actionee	*Step*	*Action*
		excavating machinery to energized overhead power lines. Refer to DOE-0359, *Hanford Site Electrical Safety Program*, for safe working distances from overhead power lines.
	11.	Contact the Bonneville Power Administration (BPA) liaison for excavation activities that have the potential to encroach within 50 feet of BPA power lines. Go to the Excavation Safety Program Website for contact information.
	12.	Ensure barriers and signs are at excavation openings to prevent exposure to co-located personnel and passersby. Ensure that wells, pits, and shafts are barricaded (at a minimum of 6 feet back from the edge), or covered.
	13.	Protect workers from exposure to vehicular traffic.
	14.	Ensure fall protection is provided when employees are exposed to a fall hazard that is 6 feet or greater (see DOE-0346, *Hanford Site Fall Protection Program*). Fall protection is not needed for excavations sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal).
	15.	Request the performance of radiological surveys and monitoring of soils or other materials, including potentially contaminated piping exposed by excavation, as required by the excavation permit, Radiological Work Permit, or work instructions.
	16.	Address expectations for maintaining markings in appropriate controlling documents such as work packages, specific contract language in construction specifications, etc.
	17.	Review scan data and appropriate drawings to ensure underground obstructions are identified. Comply with the following measures, as applicable to prevent accidental damage or disturbance of utility or underground obstruction when machine excavating. • Use only hand digging or other non-mechanical means (such as a vacuum guzzler) within 5 feet of active, potentially active underground utilities, or known radioactive pipelines or structures. Mechanical excavation may commence within the 5 foot boundary,

Actionee	*Step*	*Action*
		up to 2 feet from the obstruction, only with written permission from the utility/facility owner. Have the associated work authorization and pre-job planning documents available at the work site. **EXCEPTION:** *When a utility is known, located, and isolated, (according to DOE-0336) and the utility will be removed, partially removed, or abandoned in place, mechanical equipment may be used without maintaining a boundary.* • Prior to commencing machine excavation where subsurface obstructions are anticipated or identified on a subsurface scan/geophysical evaluation report, use a non-mechanical potholing technique to locate and expose the obstruction. For this application, a vacuum guzzler or hand digging may be used. Use of picks, breaker bars or any other sharp tipped instruments is not permitted. Use such technique(s) at a sufficient number of locations to verify the horizontal and vertical position of the obstruction. Document completion of the potholing process(es) with the written verification maintained on the work site as part of the work authorization/pre-job planning documents. Communicate the potholing documentation to the designated excavation/ trenching Competent Person(s) and employees prior to performing additional excavation activities. **EXCEPTION:** *If use of potholing has the potential to create a greater physical hazard or risk to employees, written authorization for excavating mechanically prior to digging shall be obtained from the responsible Construction Manager or Facility Manager.* • Once the active underground utility is located, establish and place a physical barrier where hand digging or other non-mechanical means are required from either side of the obstruction to maintain the safe work boundary for mechanical excavation. This barrier must be capable of withstanding environmental conditions, without failing/degradation. The use of paint or tape (for markings) as a barrier is not acceptable.

Actionee	*Step*	*Action*
		EXCEPTION: *A physical barrier is not required when a non-contaminated utility is known, located, and isolated, and the utility will be removed, partially removed, modified, or abandoned in place.* • Utilize a spotter, in direct communication with the equipment operator, if machine excavating within 5 feet of an active or potentially active underground utility. The spotter shall not perform spotting duties for more than one equipment operator at a time and may not perform any other duties. **NOTE:** *The method of communication must take into account needs for enhanced spotter visibility and potentially high noise levels common with heavy equipment operation.*
Responsible Person	18.	Review scan data and appropriate drawings to ensure underground obstructions are identified. Comply with the following measures as applicable to prevent accidental damage or disturbance of utility or underground obstruction when hand digging. • De-energize direct buried electrical cables and put into a safe condition prior to performing any excavation activity within 5 feet of the utility. If it is not known if the utility is direct buried, protected by conduit, or encased in concrete, treat the utility as direct buried. **EXCEPTION**: *Hard, dense soils where conventional hand excavation tools are not effective may require the use of hand-held power equipment. These methods have the potential to damage conduit, and energized cables must be de-energized.* • Where it has been determined that de-energizing direct buried cables is impractical or creates a greater hazard, only hand digging is permitted within 5 feet of the utility and the following safety precautions shall be followed: o Use only non-conductive hand tools (e.g., shovel with fiberglass handle), vacuum excavation, or an air lance to loosen soils. Use of picks, breaker bars, or any other sharp tipped instruments is not permitted. o Use properly rated electrical protective, insulated gloves per the appropriate American Society for Testing Materials (ASTM) D120, “Standard

