

JUL 29 1993

11

ENGINEERING DATA TRANSMITTAL

Station #12

1. EDT. 136138

2. To: (Receiving Organization) 200/300 Remedial Investigation		3. From: (Originating Organization) Geosciences		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: ER		6. Cog. Engr.: G. G. Kelty		7. Purchase Order No.: N/A	
8. Originator Remarks: For review/release.				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: N/A	
				12. Major Assm. Dwg. No.: N/A	
11. Receiver Remarks:				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: N/A	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Impact Level	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-EN-AP-142		0	Description of Work for 216-U-Pond 3Q Cone Penetrometer Demonstration	1/2		1	1

16. KEY					
Impact Level (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
1, 2, 3, or 4 (see MRP 5.43)		1. Approval	4. Review	1. Approved	4. Reviewed no/comment
		2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment
		3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)													
(G)	(H)	(J) Name (K) Signature (L) Date (M) MSIN					(J) Name (K) Signature (L) Date (M) MSIN					(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.		
1	1	Cog. Eng. G. G. Kelty	<i>G. G. Kelty</i>	7/16/93	H6-06	L. O. Amos	<i>L. O. Amos</i>	7-20-93	7-41	1	1		
1	1	Cog. Mgr. A. J. Knepp	<i>A. J. Knepp</i>	7/16/93	H6-06	B. R. Cassem	<i>B. R. Cassem</i>	7/20/93	H3-05	1	1		
1	1	QA R. L. Hand	<i>R. L. Hand</i>	7/19/93	H4-16	EDMC (2)	<i>M. D. Shreve</i>	7/20/93		3			
		Safety				Central Files (2)				3			
		Env.				IRA (2)				3			
1	1	M. J. Galgoul	<i>M. J. Galgoul</i>	7-16-93	H6-03	P. M. Pak	<i>P. M. Pak</i>	7-16-93		1	1		
1	1	R. A. Carlson	<i>R. A. Carlson</i>	7/16/93	H6-03	N. Uziemblo	<i>N. Uziemblo</i>	7-29-93		1	1		

18. G. G. Kelty <i>G. G. Kelty</i> 7/16/93 Signature of EDT Originator Date		19. _____ Authorized Representative for Receiving Organization Date		20. A. J. Knepp <i>A. J. Knepp</i> 7/16/93 Cognizant Manager Date		21. DOE APPROVAL (if required) Ltr No. _____ <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments	
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Date Received: 7-16-93

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Reference: WHC-CM-3-4

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Title Description of Work for 216-U-Pond Cone Penetrometer Demonstration	Unclassified Category UC-630	Impact Level 3Q
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New or novel (patentable) subject matter? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If "Yes", has disclosure been submitted by WHC or other company? <input type="checkbox"/> No <input type="checkbox"/> Yes Disclosure No(s).	Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (Identify)
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CHECKLIST FOR SIGNATORIES

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			Name (printed)	Signature
Classification/Unclassified	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Controlled Nuclear Information	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Patent - General Counsel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	S. W. Berglin	for ORC memo 7/14/93 M. Knight 7-14-93
Legal - General Counsel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	S. W. Berglin	
Applied Technology/Export	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
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RL Program/Project	<input checked="" type="checkbox"/>	<input type="checkbox"/>	P. M. Pak	sent to DOE 7-14-93
Publication Services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	M. R. Knight	M.R. Knight 7-16-93
Other Program/Project	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Information conforms to all applicable requirements. The above information is certified to be correct.

References Available to Intended Audience	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Transmit to DOE-HQ/Office of Scientific and Technical Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Author/Requestor (Printed/Signature)	Date	
G. G. Kelty <i>G. G. Kelty</i>	7/14/93	
Intended Audience	<input type="checkbox"/> Internal <input type="checkbox"/> Sponsor <input checked="" type="checkbox"/> External	
Responsible Manager (Printed/Signature)	Date	
A. J. Knepp <i>A J Knepp</i>	7/14/93	

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP	
Stamp is required before release. Release is contingent upon resolution of mandatory comments.	
	
