S

ENGINEERING CHANGE NOTICE

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1. ECN 647079

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	S.A. Krieg, NUMATEC, R2-89, 376-0931	JSS 10/7/98 [X] Yes [X] No	10/06/98
	6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
	Cone Penetrometer Demonstration Standard Startup Review Checklist	N/A	Q
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.)	10. Related ECN No(s).	11. Related PO No.
	HNF-3101, rev 0	N/A	N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? [] Yes [X] No

General revision to update the Checklist

14a. Justification (mark one)

Criteria Change	[X]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

14b. Justification Details

The informal method of design verification was used for this ECN - D. I. Iwatate

This ECN covered by USQ TF-96-0690, Rev. 2

This ECN will not change collective dose since it has no impact on radiological sources, contamination control, or shielding.

15. Distribution (include name, MSIN, and no. of copies)

See attached distribution sheet

RELEASE STAMP

NOV 9 1998

DATE:

STA: 4

ID: 73

A-7900-013-2 (05/96) GEF095

A-7900-013-1

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1. ECN (use no. from pg. 1)
647079

16. Design Verification Required	17. Cost Impact						18. Schedule Impact (days)	
	ENGINEERING			CONSTRUCTION				
[X] Yes	Additional	[NA]	$	Additional	[X]	$	Improvement	[NA]
[] No	Savings	[NA]	$	Savings	[NA]	$	Delay	[NA]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

NA

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
NA		

21. Approvals

	Signature	Date		Signature	Date
Design Authority	GP JANICKI	10/19/98	Design Agent	D. B. Hagmann	10/6/98
Cog. Eng.	~~G. A. Esvelt~~ D.D. WANNER	10/7/98	Operations	W J Kennedy	10/12/98
Cog. Mgr.	J. S. Schofield	10/12/98	Other	D. A. Moore	10/19/98
QA	J J Huston	10-8-98	Other	W. S. Calloway	11/5/98
Safety	J. T. Gregor	10/6/98	Other	K. D. Reynolds	10/8/98
Other	D. F. Iwatate	10/6/98	Other	D. O. Dobson — D.O. Dobson per telecon	10/13/98
Other	S A Krieg	10/13/98	Other	F. A. Schmorde — F.A. Schmorde per telecon	10/20/98
Other	J. W. Hunt	10-16-98	Other		
Other	R. M. Boger	10/19/98			
Other	D. G. Baide	10/22/98			
Other	J. M. Morris — FOR JM Morris PER TELECON	10/23/98			

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

CONE PENETROMETER DEMONSTRATION STANDARD STARTUP REVIEW CHECKLIST

S. A. Krieg
NUMATEC Hanford Corporation, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

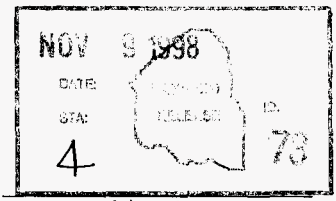
EDT/ECN: 647079 UC: 721
Org Code: 7C260 Charge Code: 103262
B&R Code: EW3130010 Total Pages: ~~43~~ 40

Key Words: Cone Penetrometer, Vadose, AX Farm

Abstract: Startup readiness for the Cone Penetrometer Demonstration in AX Tank Farm will be verified through the application of a Standard Startup Review Checklist. This is a listing of those items essential to demonstrating readiness to start the Cone Penetrometer Demonstration in AX Tank Farm.

ETN-97-0014

11/9/98
Release Approval Date



Release Stamp

Approved for Public Release

RECORD OF REVISION	(1) Document Number HNF-3101, Rev. 1	Page 1

(2) Title
Cone Penetrometer Demonstration Standard Startup Review Checklist

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) EDT-625257, 8-27-98	SA Krieg	DF Iwatate
1 RS	General Revision to update Checklist, per ECN-647079	SA Krieg for SA Krieg 11/4/98	DF Iwatate 11/9/98

CONE PENETROMETER DEMONSTRATION
STANDARD STARTUP REVIEW CHECKLIST

INTRODUCTION

The Cone Penetrometer Demonstration task uses an existing piece of equipment, the Hanford Cone Penetrometer Platform (CPP), that was purchased in 1996, to push instrumented and soil sampling cone penetrometer probes into the soils adjacent to tank AX-104. The instrumented and soil sampling probes are new designs involving state-of-the-art probe technology developed by the U.S. Army Waterways Experiment Station. Correlation of data from the instrumented probes and the soil sample lab analysis data will demonstrate the capability (or inability) of the probes to detect and measure specific constituents of the waste plume in the soil.

There is currently no identified future mission for the CPP. At the conclusion of the demonstration, the CPP will be returned to storage. The demonstration will not result in a turnover of the (existing) CPP for operations nor will it provide a CPP that is ready for additional tank farm operations.

SCOPE

The use of a standard review startup checklist to verify readiness of the CPP for safe startup and operation in the AX Tank Farm is justified by the following:

- The activity is not performed inside a waste storage tank.