Actionee	*Step*	*Action*
		Specification for Rubber Insulating Gloves." Employees who wear electrical insulated gloves shall be adequately trained. Refer to Appendix F, *User Guide Checklist for Insulating Rubber Gloves*. **NOTE:** *Insulating rubber gloves may be obtained from Contractor or Electrical Utilities (EU), call 373-4910 or 373-2383.* o Ensure that a qualified person trained in Cardiopulmonary Resuscitation (CPR), First Aid, and emergency electrical practices is available (at the work site) when an excavation is in the vicinity of live electrical power sources. o Periodically verify suspected cable locations with hand-held detection equipment or other acceptable means of locating utility installations. o Ensure that a qualified electrical worker is assigned to handle any direct buried cable that cannot be de-energized or needs to be moved. o Mark energized direct buried electrical cable uncovered by excavation with red "Danger" tape and protect the cable from damage.
Responsible Person	19.	If unidentified field conditions or deviations between the composite map and existing drawings are discovered during excavation, stop work then notify the Technical Representative (TR), and obtain approval before proceeding. **NOTE:** *Deviations include unrecorded and misrecorded utilities, as well as expected items that are not found.*
	20.	If suspect waste sites (discovery sites) or existing waste sites are disturbed unintentionally during excavation, stop work, and report immediately to the Facility/System Owner and/or project environmental compliance contact.
Equipment Operator	21.	Excavate in accordance with the work package.

5.4.4 Completion of Excavation Activities

Actionee	*Step*	*Action*
Technical Representative (TR)	1.	If backfilling is not part of the work scope, skip to Step 5. If backfilling is part of the work scope, continue to Step 2.
	2.	Ensure that no physical damage to exposed installations exists and that the installations are properly supported to prevent subsequent damage from backfilling.
	3.	Install or replace equipment or installation identification marking or identification tape, as required.
	4.	Coordinate backfilling activities with the removal of protective and support systems.
	5.	Notify the Facility/System Owner(s) of any differences between actual field conditions and the configuration indicated on drawings.
Permit Reviewer **Or** Facility/System Owner	6.	Update configuration documentation (drawings) for use in future excavations with as-found and as-installed information, provided by the Responsible Person or Competent Person.
Excavation Coordinator	7.	Note that the permit is completed. Scan the copy of the permit and save in the shared area.

6.0 FORMS

Daily Excavation/Trenches Safety Inspection Log, A-6001-937

Hanford Site Excavation Permit, A-7400-373

7.0 RECORD IDENTIFICATION

Performance of this Procedure generates the following records, as applicable. Records are maintained in accordance with Prime Contractor records management processes.

Name of Document	Submittal Responsibility	Retention Location
Hanford Site Excavation Permit	Responsible Person, Facility/System Owner	Project File/Work Package
Geophysical Evaluation	Responsible Person, Facility/System Owner	Project File/Work Package
Daily Excavation/Trenches Safety Inspection Log	Responsible Person, Facility/System Owner	Project File/Work Package

8.0 SOURCES

8.1 Requirements

10 CFR 851, "Worker Safety and Health Program," Title 10, *Code of Federal Regulations,* Part 851, as amended.

29 CFR 1926, Subpart P, "Excavations," Title 29, *Code of Federal Regulations,* Part 1926, Subpart P, as amended.

8.2 References

American Standard for Testing Materials (ASTM) D120, *Standard Specification for Rubber Insulating Gloves,* ASTM International, West Conshohocken, PA.

APWA, *Excavator's Damage Prevention Guide,* American Public Works Association.

DOE-0336, *Hanford Site Lockout/Tagout Procedure.*

DOE-0346, *Hanford Site Fall Protection Program.*

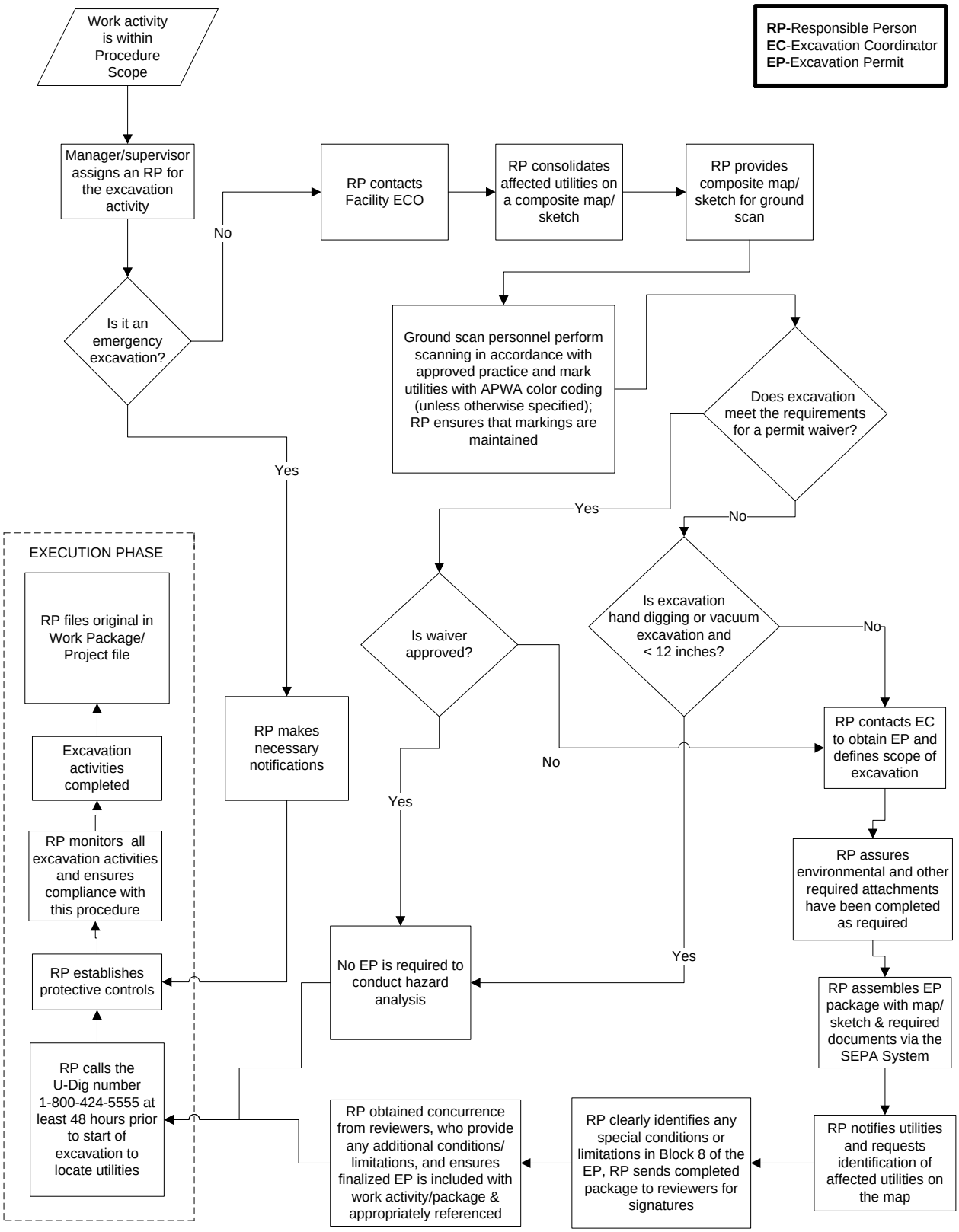
DOE-0359, *Hanford Site Electrical Safety Program*.