Date Cancelled	Date Disapproved

SUPPORTING DOCUMENT		1. Total Pages 9
2. Title Description of Work for 216-U-Pond Cone Penetrometer Demonstration	3. Number WHC-SD-EN-AP-142	4. Rev No. 0
5. Key Words 200 West Area, 216-U-10 Pond, borehole geophysics logging data <div style="text-align: center;"> APPROVED FOR PUBLIC RELEASE <i>7-16-93 N. Jones</i> </div>	6. Author Name: G. G. Kelty <i>G. G. Kelty</i> 7/16/93 Signature Organization/Charge Code 81320/PT2AA	
7. Abstract Kelty, G. G., <i>Description of Work for 216-U-Pond Cone Penetrometer Demonstration</i> , WHC-SD-EN-AP-142, Rev. 0, Westinghouse Hanford Company, Richland, Washington.		
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9. Impact Level 3Q		

MASTER

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1 200-UP-2 DESCRIPTION OF WORK PROJECT CHANGE FORM 7

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1. 216-U-10 Pond CPT Test Locations 2

1.0 SCOPE OF WORK

This description of work details the proposed field activities associated with Cone Penetrometer (CPT) work at the 216-U-10 Pond (U-10 Pond) in the 200 West Area and will serve as a field guide for those performing the work. It should be used in conjunction with requirements specified in the *Environmental Investigations and Site Characterization Manual* (WHC 1988c). This demonstration is designed to compare borehole geophysics logging data obtained using a gamma scintillation detector with sampling data for the U-10 Pond. Once installed, each CPT site will be gamma logged. Results will be compared to the 216-U-Pond test pit analytical results and historical data to determine if this method suitably approximates expected zones of contaminated soil.

1.1 216-U-10 POND

The U-10 Pond was constructed in 1944 to receive low-level liquid effluent from the various chemical reprocessing facilities within the 200 West Area. The U-10 Pond covered 30 acres and received approximately 4.3×10^{10} gal of contaminated liquid. Sampling conducted in 1980 indicated that the most significant radionuclides were ^{90}Sr , ^{137}Cs , plutonium, and uranium (DOE-RL 1993). The pond was deactivated and stabilized in 1985 with clean fill dirt. The thickness of the stabilization cover is variable across the former pond and ranges between 2 ft near the pond margins and delta area to 8 feet in the deepest section of the pond.

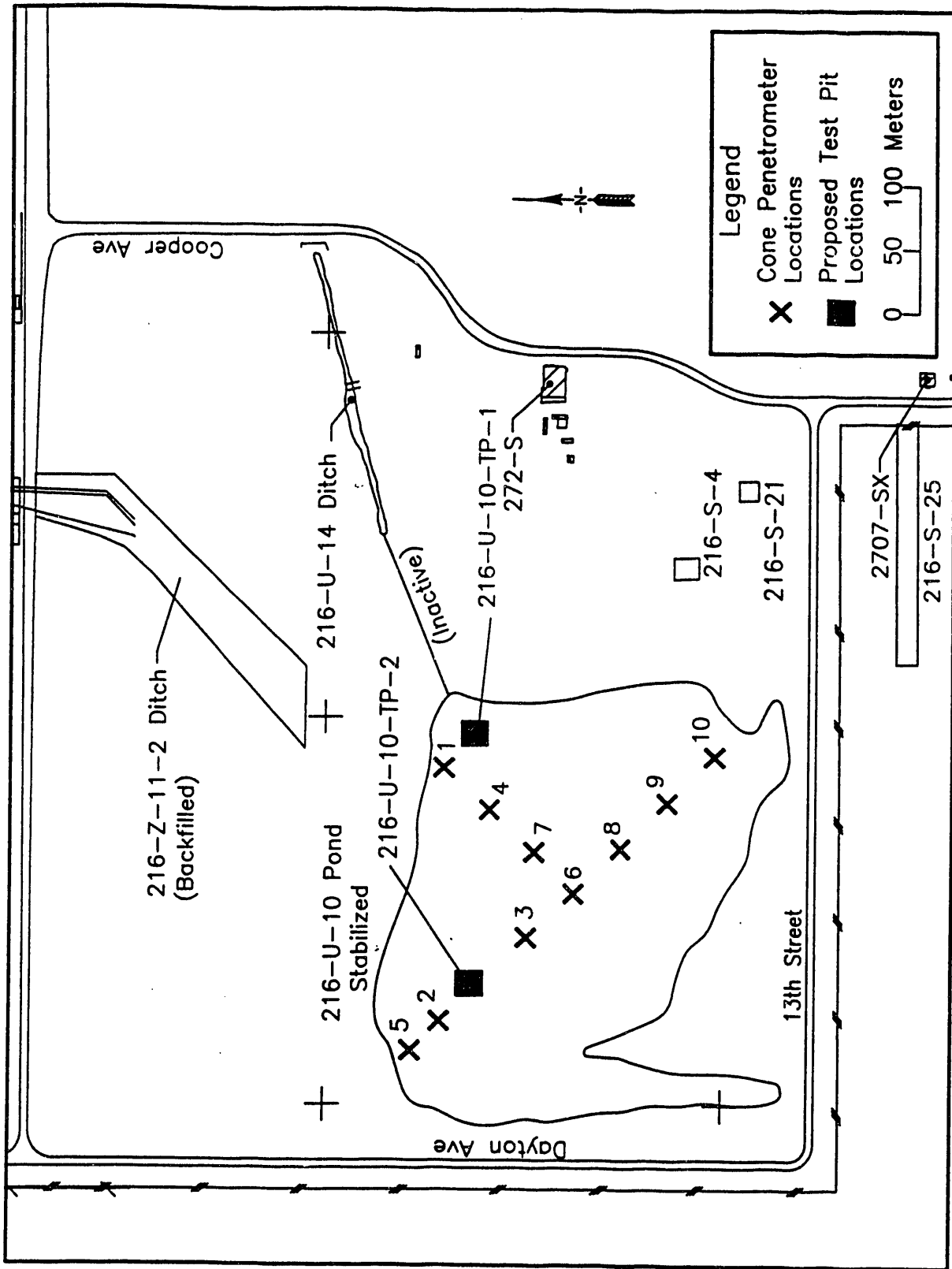
A total of ten CPT sites will transect the U-10 Pond on two lines at the approximate locations presented on Figure 1. A line of seven CPT sites will cross the site in a northwest direction (the longest dimension of the U-10 Pond) and will intersect the 216-U-10-TP-2 test pit. The purpose of this line is to characterize the vertical and horizontal extent of contaminants within and beneath the U-10 Pond. A second line of three CPT sites will extend from the center of the pond to the northeast. This line should stop approximately 15 m (50 ft) to the northwest of the proposed 216-U-10-TP-1 test pit. The purpose of this line is to establish the vertical and horizontal extent of contaminants within and under the delta area of the U-10 Pond. The CPT rod will be left in place and capped until each site is geophysically logged. All sites will be abandoned as described in Section 3.3.