- There is no inventory of radiological, chemical or hazardous material involved in the activity.

- Cone Penetrometer technology is a mature technology that has been used in private industry for decades. Truck-mounted CP systems have been used on several occasions at Hanford since the early 90's and were used most recently in 1996 to successfully deploy four Electrical Resistance Tomography (ERT) electrode array strings, to a depth of 130 ft, in 200 East area (outside the Tank Farms).

- There are permits, procedures, and hardware capabilities for the CPP that assure the probes are emplaced in the proper locations and that pipes and other underground obstructions are not contacted. These include a magnetometer to detect ferrous objects, an inclinometer to verify the maximum horizontal deviation of the probe, and a load monitoring (device on the CPP) to determine when unexpected obstructions are encountered.

- There are no physical interfaces with the AX Farm Single-Shell Tanks or any of the Tank Farm systems. The CPP is an independently operated tool used outside the waste tanks to characterize Tank Farm soils. The only CPP/Tank Farm interface that occurs with tank farm features is when the CP probes penetrate the soil surrounding the tanks and beneath the Tank Farms. The integrity of the items within this interface will be protected by the methods described, reviewed, and approved through the Excavation Permit process.

The excavation permitting process allows selection of operational locations with appropriate consideration for aerial, surface, and sub-surface

obstructions. The excavation permits are limited to a two month period to avoid interference with field modifications completed after the permit review. The excavation permitting process also ensures that the appropriate reviews have been completed and provides adequate assurance that the CP probe will not encounter any tank farm piping, conduit, or components. There are 12 Reviewer/approvers for the excavation permit including the Project Engineer, Environmental, Traffic Engineer, Track Maintenance, 600 Area Landlord, Electrical Utilities, Safeguards and Security, Steam/Water utilities, Telecommunications, Site Planning, Radiological Control, and the Cog Engineer/Facility Owner. The excavation permitting process includes:

- Review of tank farms drawing, ECNs, design documentation, and work packages to establish the location of surface, aerial, and underground piping, conduits, and components.

- Discussions with tank farm operations personnel for "tribal knowledge" of tank farms that may affect the tank farm site where the CP probes will be deployed.

- The use of Ground Penetrating Radar scans to verify and chart the locations of pipes or components at the site where the CP probes will be deployed.

- The use of a Global Positioning System to accurately locate and flag the sites where the CP probes will be deployed.

- Walk downs of the tank farm site where the CP probes will be deployed to verify the field conditions.

Based on the above, FDH and DOE RL have agreed that a standard startup review checklist is the appropriate, reasonable, and cost-effective approach to verify readiness to deploy and operate the CPP inside the AX Tank Farm boundaries.

RESPONSIBILITIES

The HTI Cone Penetrometer Applications (D. F. Iwatate manager) organization has the funding and overall responsibility to see that all of the items on the checklist are completed. The individual assigned/obligated to complete the tasks are doing so under the auspices of HTI Cone Penetrometer Applications. The approval authority for initiation of the cone penetrometer demonstration is the Manager, Tank Waste Operations.

CHECKLIST KEY

The KEY for the responsible person initial in the checklist is shown below:

Deborah F. Iwatate	Mgr., HTI Cone Penetrometer Applications
Dean B. Hagmann	CPP Design Agent, Deployment Coordinator
Kent D. Reynolds	Lead Geologist, Mobilization Coordinator
William S. Callaway	Analytical Support Coordinator
Jeffrey J. Huston	HTI Quality Assurance
Dave A. Moore	Mgr., CPO Production Control
J. T. Gregor	Mgr., TWRS Safety
Robert M. Boger	Mgr., Characterization Engineering
John S. Schofield	Mgr., Characterization Field Engineering
Wally J. Kennedy	Mgr., Characterization Field Sampling
John W. Hunt	Mgr., Technical Basis and Planning
Dan G. Baide	Mgr., DST Engineering
James M. Morris	Mgr., Tank Operations Training

ACRONYM KEY

ARA - Applied Research Associates
BIO - Basis for Interim Operation
CAMS - Computer Aided Management System
CP - Cone Penetrometer
CPP - Cone Penetrometer Platform
DTS - Deficiency Tracking System
HATS - Hanford Action Tracking System
HGET - Hanford General Education Training
HPT - Health Physics Technician
HTI - Hanford Tanks Initiative
JCS - Job Control System
JHA/JSA - Job Hazards Analysis / Job Safety Analysis
NCR - Non Conformance Report
NOC - Notice of Construction
PHA - Preliminary Hazards Analysis
RPR - Radiological Problem Report
RWP - Radiological Work Permit
WDOH - Washington Department of Health
USQ - Unreviewed Safety Question
XRF - X-Ray Fluorescence