DOE M 450.4-1, *Integrated Safety Management System Manual*, U.S. Department of Energy, Washington, D.C., as amended.

RCW 19.122, "Underground Utilities," Title 19, *Revised Code of Washington,* Chapter 19.122, as amended.

S687928-TECH-PM-003, City of Richland 300 Area Electrical Services Interfaces and Responsibilities Agreement, June 2014.

APPENDIX A: EXCAVATION PROCESS FLOW



APPENDIX B: DEFINITIONS AND ACRONYMS

DEFINITIONS

Term	Definition
Adjacent Facility	A facility that may be impacted by an excavation, as determined by that Facility/System Owner.
Benching	A method of protecting employees from cave-ins by shaping the sides of an excavation to form one or a series of horizontal levels or steps, usually with near-vertical surfaces between levels.
Competent Person	A person capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them (see Appendix G, *Competent Person Training and Designation Requirements*, for a list of specific training and designation requirements).
Company Excavation Coordinator	The individual(s) assigned company-wide responsibility as the initial and continuing point of contact for excavation requirements and related matters, such as maintaining a permit logging system, managing an excavation website, coordinating multi-contractor work interfaces, and providing technical guidance when necessary or requested.
Composite Sketch	A collection of data or drawings that depicts the excavation area identified or potential excavation interferences. This may include drawing research, interviews, aerial photographs, and scan data. The composite sketch evolves throughout the excavation permitting process, beginning as a sketch showing the location of the excavation, and ending as a sketch showing the location with all nearby interferences (utilities, wells, waste sites, etc.).
Cultural/Ecological Resources Review	A review of the biological, cultural and ecological resources of an area (e.g., plants, animals) and potential impacts to those resources due to a proposed activity. This may include a review of archaeological, historical, or paleontological resources of identified areas.
e-Form	Electronic e-Form used within the Site Excavation Permit Application (SEPA).
Excavation	Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal. Subsurface penetrations (e.g., installing ground rods, trailer anchors, etc.) are considered to be excavations for the purpose of this Procedure.
Excavation Permit	A permit used to document the excavation location, reason for the excavation-related work, package or project number, and required drawing changes. It also documents conditions for, and review/acceptance of, the excavation activities.
Facility/System Owner	A person responsible for a facility or a system, i.e., Plant or Utility Manager.