The order in which CPT sites will be pushed is presented on Figure 1. The first site to be installed is number one, followed sequentially by sites two through ten. The sites were selected in this order so that analytical results from adjacent test pits could be correlated to CPT sites.

2.0 GENERAL REQUIREMENTS

All personnel working to this description of work will have completed the 40-Hour Hazardous Waste Site Worker Training Program and will perform all

Figure 1. 216-U-10 Pond CPT Test Locations



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work in accordance with the following:

- WHC-CM-7-7, *Environmental Investigations and Site Characterization Manual* (WHC 1988c)
- WHC-CM-7-5, *Environmental Compliance Manual* (WHC 1988b)
- WHC-CM-1-6, *Radiological Control Manual* (WHC 1988e)
- WHC-IP-0692, *Health Physics Procedures Manual* (WHC 1991)
- WHC-CM-4-11, *ALARA Program* (WHC 1988a)
- WHC-EP-0383, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan* (WHC 1990)
- WHC-CM-4-3, *Industrial Safety Manual*, Vol. 1 through 3 (WHC 1987)
- Site-specific health and safety plan/radiation work permits/job safety analysis
- Calibration reports for the gamma tool.

2.1 PREREQUISITES

The requirements and procedures applicable to the 200-UP-2 Operable Unit field activities are specified in the *Environmental Investigations and Site Characterization Manual* (WHC 1988c). The Environmental Investigation Instructions (EII) that are applicable include the following:

- EII 1.1, "Hazardous Waste Site Entrance Requirements"
- EII 1.5, "Field Logbooks"
- EII 1.13, "Readiness Review"
- EII 2.1, "Preparation of Hazardous Waste Operations Permit"
- EII 3.2, "Calibration and Control of Monitoring Instruments"
- EII 3.4, "Field Screening"
- EII 4.3, "Control of CERCLA and Other Past-Practice Investigation Derived Waste"
- EII 5.4, "Field Decontamination of Drilling, Well Development, and Sampling Equipment"
- EII 6.1, "Activity Reports of Field Operations"
- EII 6.7, "Resource Protection Well and Test Borehole Drilling."

Each item on the checklist for tasks requiring no readiness review (EII 1.13, "Engineering and Geotechnology Readiness Review" [WHC 1988c]) will be signed and dated by the cognizant engineer or field team lead leader prior to the start of work.