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CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
1.0 Maintenance		
1.1) Maintenance Program Structure and Management The vendor in accordance with the vendor maintenance program and vendor contract will perform maintenance on the CPP and probes. Site maintenance does not apply. No additional or revised TWRS program level maintenance activities are required. Acceptance Criteria **1.1.1** Acceptable maintenance program for demonstration is in place. Comments:	Mgr., HTI Cone Penetrometer Applications	
1.2) Maintenance Equipment, Facilities & Technology See 1.1	N/A	
1.3) Work Identification, Planning, and Scheduling **1.3.1**) JCS work packages are complete and approved. Acceptance Criteria **1.3.1** JCS work packages necessary to support this activity are complete. Comments:	Mgr., CPO Production Control	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
1.3.2) Plant Forces Work Review (PFWR) is complete. HNF-PRO-70 does not reference technology demonstrations as needing a PFWR. This activity will not involve construction, modification or repair work and is not a construction project. Acceptance Criteria **1.3.2** PFWR necessary for this activity is complete. Comments:	Mgr., CPO Production Control	
1.4) Maintenance Procedures Vendor maintenance schedules for the Cone Penetrometer Platform already exist (they were provided as part of the CPP procurement). Plant maintenance procedures are not required since the CPP will not be an operational piece of equipment at the completion of the demonstration. The CP probes associated with the HTI demonstration are one of a kind demonstration tools that require no maintenance. They exist for the duration of the task. Acceptance Criteria **1.4.1** The vendor maintenance program for the Cone Penetrometer Platform have been reviewed and found acceptable for the CP demonstration. Comments	Mgr, HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
1.5) Maintenance Information The maintenance information provided when the CPP was purchased in 1996 is still applicable for this demonstration. Acceptance Criteria **1.5.1** The maintenance information provided when the CPP was purchased in 1996 was reviewed and is still applicable for this demonstration. Comments:	Mgr, HTI Cone Penetrometer Applications	
1.6) Maintenance Quality Assurance There are no planned site maintenance programs associated with the Cone Penetrometer Demonstration task. The CPP will not be an operational piece of equipment at the conclusion of the demonstration as there is no future funding or mission for the CPP.	N/A	
1.7) Preventive Maintenance & Evaluation Programs The CPP will not be an operational piece of equipment at the completion of the demonstration task. There will be no preventive maintenance or evaluation programs. However, required preventive maintenance will be performed on the CPP and probes prior to deployment in AX Farm. Acceptance Criteria **1.7.1** Documentation of the completed preventive maintenance actions for all equipment required for CP operations has been reviewed and found acceptable. Comments:	Mgr, HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
1.8) Calibration Programs The CPP will not be an operational piece of equipment at the completion of the demonstration task. There will be no TWRS calibration programs involved with this task. The vendor has performed initial calibrations and due to the short duration of the demonstration, no recalibration is anticipated. Acceptance Criteria **1.8.1** Documentation of the completed calibration actions for all equipment required for CP operations has been reviewed and found acceptable. Comments:	_____ Mgr, HTI Cone Penetrometer Applications	_____
1.9) Maintenance Outage Program The CPP will not be an operational piece of equipment at the completion of the demonstration task. There will not be a maintenance outage program associated with this task.	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
2.0) ENVIRONMENT, HEALTH AND SAFETY		
2.1) General The environmental, health, and safety issues related to this demonstration are the standard issues for tasks performed in the tank farm and handled according to established practices and procedures contained within the JCS work package development. The Cone Penetrometer will be pushed in soils/locations where piping and obstructions may exist. Four measures have been employed to ensure that underground piping and other equipment will not be contacted. These are: 1) Review of tank farm drawings to identify underground obstructions, 2) Ground penetrating radar survey, 3) metal detector and inclinometer in the probe tip, and 4) monitoring of the force required to push the probe into the soil for abnormal increases. Results of the first two items are documented in the Excavation Permit. Items 3 & 4 will be employed during field operations. Acceptance Criteria **2.1.1** Surveillance by TWRS Safety of the areas impacted by equipment installation yields no unacceptable operating hazards. Comments: See 2.7	Mgr., TWRS Safety	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
2.2) Reactor/Facility Safety Review and Safety Analysis The CP demonstration task was USQ screened (USQ TF-97-0876) and the activity was found to be bound by the authorization basis. The USQ screen was based on a Preliminary Hazard Analysis (PHA) which was summarized in HNF-SD-WM-HIE-012. No additional safety analysis is required. Acceptance Criteria **2.2.1** USQ screenings for the CP demonstration and/or evaluations supporting equipment installation and required equipment added to support CP operations are complete. Comments:	Mgr., Characterization Field Engineering	
2.3) Response to Design Basis Accidents No design basis accidents were found to be applicable in the PHA. Acceptance Criteria **2.3.1** A Hazards Identification & Evaluation document and PHA was summarized in HNF-SD-WM-HIE-012 and the hazards are acceptable. Comments:	Mgr, HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
2.4) Industrial Hygiene The Industrial Hygiene review and approval for this task are documented by the approvals in the JCS work packages and are not in separate documentation. Acceptance Criteria **2.4.1** TWRS Safety has reviewed the work package, provided appropriate safety reviews and found no unacceptable operating hazards. Comments:	Mgr., CPO Production Control	
2.5) Radiation Safety Radiation safety is addressed in the RWP for the CP demonstration task contained in the JCS work package. Safe handling of the CP XRF probe source is covered in the probe operating procedure and the RWP. Acceptance Criteria **2.5.1** A Radiation Work Permit (RWP) has been prepared and approved for deployment in AX-farm. Comments:	Mgr., CPO Production Control Analytical Support Coordinator	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
2.6) Nuclear Safety/Criticality Safety Nuclear and Criticality safety concerns are addressed in the Hazards Identification & Evaluation document (HNF-SD-WM-HIE-012). Specifically table B1 of HNF-SD-WM-HIE-012 addresses criticality. Acceptance Criteria **2.6.1** Nuclear and Criticality safety concerns have been addressed in the Hazards Identification & Evaluation document (HNF-SD-WM-HIE-012) and found to be acceptable. Comments:	Mgr, HTI Cone Penetrometer Applications	
2.7) Occupational Safety The Occupational Safety review and approval for this task are documented by the approvals in the JCS work packages and are not in separate documentation. The work package will contain a JHA/JSA. Acceptance Criteria **2.7.1** TWRS Safety has reviewed the work package, provided appropriate safety reviews and found no unacceptable operating hazards. Comments: See 2.1	Mgr., CPO Production Control	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
2.8) Fire Protection and Life Safety The Fire Protection review and approval for this task are documented by the approvals provided in the JCS work packages and are not in separate documentation. Acceptance Criteria **2.8.1** TWRS Safety has reviewed the work package, provided appropriate safety reviews and found no unacceptable operating hazards. Comments:	Mgr., CPO Production Control	
2.9) CPP Transportation Safety The only transportation activities associated with the CP demonstration task is movement of the CPP. Safety issues related to CPP transport are addressed in the operating instructions. Safety issues associated with transporting the soil samples to the laboratory are addressed in existing sample transport procedures. 2.9.1 CPP Transportation Acceptance Criteria **2.9.1** The procedures controlling CPP transport operations have been reviewed and yield no unacceptable operating hazards. Comments:	CPP Design Agent, Deployment Coordinator Mgr., Characterization Field Engineering	
2.9.2 Sample Transportation Acceptance Criteria **2.9.2** Existing Sample Transport Procedures have been reviewed for applicability to transport soil samples and are approved and available for use. Comments:	Analytical Support Coordinator Mgr., Characterization Field Sampling	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