Hanford Site	For the purposes of this Procedure, Hanford Site refers to all lands controlled by the U.S. Department of Energy (DOE).
National Environmental Policy Act (NEPA) Documentation	Documentation (e.g., Categorical Exclusion, Environmental Assessment, Environmental Impact Statement) that identifies potential environmental impacts that could result from a planned activity.
Permit Originator	The individual assigned responsibility for identifying the need for an excavation. Typically, this is: 1. Force Account Work. Construction manager, construction superintendent, or construction engineer. 2. Contractor Work. Contract field engineer or project manager. 3. Maintenance/Facility Work. Technical Representative, Person-In-Charge (PIC), or planner.
Potholing	Use of non-mechanical techniques, such as hand digging or use of a vacuum extractor (guzzler or similar) at a sufficient number of locations to verify both horizontally and vertically the position of an obstruction.
QMap	QMap (Query Map) is a web based geospatial data portal that is a shared resource for use by all the Hanford contractors. It can be accessed on the Hanford Intranet (http://hgis.rl.gov/qmap/).
Registered Professional Engineer	A person who is registered as a professional engineer in the state where the work is to be performed.
Responsible Manager	The person who determines the need for the excavation and can authorize the work.
Responsible Person	1. Planning Activities. The designated individual(s) who initiates and coordinates the development or revision of a work package, including the excavation permit. 2. Field Work Activities. Depending on the organization performing the work, this function is typically called a Field Work Supervisor (FWS), Person-In-Charge (PIC), Construction Engineer, Construction Superintendent, or Construction Field Engineer. Within this Procedure, the term "Responsible Person" is used generically to refer to this designated person. In some cases, when appropriately trained and qualified, the Responsible Person may also be assigned as the Competent Person (see Appendix G, *Competent Person Training and Designation Requirements*, for duties).
Shoring (Shoring System)	A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Site Excavation Coordinator	The single individual assigned site-wide responsibility as the initial and continuing point of contact for excavation requirements and related matters, such as maintaining a permit logging system, managing an excavation website, coordinating multi-contractor work interfaces, and providing technical guidance when necessary or requested. Maintains a list of Company Excavation Coordinators; a list of contacts for permit review and concurrence, referenced by Hanford Site area; the Hanford Site Excavation Safety Program Website.
Site Excavation Permit Application (SEPA)	Site Excavation Permit Application [SEPA]: This application creates and processes the excavation permit.
Site Excavation Permit Number (SEPN)	Site Excavation Permit Number [SEPN] System: This application registers Permit Requester information and generates the excavation permit number.
Survey/Scanning Group	Organization that provides qualified personnel to operate ground penetrating radar or other forms of geophysical evaluation/scanning equipment and interpret their output.
System Engineer	Person technically qualified to represent the configuration of a specific system.
Technical Representative	A person that has the authority and knowledge to authorize portions of or a complete project. This may be a Director, Manager, or any of the following examples: 1. Construction Projects. This is the Technical Representative for the user/sponsor organization throughout the life of the project. 2. Engineering. The engineer assigned responsibility for obtaining operations, safety, and engineering approvals and permits before excavation work is started. 3. Environmental Compliance Officer. This is the Technical Representative for environmental input throughout the life of the project.
Trench	A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width measured at the bottom is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), it is also considered to be a trench.
Utilities	Installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work.
Work Package	A package consisting of forms, documents, procedures, permits, work instructions, etc., as required by a work control process, utilized by workers to accomplish a defined task. For construction project work, the work order/project controlling document is the work package.

Waste Information Data System (WIDS)	A database containing information about existing waste sites. The WIDS database can be accessed via the Hanford intranet or by calling **375-WIDS**.

ACRONYM LIST

APWA	American Public Works Association
BPA	Bonneville Power Administration
DOE	Department of Energy
EC	Excavation Coordinator
ECO	Environmental Compliance Officer
EP	Excavation Permit
EU	Hanford Site Electrical Utilities group
IDMS	Integrated Document Management System
MSC	Mission Support Contractor
ORP	U.S. Department of Energy-Office of River Protection
OSHA	Occupational Safety and Health Administration
PIC	Person-In-Charge
PPE	Personal Protective Equipment
RL	U.S. Department of Energy-Richland Operations Office
RP	Responsible Person
RPE	Registered Professional Engineer
SEPA	Site Excavation Permit Application
SEPN	Site Excavation Permit Number
SMT	Senior Management Team
TR	Technical Representative
WIDS	Waste Information Data System

APPENDIX C: COLOR CODE AND MARKING STANDARDS

American Public Works Association Uniform Color Code

Red	Electric
Yellow	Gas-oil
Orange	Telephone-CATV
Blue	Water
Green	Sewer
Pink	Survey
White	Proposed excavation
Purple*	Reclaimed water lines

*This color will be used to indicate unknown linear anomalies.

APPENDIX D: INSTRUCTIONS FOR COMPLETING THE HANFORD SITE EXCAVATION PERMIT

The following guidance identifies the required reviewers and provides information related to contractor interfaces to assist in completing the *Hanford Site Excavation Permit*.

Each proposed excavation location requires an assessment of site conditions to determine the required notifications and permit approvals. If the excavation location is adjacent to a facility (active or deactivated facility or waste site), additional steps, such as activity coordination and extra approvals, may be required (see Section 5.3.4, *Confirming the Accuracy of Permit Data, Drawing Research, Subsurface Interferences, and Obtaining Review Concurrence*). For a more detailed description of what approvers are responsible for, see Section 5.3.4.9 through 5.3.4.13.

Block 1 & 2

Enter Work Package Number or appropriate source of funds or project number, if known.

Block 3

Enter brief location where excavation work is to be performed (may include Section, Township, Range, and GPS Coordinates).

Block 4

Enter permit Originator name, phone number, and date of preparation.

Block 5

If excavation associated with an Engineering Change Notice or Facility Modification Package, enter ECN/FMP Number.

Block 6

List drawings and plans/procedures that describe the work to be performed.

Block 7

Describe the purpose of the excavation work. Attach a composite map identifying each of the areas to be excavated and all known interferences in the area of excavation.

NOTE: *The composite map is part of the excavation permit.*

Block 8

Enter special instructions/comments or requirements relating to the excavation.

Block 9

List utilities, services, facilities, and groundwater wells that will or may be affected by the excavation.

NOTE: *The use of electronic approval is an equivalent methodology of reviewers' signatures designating concurrence for safe excavation determination. Multiple reviews/approvals may be required in any of the following blocks.*

Approval Block Details

A current list of potential reviewer names, phone numbers and fax numbers may be obtained from the Excavation Permit Coordinator or from the Excavation Safety Program Website.