3.0 FIELD ACTIVITIES

3.1 GENERAL CONE PENETROMETER REQUIREMENTS

The CPT activities will be conducted under standard operating procedures prepared by Applied Research Associates (ARA) (Electronic Cone Penetrometer User's Manual) and subject to modification by the Westinghouse Hanford Company field team leader for application to the Hanford Site. All CPT sites for use in the vadose zone will be constructed and abandoned as specified in the Washington Administrative Code (WAC) 173-160 and with the variances previously obtained from the Washington State Department of Ecology for Sections 173-160-075, 173-160-325, 173-160-540, and 550 (Cline 1993). If CPT rods are left in place for less than a year, the rods at each site would be considered uncased and would not require the above variances; only the provisions in WAC 173-160-055, 173-160-010(4) and 173-160-420 would apply. The gamma scintillation detector used to log the CPT sites will be calibrated by the contractor (ARA) and verified by Westinghouse Hanford Company personnel in accordance with EII 3.2, "Calibration and Control of Monitoring Instruments." All CPT work and associated activities will be conducted in a manner to prevent excessive damage to the surface stabilizing cover. Access upon the U-10 Pond will be limited to essential vehicles only. Staging areas will be designated for all non-essential equipment. All activities will be recorded by the field team leader in a field logbook as described in EII 1.5, "Field Logbook" (WHC 1988c).

3.2 CONE PENETROMETER ACTIVITIES

Ten CPT sites will be pushed to 41 m (135 ft) or maximum refusal, whichever occurs first. The depth restriction is to prevent the penetration of the caliche layer, which occurs between 145 and 150 ft in this area. If refusal occurs before reaching 6 m (20 ft), the FTL will select a new location approximately 5 ft from the previous site and will again attempt to reach the target depth. If refusal occurs before reaching 6 m (20 ft) again, the FTL will abandon the site and advance the CPT rig to the next sequentially numbered site. Rods pushed beyond 5 ft will not be removed from the ground. All rods removed will be field screened for radionuclides and decontaminated as specified in EII 5.4, "Field Decontamination of Drilling, Well Development, and Sampling Equipment" (WHC 1988c). All rods will be securely capped after reaching depth and gamma logged within three months. Additional spectral gamma logging will be conducted after reviewing the results of test pit soil sampling and the gamma logging. Zones will be identified at selected CPT sites for additional spectral gamma logging. These sites will be logged if it is determined that the tool will be available for use within 18 months of completing the gamma logging. If it is determined that additional spectral gamma logging will not be performed, each CPT site will then be location surveyed and abandoned.

3.3 CONE PENETROMETER ABANDONMENT

Each CPT site will be abandoned by backpulling using casing jacks or a backhoe and then filling the annulus space below the rod with pumped grout. If rods cannot be backpulled, they will be left in place and filled with grout. All rods left in place longer than 1 year will be constructed with a surface seal 2 ft deep by 6 in. around each rod and then backfilled with a 2% bentonite slurry.

4.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

An internal quality assurance program for the CPT demonstration will be implemented as described in WHC-CM-4-2, *Quality Assurance Manual* (WHC 1988d). The relationship of this manual to environmental work is described in WHC-EP-0383, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan* (WHC 1990). This description of work and activities associated with the CPT demonstration are considered impact level 3Q.

5.0 SCHEDULE

CPT work is scheduled for the first week in August 1993. This schedule is subject to change, and the operable unit coordinator should be contacted for the current status. An agreement Activity Notification form instead of an Ecology start card will be issued at least five days prior to the start of field work.

6.0 CHANGES TO THE DESCRIPTION OF WORK

Field changes to this description of work will be submitted on the attached form (Attachment 1) and kept on file with the operable unit coordinator. Copies will be submitted to the regulatory agencies and the appropriate field personnel within 10 working days. Changes made prior to commencing field activities must result in a revised DOW.

7.0 REFERENCES

- DOE-RL, 1993, *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 200-UP-2 Operable Unit, Hanford Site Richland, Washington*, DOE/RL-91-19, Rev. 0, June 1993, Richland, Washington.
- Cline, C. S., 1993, "Request of Variance from WAC 173-160 in Construction of Approximately 80 Cone Penetrometer Boreholes in Support of the 200 West Carbon Tetrachloride Expedited Response Action (ERA) and 200 UP-2 Projects" (internal letter 93202922 to S. Wisness, May 6, 1993, Washington Department of Ecology).

- WHC, 1987, *Industrial Safety Manual*, WHC-CM-4-3, Vol. 1 through 3, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988a, *ALARA Program*, WHC-CM-4-11, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988b, *Environmental Compliance Manual*, WHC-CM-7-5, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988c, *Environmental Investigations and Site Characterization Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988d, *Quality Assurance Manual*, WHC-CM-4-2, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988e, *Radiological Control Manual*, WHC-CM-1-6, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1990, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan*, WHC-EP-0383, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1991, *Health Physics Procedures Manual*, WHC-IP-0692, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

200-UP-2 DESCRIPTION OF WORK
PROJECT CHANGE FORM

Date:

Person Initiating Change:

Change:

Reason for Change:

APPROVAL:

Field Team Leader:

Operable Unit Coordinator:

Quality Assurance:

**DATE
FILMED**

10/01/93