2.10) CP Probe Transportation Safety The CP XRF probe utilizes a radioactive source that is transported in a shielded container. Safe transport, handling, and storage are covered in CP Probe Operating procedures. Acceptance Criteria **2.10.1** Procedures for the handling and transportation of the XRF probe (list procedures) incorporate safe transport, handling and storage requirements and are approved and available for use. Comments:	Analytical Support Coordinator	
2.11) Environmental Protection There are no Environmental protection issues related to this demonstration. See Item 4.4 and Item 5.3.	N/A	
2.12) Emergency Preparedness Emergency preparedness is covered under the standard tank farm emergency preparedness procedures. Personnel are trained in emergency response according to the existing Hanford procedures (HGET, etc) Acceptance Criteria **2.12.1** Facility emergency response procedures have been reviewed by all line management, operations, vendors, and operations support personnel associated with the CP demonstration. Comments:	Mgr, HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
2.13) Safety Systems and Equipment There are no safety class or safety significant SSCs associated with this demonstration. There are no safety systems or equipment on the CPP.	N/A	
2.14) Environmental Qualification There are no environmental qualifications associated with this demonstration.	N/A	
2.15) Adverse Weather Protection The CPP was designed for outdoor storage. The Cone Penetrometer demonstration will not be conducted in adverse weather conditions. In accordance with standard tank farm procedures, operations will be shut down for excessive wind, lightning, etc. Acceptance Criteria **2.15.1** Operating limits and parameters established, document on file. Comments:	_____ Mgr., Characterization Field Engineering	_____
2.16) Chemical Process Safety There are no chemical processes associated with the CPP or with this demonstration in tank farms.	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
3.0) SERVICES		
3.1) Laboratory analysis **3.1.1** Analytical Field Procedure Acceptance Criteria 3.1.1. All required Analytical Field Procedures are approved and available for use. Comments: **3.1.2** AX-104 Vadose Zone Sampling and Analysis Plan. Acceptance Criteria 3.1.2 The AX-104 Vadose Zone Sampling and Analysis Plan has been approved and released. Comments:	Analytical Support Coordinator Mgr., Technical Basis & Planning	
3.2) Safeguards There are no safeguards issues related to this demonstration (no inventory of nuclear or hazardous materials to safeguard).	N/A	
3.3) Security There are no security issues related to this demonstration (no inventory of nuclear materials, no classified information to protect).	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
3.4) Transportation The CPP is moved/transported by means of a site crane and trucks. The Hoisting and Rigging organization performs the "transportation" tasks in accordance with the established site hoisting and rigging procedures. Hoisting and rigging also provides all of the transportation equipment used for this demonstration. Acceptance Criteria **3.4.1** Hoisting and Rigging work instructions for the transportation of equipment used for this demonstration are approved and available for use. Comments:	CPP Design Agent, Deployment Coordinator	
3.5) Engineering An Engineering task plan for the Cone Penetrometer (HNF-2175) has been prepared and released. The AX-104 Dome loading associated with this demonstrated has been evaluated. **3.5.1** Engineering Task Plan Acceptance Criteria **3.5.1** Engineering task plan for the Cone Penetrometer (HNF-2175) has been prepared and released. Comments:	Mgr., Characterization Engineering	
3.5.2 Dome Loading Acceptance Criteria **3.5.2** Dome loading analysis has been documented and planned activity is within acceptable limits. Comments:	Mgr., DST Engineering	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
3.6) Technical Support of Operations TWRS technical support for the demonstration will be provided by the cog engineer, design authority, and PIC. Acceptance Criteria **3.6.1** Adequate technical support has been identified and is available. Comments:	Mgr., Characterization Engineering	
3.7) Research and Development Support There are no research and development activities associated with this task. This task involves the use of existing technologies and methods within a operational environment for the purpose of demonstration and evaluation. No research and development is performed during this work. Existing instruments and field tools are combined, reconfigured, and used in a unique way to address deployment location physical constraints and information/data needs. Data provided by instruments and samples during this work will be used to supplement other information for the use in programmatic planning and decision-making. The quality of data and the deployment experience will be evaluated for possible future, routine use and applications. A data quality objective (DQO) and a sampling and analysis plan (SAP) has been prepared to guide task planning and technology preparation toward appropriate and needed goals. Following the guidance of a DQO and SAP also provides credibility and relevance to the deployment experience and the data/samples that are obtained.	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
3.8) Waste Management Waste disposal requirements has been developed to establish the methods of handling contaminated wastes generated by this demonstration. These requirements are included within the JCS work package development. Acceptance Criteria **3.8.1** Waste disposal requirements for handling contaminated wastes generated by this demonstration are included within the JCS work package. Comments:	Mgr., Characterization Field Sampling	
3.9) Utilities The CPP is a self-contained system that does not require external utilities.	N/A	
4.0) CONTROLS AND PROGRAM FUNCTIONING		
4.1) Safety Analysis The CP demonstration task was USQ screened (USQ TF-97-0876) and the activity was found to be bounded by the authorization basis. The USQ screen was based on a PHA, which was summarized in HNF-SD-WM-HIE-012. No additional safety analysis is required. Comments: Combined with 2.2.1	Mgr, HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
4.2) Process Hazards Reviews A PHA was performed and summarized in HNF-SD-WM-HIE-012. This satisfies the requirement for a Process Hazards Review. Comments: Combined with 2.3.1	Mgr, HTI Cone Penetrometer Applications	
4.3) Internal & External Communications CPP does not incorporate any communications equipment. CPP operations occur around the unit with all workers/operations within eye and ear range of each other. Comments:	N/A	
4.4) Permits All applicable environmental requirements are identified. Applicable environmental permits and/or approvals are received and requirements are implemented in the appropriate procedures/documents as necessary **4.4.1** Excavation Permit Acceptance Criteria **4.4.1** An Excavation permit (including the cultural resources review) for deployment of the cone penetrometer probes into the tank farm soil has been approved. Comments:	Lead Geologist, Mobilization Coordinator	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
4.4.2 Environmental Permits Acceptance Criteria **4.4.2** Applicable environmental permits and/or approvals are received and requirements are implemented in the appropriate procedures/documents as necessary. Comments:	Mgr, HTI Cone Penetrometer Applications	
4.5) Materials Control & Accountability See 1.1	N/A	
4.6) Organization, Responsibilities, and Authority The organization, responsibilities, and authority are in the Engineering task Plan, HNF-2175. Acceptance Criteria **4.6.1** The organization, responsibilities, and authority have been identified in the Engineering task Plan, HNF-2175. Comments:	Mgr, HTI Cone Penetrometer Applications	
4.7) Scheduling Acceptance Criteria **4.7.1** The work package is complete and scheduled ready to work. Comments:	Mgr., CPO Production Control	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
4.8) Configuration Control Configuration control of the CPP is maintained by replacing existing vendor drawings (as needed) in the CPP Vendor Information (VI) files, via the EDT process. Configuration control of the multi-sensor CP probe is maintained by the vendor/ARA in accordance with the vendor's Quality Assurance Plan, as specified in their Statement of Work. Acceptance Criteria **4.8.1** CPP drawings, procedures, ECN documentation, and computer software documentation has been reviewed and is consistent with the CPP configuration. Comments:	_____ Mgr, HTI Cone Penetrometer Applications _____ Mgr., Characterization Engineering	_____ _____
4.8.2 CP multisensor probe drawings, procedures, documentation, and computer software documentation has been reviewed and is consistent with the probe configuration and the requirements of the vendor's SOW Comments:	_____ Mgr, HTI Cone Penetrometer Applications _____ Mgr., Characterization Engineering	_____ _____