Design Authority/Technical Representative (Block 10)

Block 10 is approved by the Design Authority/Technical Representative. This individual should have working knowledge (i.e. Subject Matter Expert) of the system or area of the proposed excavation. Review should evaluate the impacts to the system or area.

Environmental (Block 11)

The responsible environmental contact reviews the permit for compliance with environmental regulatory requirements. This is a mandatory approval and cannot be determined to be "N/A."

Radiological Control (Block 12)

A qualified Radiological Work Screener or owning project/activity Radiological Work Planner/Engineer shall be consulted to determine if a radiological work permit (RWP) is required for the proposed excavation. Their concurrence is noted by approving the "Radiological Control" block.

Steam Utility (Block 13)

A permit review is required from the steam utility contractor for excavations proposed near active steam utility equipment, including facility-specific steam generating plants.

Electrical Utilities (Transmission/Distribution) (Block 14A)

The Hanford Site Electrical Utilities group is required to review all excavation permits to identify underground electrical utilities. The Electrical Utilities representative is responsible for the electrical transmission/distribution system.

Facility Electrical Systems (Block 14B)

Secondary electrical systems need to be reviewed by the Facility/System Owner's Subject Matter Expert to identify electrical systems and lines to facilitate safe work and prevent damage to the buildings' electrical systems. Approvals indicate that secondary electrical systems are properly identified and controls are identified to protect them from damage during excavation work.

Water Utilities (Block 15)

The Site Water Utilities or facility-specific utilities group reviews all excavations that are within

5 feet horizontally or vertically of water utility lines. A map with coordinates or a sketch clearly showing the excavation location and geophysical scan data (if applicable) shall be provided in areas where a water utilities review is required.

Telecommunications (Block 16)

Hanford or Pacific Northwest National Laboratory (300 Area) telecommunications contractor reviews the *Hanford Site Excavation Permit* for underground lines and communications equipment concerns.

Transfer Lines and Process Sewer (Block 17)

The applicable facility or system representatives shall review the permit to protect radioactive waste transfer lines and process sewer systems. Approving the permit indicates that transfer and/or process sewer lines are identified and appropriate control measures are defined.

Traffic Engineer (Block 18)

Any excavation that will interrupt the flow of traffic, interfere with the movement of safety vehicles, inhibit emergency egress of personnel, including installation of signs along road shoulder, or new access roads onto the main traffic routes, shall require the notification and approval of the Hanford Traffic Safety Engineer.

Road and Track Maintenance (Block 19)

Site Transportation Services reviews excavations within 25 feet of the center line of any railroad track or within 25 feet of any road base (outside edge of road shoulder). Excavations affecting railroad track may require the track to be restored to its original condition after the project is completed.

Safeguards and Security (Block 20)

Hanford Site Safeguards and Security shall be notified of any excavations within, through, or adjacent to protected areas, security fences and secured facilities, or any excavations that may interfere with security alarm systems or operations of security forces.

Real Estate Services (Block 21)

Real Estate Services (RES) uses an integrated land management program to oversee the lifecycle and use of Hanford land. RES conducts site evaluations during the planning and early design phase of a project. RES also reviews excavation permits prior to commencing work activities which helps to avoid conflicts with administrative and physical constraints on the specific property. For use of land not under the direct control and operation of a program or contractor, RES is the responsible landlord, including management of Hanford's borrow pits. Following cleanup completion, RES performs surveillance and maintenance activities on remediated land with residual hazards (i.e., cocooned reactors and waste sites) to protect human health and the environment (referred to as "Long-Term Stewardship"). At the end of the lifecycle, RES assists DOE with the final disposition or transfer of land.

Sanitary Sewer (Block 22)

Site Water Utilities and the Contractor's Utilities Operations and Closure groups (if applicable) shall review excavation permits where activities are within 5 feet horizontally or vertically of sanitary sewer lines for potential interference. It is possible that multiple contractor reviews/concurrences may be needed to adequately address certain specially located excavations. Approval indicates that sanitary sewer systems are properly identified, isolated, controlled, or protected from damage during excavation work.

Facility/System Owner (Block 23)

When excavations are performed within or adjacent to an active or deactivated facility or waste site, the person responsible for the facility/system shall review and approve the excavation permit. If excavation will be in proximity to multiple facilities, this block may have several approvals.

The Hanford Site Well Coordinator is responsible for concurring with excavations proposed within 20 feet of completed wells or the removal or modification of the access road to a completed well and to acknowledge his/her review by approving in block 23. Comments or excavation instructions should be placed in block 8 or included as an attachment.