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
4.9) Technical Control and Data **4.9.1** Cone Penetrometer Grouting Strategy Document Acceptance Criteria **4.9.1** The Cone Penetrometer Grouting Strategy Document list has been approved and released. Comments:	4.9.1 _____ Lead Geologist, Mobilization Coordinator	_____
4.9.2 ALARA Management Worksheet Acceptance Criteria **4.9.2** An ALARA Management worksheet has been completed. Comments:	4.9.2 _____ CPP Design Agent, Deployment Coordinator 4.9.2 _____ Mgr., Characterization Field Sampling	_____ _____
4.10) Facility Performance Measurement & Evaluation There are no facility performance measurements or evaluations associated with this demonstration.	N/A	
4.11) Analysis of Startup of Facility Operation and Programmatic Aspects This Cone Penetrometer deployment is a demonstration not a startup of a facility.	N/A	
4.12) Program Definition and Goal Realization Acceptance Criteria **4.12.1** The program definition and goals are defined in the Hanford Tanks Initiative Characterization Technical Basis Review (TBR) (060.020). Comments:	_____ Mgr, HTI Cone Penetrometer Applications	_____

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
5.0) REGULATORY COMPLIANCE		
5.1) DOE ES&H Orders Compliance with the applicable orders, standards, requirements, policies, and procedures is maintained through adherence to the Basis for Interim Operation (BIO), and site (HNF-PRO) procedures. Additional assurance is provided by HTI QA review/approval of the Cone Penetrometer Demonstration planning and documentation. Tank Farm Cog Engineer and Design Authority review/approval of applicable documentation is further assurance of compliance. Acceptance Criteria **5.1.1** The procedures controlling CP demonstration operations have been reviewed for compliance with the current TSRs and OSDs. All noted discrepancies (including procedure changes) have been resolved. Comments:	HTI Quality Assurance	
5.2) Codes and Standards Compliance with the applicable codes and standards is maintained through adherence to the BIO, and site (HNF-PRO) procedures. Additional assurance is provided by HTI QA review/approval of the Cone Penetrometer Demonstration planning and documentation. Tank Farm Cog Engineer and Design Authority review/approval of applicable documentation is further assurance of compliance.	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
5.3) Environmental Reviews **5.3.1)** NEPA documentation requirements were reviewed and determined to fall under the U. S. Department of Energy, Richland Operations Office (RL), Categorical Exclusion (CX) determination for Site Characterization and Environmental Monitoring, Hanford Site, Richland Washington, (B3.1, April 17, 1997).(See letter WMH-9757760, A. G. Weiner to Bill Root, September 19, 1997.) Acceptance Criteria **5.3.1** NEPA documentation requirements were reviewed and determined to fall under the U. S. Department of Energy, Richland Operations Office (RL), Categorical Exclusion (CX) determination for Site Characterization and Environmental Monitoring, Hanford Site, Richland Washington, (B3.1, April 17, 1997). Comments:	Lead Geologist, Mobilization Coordinator	
5.3.2) A WDOH air permitting review (NOC) has been completed. Acceptance Criteria **5.3.2** Applicable WDOH air permits are approved. Comments:	Mgr., HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
5.4) Statutory Requirements Compliance with the applicable statutory requirements is maintained through adherence to the WDOH clean air review, BIO, and site procedures. Acceptance Criteria **5.4.1** The procedures controlling CP demonstration operations have been reviewed for compliance with the current WDOH clean air (NOC) review, BIO, and site procedures. All noted discrepancies (including procedure changes) have been resolved. Comments:	_____ Mgr., HTI Cone Penetrometer Applications	_____
5.5) Corporate Policies and Procedures Compliance with Corporate Policies and Procedures is maintained through adherence to the site (HNF-PRO) procedures. Reviews by HTI QA, Design Authority, and Cog Engineer provide assurance of compliance. Acceptance Criteria **5.5.1** The activities required for the CP demonstration have been reviewed for compliance with the current Corporate Policies and Procedures. All noted discrepancies (including procedure changes) have been resolved. Comments:	_____ Mgr., HTI Cone Penetrometer Applications	_____