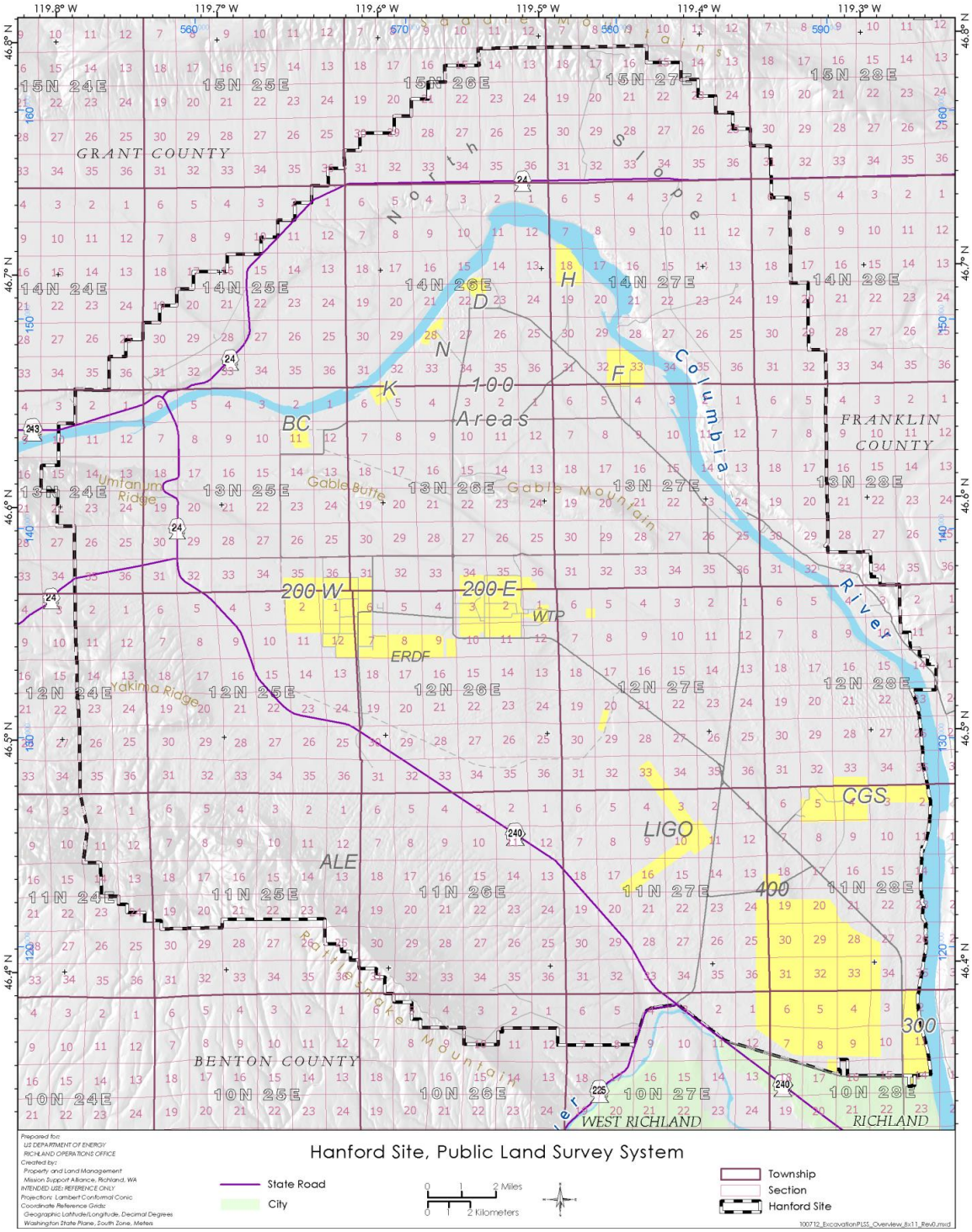
Other (Block 24)

Additional approval(s), if required, other than those listed in the previous blocks.

Responsible Manager (Block 25)

This approval is for the Responsible Manager and is completed after all the other approvals have been obtained. This approval indicates the excavation permit has been properly completed and approved prior to performing any excavation. Approval signifies the permit has been completed and constraints can be achieved.

APPENDIX E: SITE MAP



APPENDIX F: USER GUIDE CHECKLIST FOR INSULATING RUBBER GLOVES

This checklist is intended to help ensure the safety of non-electrical workers who occasionally use insulating rubber gloves, when performing hand excavation activities where hidden energized electrical circuits may be accidentally contacted. This checklist should be reviewed, completed, and signed by the PPE user and the supervisor or Person-In-Charge (PIC) before using insulating rubber gloves. Those who have little or no experience with this equipment should seek assistance from a person who is trained in and knowledgeable of the use and care of insulating rubber gloves, e.g., an electrician.

I. Manufacturer, Marking, and Voltage Ratings

[ ] AC voltage ratings:

500 volts	Class 00	17,000 volts	Class 2
1,000 volts	Class 0	26,500 volts	Class 3
7,500 volts	Class 1	36,000 volts	Class 4

[ ] Cuff marked with manufacturer's name, ANSI/ASTM D 120, type, class, and size.

[ ] Marked with date of issue by Electrical Utilities (EU) or manufacturer's test date.

II. Inspection and Testing

[ ] Verify PPE is within retest period (no more than 6 months from the date on the gloves).

[ ] Visually inspect for cracks, holes, tears, rough spots, and other visible defects. Pay special attention to working area of gloves – palm, fingers, and thumb. **Do not use damaged gloves!**

[ ] If contrasting colors (two-colored layers) are seen during examination, gloves are not safe to use.

[ ] Visually inspect for foreign substances – oil, grease, dirt, etc. Gloves shall be CLEAN.

[ ] Demonstrate air leakage test. Perform this test before use.

[ ] Periodically examine gloves during work, especially if exposed to damage, metal shavings, etc.

[ ] Examine leather gauntlets for embedded objects, contamination, tears and holes, etc.