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
6.0) **STRUCTURES AND HARDWARE** According to DOE-STD-3006-95, appendix 2, page 2-6, the review for this section "should focus on requirements in effect at the time of the Title II Design Review". There is no title II design associated with this demonstration. Therefore the majority of this section is NA to the Cone Penetrometer demonstration task. The CPP was purchased in 1996. During the CPP procurement cycle (Design, Fab, Test), design reviews and vendor testing were performed against the design requirements.	N/A	
6.1) Design Program Performance goals and performance requirements have been prepared for CP probes. The probe design have been verified (against these requirements) by development and qualification testing both in the laboratory and in the field. Acceptance Criteria 6.1.1 The probe design has been verified against performance goals and performance requirements. All noted discrepancies (including procedure changes) have been resolved. Comments:	• Mgr., HTI Cone Penetrometer Applications	
6.2) Materials Control See 6.0.	N/A	
6.3) Construction Program See 6.0.	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
6.4) Structures See 6.0. Since this section is to focus on "requirements in effect at the time of title II design", and there is no title II design associated with this demonstration, and the CPP design review(s) were completed several years ago when it was purchased, there are no structures to review for this demonstration.	N/A	
6.5) Primary Process Systems and Equipment The complete CPP/CP probes and DAS system has been qualified for the HTI mission and objectives through integrated system qualification tests. Acceptance Criteria **6.5.1** Documentation of the completed qualification tests for all equipment required for the CP demonstration has been reviewed and found acceptable. Comments:	_____ Applied Research Associates/ _____ Mgr., HTI Cone Penetrometer Applications	_____ _____
6.6) Supporting Systems and Equipment The CPP operation is independent of any TWRS services or utilities and as such does not rely on any site supporting systems. The CPP is moved by means of a site crane by the Hoisting and Rigging organization. Hoisting and rigging provides the only site equipment used for this demonstration. Acceptance Criteria **6.6.1** The work packages for the CP demonstration identify the required supporting systems and equipment. Comments:	_____ Lead Geologist, Mobilization Coordinator	_____

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
6.7) Special Equipment There is no "special equipment" associated with this demonstration. There are performance goals and performance requirements for the CP probes. The probe design has been verified (against these requirements) developmental and qualification testing both in the laboratory and in the field (See 6.1 above).	N/A	
6.8) Process, Facility, and Site Interfaces Tank farm interfaces are addressed in the excavation permit process. Acceptance Criteria **6.8.1** Process, facility, and site interfaces are identified. Comments:	_____ Lead Geologist, Mobilization Coordinator	_____
6.9) Materials, Spare Parts, and Spare Equipment ARA will provide spare probe tips and pipe sections. ARA will also provide replacement parts on an as needed basis for the CPP. There is no inventory of spare parts for the CPP. Acceptance Criteria **6.9.1** Adequate materials, spare parts, and spare equipment have been provided for the CP demonstration. Contract documentation has been provided regarding ARA's responsibility to provide needed spare parts. Comments:	_____ Mgr., HTI Cone Penetrometer Applications _____ Applied Research Associates	_____ _____

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
6.10) Adverse Weather Protection See 2.15	N/A	
7.0) **PERSONNEL**		
7.1) Personnel Selection Acceptance Criteria **7.1** The organizations providing appropriate personnel are adequately defined in HNF-2175, Engineering Task Plan - HTI Cone Penetrometer. Comments:	_____ Mgr., HTI Cone Penetrometer Applications	_____
7.2) Training and Skills Verification **7.2.1)** A Training Plan has been developed for training the CP deployment demonstration staff/team members that will assist in operating the CPP. Acceptance Criteria **7.2.1** Hands-on training and structured classroom training necessary to support this activity has been identified. Comments:	_____ Mgr., Tank Operations Training _____ Mgr., Characterization Field Sampling	_____ _____
7.2.2) CP staff are trained and verified in the specific CPP operations they will perform. Acceptance Criteria **7.2.2** Documentation that individuals assigned to the CP demonstration are trained has been reviewed. Comments:	_____ Mgr., HTI Cone Penetrometer Applications	_____