III. Use

[ ] Leather gauntlets shall be used to provide mechanical protection for the rubber gloves.

[ ] Gauntlets do not provide insulating protection from energized conductors and circuit parts.

[ ] Do not use leather gauntlets as normal work gloves.

[ ] Periodically examine rubber gloves and gauntlets during work, especially if exposed to damage, metal shavings, etc.

[ ] If rubber gloves become damaged, dirty, or contaminated with oil, grease, or other foreign substances, discontinue use and remove from work area until repaired, cleaned, and retested.

IV. Care and Storage

[ ] Visually inspect for damage before storing. Pay special attention to working area of gloves. Do not store damaged gloves – remove them from storage area until repaired, cleaned, and retested.

[ ] Do not store if wet, dirty, or in a distorted condition (e.g., inside-out).

[ ] If rubber gloves are dirty or contaminated with oil, grease, or another foreign substance, remove them from work area until cleaned and retested.

[ ] Store in approved container (this should have been provided with the gloves).

[ ] Do not store other items, such as tools, in the glove container.

[ ] Keep away from direct sunlight, heat, ozone, and chemicals.

[ ] Make sure gloves are retested no later than 6 months from issue date stamped on cuff.

NOTE: *Insulating rubber gloves that become damaged beyond repair shall be controlled in a manner to prevent inadvertent use. Returning damaged gloves to EU for disposal will prevent reuse unless the gloves can be repaired and retested. That will also help EU to better track gloves that are due for retesting. As a minimum, damaged gloves should have the thumb cut off, or rendered unusable.*

Treat gloves with respect – your life depends on them!

Sign-offs:

PPE User: _____

(print) (sign) (date)

Supervisor/PIC: _____

(print) (sign) (date)

For more information refer to: 29 CFR 1910.137 (OSHA)

APPENDIX G: COMPETENT PERSON TRAINING AND DESIGNATION REQUIREMENTS

Prime Contractors shall maintain documentation and demonstrate methods used in designation of Competent Person(s). To be a Competent Person the individual shall complete training and be designated in accordance with the criteria listed below.

COMPETENT PERSON TRAINING REQUIREMENTS:

Competent Person for Excavations training shall provide the individual with the knowledge and/or skills for the following topics:

- OSHA regulations pertaining to excavation safety
- Competent Person responsibilities as required by 29 CFR 1926, Subpart P
- Classify soil and rock deposits as Stable Rock, Type A, B, or C using the visual and manual methods described in 29 CFR 1926, Subpart P, Appendix A
- Design requirements for structural ramps used for access or egress of personnel or equipment
- Selection and proper operation of water removal equipment for control of or preventing water accumulation in excavations
- Identifying the effects of heavy rains on excavations
- Inspecting excavations, areas adjacent to excavations, and protective systems for evidence of situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmosphere, or other hazardous conditions

CRITERIA FOR DESIGNATION OF A COMPETENT PERSON(S):

- Training which meets the knowledge and skills requirements in the above section
- Knowledge of the applicable procedures and regulations as it relates to the excavation
- Experience in recognizing existing and predictable hazards as they relate to the excavation
- Management authorization and ability to correct unsafe acts and hazardous conditions as they relate to the excavation

ATTACHMENT 1: HANFORD SITE EXCAVATING, TRENCHING & SHORING PROCEDURE (HSETSP) COMMITTEE CHARTER

The Hanford Site Excavation, Trenching & Shoring (HSETS) Committee is established to serve as the advisory group providing consensus direction for the consistent administration and implementation of the HSETS, 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 HSETS Committee is to ensure consistent and standard application of the Procedure to promote and maintain a safe work environment. The Committee will 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 contracts to the DOE at Hanford:

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

One representative shall be the Prime Contractor's Technical Representative for the HSETS 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
- Hanford Site Excavation Coordinator

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 Federal Training Center (HAMMER) shall attend meetings as non-voting member to address matters pertaining to their area 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 HSETS 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 excavation, trenching, and shoring related events, issues, and lessons learned as appropriate
- Ensure distribution of lessons learned as necessary
- Maintain communication with the Contractor Excavation/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 will 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 excavation, trenching, and shoring 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 HSETS 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 safety Procedure 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

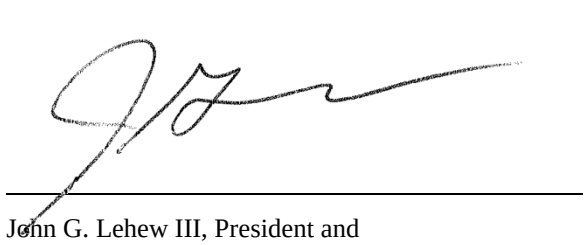
7.0 Quorum and Voting

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.

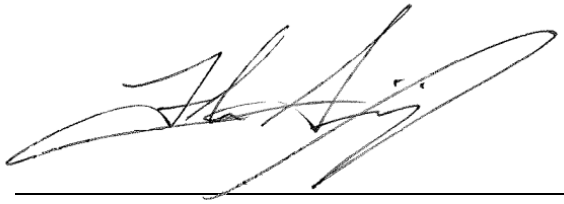
8.0 Secondary Phase of Discussion and Issue Resolution

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.

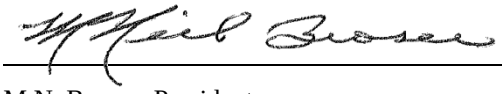
If consensus cannot be reached by the Committee, the issue may be elevated to the SMT and/or DOE. The SMT shall provide a status of their resolution process to the Committee at scheduled meetings.



John G. Lehew III, President and
Chief Executive Officer
CH2M HILL Plateau Remediation Company



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



M.N. Brosee, President
Washington Closure Hanford LLC

C.G. Spencer, President
Washington River Protection Solutions LLC

David E. Molnaa, President
Hanford Atomic Metal Trades Council

Dave Davis, President
Central Washington Building and
Construction Trades Council

ATTACHMENT 2: HANFORD SITE EXCAVATION PERMIT SEPA E-FORM

HANFORD SITE
EXCAVATION PERMIT
Permit Requests
DAVE HAVENS - PERMIT eFORM

Dashboard | Create New | Edit My Permits | Display My Permits | DAN16-0159 Permit Editor

Permit Editor | Assign Reviewers | Submit for Review | Review Status | Cancel Permit | Save Permit | Assign a Viewer

Permit Status: Draft — Revisions: Original

PERMIT NUMBER	REVISION	LAST PERMITTED START DATE
DAN16-0159	0	

1. Work Package Number	2. W.O. Project Number	3. Location of Excavation	
N/A	N/A	600	N/A

4. Originated By / Primary Requester	Phone Number	Date
O'Neill, Charles T	5093761394	09/09/2016

Co-Requester / Secondary Requester	Phone Number
N/A	N/A

5. Change Notice (ECN, DCN, or FMP) Number	6. Drawings, Plans / Procedures
N/A	N/A

7. Description of Work
LPG system investigation

8. Special Instructions and Comments
N/A

9. List Facilities, Services, Utilities, and Groundwater Wells Affected by Excavation
N/A

Tracking Numbers

U-DIG NUMBER	SITE EVALUATION AUTHORIZATION #

Submitted by: Charles O'Neill

DAN16-0159 Permit Documents
Excavation Permit DAN16-0159 (09/09/2016)

Permit Map — Map Your Dig
The proposed excavation must be mapped before the Submit for Review function will be enabled.

File Attachments — Add a New File
There are no files attached to this permit.

Reviews
The Submit for Review function will not be enabled until all selected categories have been assigned reviewers.

10. Design Authority/Technical Representative
11. Environmental
12. Radiological Control
13. Steam System
14a. Electrical Utilities (Transmission Distribution)
14b. Facility Electrical Systems (Secondary) (Reference Facility Owner)
15. Water Utilities
16. Telecommunications
17. Transfer Lines & Process Sewer
18. Traffic Engineer
19. Road and Track Maintenance
20. Safeguards and Security
21. Real Estate Services
22. Sanitary Sewer
23. Facility/System Owner(s) (Ad-Hoc Only)
24. Other (Ad-Hoc Only)
25. Responsible Manager (Ad-Hoc Only)

Contact Site Excavation Services
For questions or information concerning the Hanford Site Excavation Permit application, please contact Dave Havens.
Phone: 376-9770
Email: David_E_Havens@rl.gov

PRINTED E-FORM

HANFORD SITE EXCAVATION PERMIT NOTE: Use Formal Operations Work Release to Control Work			EXCAVATION_PERMIT_NO. DAN16-0001 LAST PERMITTED START DATE
1. Work Package No. –	2. WO/Project No. –	3. Location of Excavation –	
4. Originated By –	Phone –	Date 10/17/2016	5. Change Notice (ECN,DCN or FMP) Number. –
6. Drawings, Plans/Procedures (Identification Numbers) –			
7. Description of Work –			
8. Special Instructions and Comments – Notify Site Utilities and call the CALL BEFORE YOU DIG (1-800-424-5555) at least 2 business days prior to digging. Walk down the excavation site and verify that scan marks are still visible - if not, call scanning organization to refresh marks. When anything unusual or unexpected is identified in an excavation, STOP until the discovery can be properly evaluated. Also refer to any company-specific safety procedures.			
9. List Facilities, Services, Utilities, and Groundwater Wells Affected by Excavation –			
REVIEW/CONCURRENCE: Ensure Permit is Completed Acceptably and Safe Work Conditions are Achievable			
10 Design Authority/Technical Representative Awaiting Approval		18 Traffic Engineer Awaiting Approval	
11 Environmental Awaiting Approval		19 Road and Track Maintenance Awaiting Approval	
12 Radiological Control Awaiting Approval		20 Safeguards and Security Awaiting Approval	
13 Steam System Awaiting Approval		21 Real Estate Services Awaiting Approval	
14a Electrical Utilities (Transmission Distribution) Awaiting Approval		22 Sanitary Sewer Awaiting Approval	
14b Facility Electrical Systems (Secondary) Awaiting Approval		23 Facility/System Owner(s) (Ad-Hoc Only) Awaiting Approval	
15 Water Utilities Awaiting Approval		24 Other (Ad-Hoc Only) Awaiting Approval	
16 Telecommunications Awaiting Approval		25 Responsible Manager (Ad-Hoc Only) Awaiting Approval	
17 Transfer Lines & Process Sewer Awaiting Approval		U-DIG NUMBER –	
Contact any affected parties (such as U-Dig) at least two days prior to start of excavation.			