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
7.3) Knowledge & Competence Personnel are trained to the appropriate Hanford and Tank Farm requirements. There are no special or additional training requirements other than the CPP training discussed above. Acceptance Criteria **7.3.1** Documentation that individuals assigned to the CP demonstration (including vendors) are trained to the appropriate Hanford and Tank Farm requirements has been reviewed. Comments:	Mgr., Characterization Field Sampling Mgr, HTI Cone Penetrometer Applications	
7.4) Adherence to Proper Practice All procedures will be followed and conduct of operations will be rigorously enforced. Acceptance Criteria **7.4.1** An assessment of operating practices has been completed and determined to be acceptable. Comments:	Mgr., Characterization Field Sampling	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
7.5) Staffing Levels This demonstration is a one-time short-term operation that does not require significant staffing. TWRS staffing requirements (HPT, Supervisor, and operators) are provided by Characterization Project Operations. Acceptance Criteria **7.5.1** Sufficient trained operating personnel are available on all shifts during which CP demonstration operations will be conducted. Comments:	_____ Mgr., Characterization Field Sampling	_____
7.6) Recertification There are no recertifications associated with this demonstration. Comments:	N/A	
7.7) Oral/Written Boards There are no oral/written boards associated with this demonstration.	N/A	
8.0) **OPERATIONS**		
8.1) Operations Structure and Management The roles and responsibilities for this demonstration are defined in section 4.0 (Roles and Responsibilities) and depicted in figure 1 of the Engineering Task Plan (HNF-2175, Current Rev).	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
8.2) Operations Procedures		
8.2.1) General Operating Description Acceptance Criteria **8.2.1** AX Tank Farm Cone Penetrometer Operations Control Plan (HNF-3362) is approved and available for use. Comments:	CPP Design Agent, Deployment Coordinator	
8.2.2) CPP Move and Set-up Work Instruction Acceptance Criteria **8.2.2** Work Instructions for the following operations are approved and available for use: CP System Setup Work Instruction, CP System Move to New In-Farm Work Location Comments:	CPP Design Agent, Deployment Coordinator	
8.2.3) Multi-Sensor Probe Instrument Operating Instructions Acceptance Criteria **8.2.3** Work Instructions for the MSP operation are approved and available for use. Comments:	Analytical Support Coordinator	
8.2.4) Soil Sample Retrieval work instruction Acceptance Criteria **8.2.4** Work Instructions CP System Soil Sample Retrieval Work Instruction is approved and available for use. Comments:	CPP Design Agent, Deployment Coordinator	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
8.2.5) CP Grouting Work Instruction Acceptance Criteria **8.2.5** Work Instruction for the CP Grouting operations are approved and available for use. Comments:	Applied Research Associate Lead Geologist, Mobilization Coordinator	
8.2.6) Skid Move Work Instruction (into and out of tank farms) Acceptance Criteria 8.2.6 Work Instruction for the CP System Move Out of Farm is approved and available for use. Comments:	CPP Design Agent, Deployment Coordinator Applied Research Associates	
8.2.7) CPP Operating Instructions Acceptance Criteria 8.2.7 Operating Instructions for the CP Platform operation are approved and available for use. Comments:	Mgr., HTI Cone Penetrometer Applications	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST

Task	Responsible Person (initial)	Review Sign-off /date
8.3) Operations Information An Operations Control Plan describes the CP operations near AX-104 including a road map of normal operations and a procedure for daily operations during operation of the CP platform in the AX Tank Farm. Acceptance Criteria **8.3.1** AX Tank Farm Cone Penetrometer Operations Control Plan (HNF-3362) is approved and available for use. Comments:	Mgr., HTI Cone Penetrometer Applications	
8.4) Operating Practices The actions that are to be undertaken when an underground obstruction is encountered by the probe are included in the CPP operating procedures. Actions to be taken when the obstruction is encountered, situation assessment actions, and recovery actions are included in the procedure. Acceptance Criteria **8.4.1** Recovery actions are included in the work instructions/operating procedures and personnel have been trained. Comments:	Mgr., HTI Cone Penetrometer Applications Mgr., Characterization Field Sampling	
8.5) Control of Systems and Equipment No additional controls are required beyond those contained in the procedures.	N/A	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
8.6) Operations Materials and Supplies Operational materials and supplies are defined in the JCS work package. Acceptance Criteria **8.6.1** Operations have staged routine material required to support the proposed activity. Comments:	Mgr., CPO Production Control	
8.7) Experimental Operations There are no experimental operations associated with this demonstration. The tools and activities associated with this task are not experimental. Existing technologies and methods with prior laboratory and field use are packaged and deployed for demonstration and evaluation. Instruments used during this work represent new configurations of existing tools. The quality of data generated and the experience of deployment into new field conditions will be evaluated for possible, future, routine operations.	N/A	
8.8) Operations Quality Assurance Review/approval of TWRS operating procedures and JCS work packages. Acceptance Criteria **8.8.1** Quality Control has reviewed/approved the work packages: Comments:	Mgr., CPO Production Control	

CP DEMONSTRATION STANDARD STARTUP CHECKLIST		
Task	Responsible Person (initial)	Review Sign-off /date
9.0) QUALITY ASSURANCE		
9.1) QA Program Implementation All products and activities generated by or for HTI shall comply with the requirements set forth in the Hanford Tanks Initiative Quality Assurance Implementation Plan (HNF-2803). Acceptance Criteria **9.1.1** Quality Assurance has performed the required inspections, reviews, verifications, and documentation to assure task compliance with HNF-2803. Any and all open concerns (HATS, DTS, CAMS, non-CAMS, NCRs, RPRs, employee concerns, etc.) which may influence the proposed activity. Comments:	_____ HTI Quality Assurance	_____

APPROVALS

_____ _____
Approval Authority Date

_____ _____
Readiness Lead Date

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Cone Penetrometer Demonstration Standard Startup Review Checklist, HNF-3101, Rev. 1		ECN No. 647079

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