START

0022049

ENGINEERING CHANGE NOTICE

1. ECN 168783

Proj. ECN

2. ECN Category (mark one)							
Supplemental	[]	Change ECN	[]	Supersedure	[]		
Cancel/Void	[]	Direct Revision	[X]	Temporary	[]	Discovery	[]

3. Originator's Name, Organization, MSIN, and Telephone No.
James W. Roberts, 100 Area Remedial Investigations, H4-55, 376-5164 W81221

4. Date
June 1, 1992

5. Project Title/No./Work Order No.
Description of Work for the 100-KR-4 Groundwater Operable Unit PH1AA

6. Bldg./Sys./Fac. No.
100 K Area

7. Impact Level
3 9

8. Document Number Affected (include rev. and sheet no.)
WHC-SD-EN-AP-082, REV. 1

9. Related ECN No(s).
NA

10. Related PO No.
NA

11a. Modification Work
[] Yes (fill out Blk. 11b)
[X] No (NA Blks. 11b, 11c, 11d)

11b. Work Package Doc. No.
NA

11c. Complete Installation Work
NA
Cog. Engineer Signature & Date

11d. Complete Restoration (Temp. ECN only)
NA
Cog. Engineer Signature & Date

12. Description of Change

SECTION 3.2, THIRD PARAGRAPH: Replace paragraph with the following: "All waste generated during drilling activities will be handled according to EII 4.3, Control of CERCLA and Other Past-Practice Investigation Derived Waste (WHC 1988a).

SECTION 3.3, FIRST PARAGRAPH: Remove the phrase "(anything > background)" from the second sentence.

SECTION 3.3, SECOND PARAGRAPH: Remove the first sentence and replace with: "The goal for selecting physical property samples is to collect one sample from the top third, one from the middle third and one from the bottom third of the unsaturated zone, and one within the saturated zone. The sample collected from the bottom third of the unsaturated zone must be collected as close as possible to the water table.

SECTION 3.3, THIRD PARAGRAPH: Change the listing of physical property tests to the following:

1. Bulk Density.
   - Samples in the unsaturated zone only.
2. Particle Size Distribution (ASTM D422-63).
   - All samples.
3. Moisture Content (ASTM D2216).
   - Samples in the unsaturated zone only.
4. Moisture Retention (ASTM D2325-68, D3152-72).
   - Samples in the unsaturated zone only. Performed only on samples in which 25% of the sample passes the #10 screen.

13a. Justification (mark one)							
Criteria Change	[]	Environmental	[X]	Facilitate Const.	[]		
Design Error/Omission	[]	Design Improvement	[]	As-Found	[]	Const. Error/Omission	[]

13b. Justification Details
Changes are a result of updates to the Description of Work, and to agreements reached at a Physical Properties Meeting on May 26, 1992.

14. Distribution (include name, MSIN, and no. of copies)
See attached.

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A-7900-013-2 (11/88) (EF) GEF095
Engineering Change Notice

A-7900-013-1 (11/88)

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 168783

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

18. 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 12. Enter the affected document number in Block 19.

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	[]		[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. 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

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog./Project Engineer J.W. Roberts	6/1/92	PE	
Cog./Project Engr. Mgr. R.P. Hencke	6-1-92	QA	
QA G. Corrigan	6-1-92	Safety	
Safety		Design	
Security		Other	
Proj. Prog./Dept. Mgr.			
Def. React. Div.			
Chem. Proc. Div.			
Def. Wst. Mgmt. Div.		DEPARTMENT OF ENERGY	
Adv. React. Dev. Div.			
Proj. Dept.			
Environ. Div.		ADDITIONAL	
IRM Dept.			
Facility Rep. (Ops.)			
Other			

9212646107 5

5. Saturated Hydraulic Conductivity (K_{sat}) (ASTM D2434-68).
   - All samples.
6. Unsaturated Hydraulic Conductivity (K_{unsat}) at 10% moisture content after full saturation.
   - Samples in the unsaturated zone only. Performed only on samples in which 25% of the sample passes the #10 screen.

SECTION 3.4.1, THIRD PARAGRAPH: Remove the phrase "Prior to drilling into the confined aquifer" from the first sentence.

SUPPORTING DOCUMENT	1. Total Pages 13

2. Title	3. Number	4. Rev No.
DESCRIPTION OF WORK FOR THE 100-KR-4 GROUNDWATER OPERABLE UNIT	WHC-SD-EN-AP-082	2

5. Key Words

100-KR-4
DESCRIPTION OF WORK
GROUNDWATER
OPERABLE UNIT

APPROVED FOR PUBLIC RELEASE
6/29/92 N. Soles

6. Author

Name: J. W. ROBERTS

J. W. Roberts
Signature

Organization/Charge Code 81221/PH1AA

7. Abstract

This description of work details the field activities to be conducted for the 100-KR-4 Operable unit and will serve as a field guide for those performing the work.

8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed.

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9. Impact Level 3Q

10. RELEASE STAMP

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RECORD OF REVISION	(1) Document Number WHC-SD-EN-AP-082	Page 1

(2) Title
DESCRIPTION OF WORK FOR THE 100-KR-4 GROUNDWATER OPERABLE UNIT

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	EDT - 157795		
1	(7) Revise document based on regulator comments. ECN 169703		
2 RS	Revise document based on meeting agreements. ECN 168783	J.W. Roberts	RPHall 6-1-92

CONTENTS

1.0 SCOPE OF WORK

This description of work details the field activities associated with cable-tool drilling of groundwater wells in the 100-KR-4 Operable Unit (Task 6) and will serve as a field guide for those performing the work. It should be used in conjunction with the *Remedial Investigation/Feasibility Study Work Plan for the 100-KR-4 Operable Unit, Hanford Site, Richland, Washington* (DOE/RL 1991) for general investigation strategy and with *Environmental Investigations and Site Characterization Manual* (WHC 1988c) for specific procedures. Well locations are shown on Figure 1.

The coordinates used on Figure 1 are by USGS (1983). All wells on the map are prefixed with a 199, but the prefix has been dropped for clarity.

2.0 GENERAL REQUIREMENTS

2.1 HEALTH AND SAFETY

All personnel working to this description of work will have completed the 40-h Hazardous Waste Site Worker training program and will perform all work in accordance with the following:

- WHC-EP-0383, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan* (WHC 1990)
- WHC-CM-4-10, *Radiation Protection* (WHC 1988d)
- WHC-IP-0692, *Health Physics Procedures Manual* (WHC 1991b)
- WHC-CM-4-11, *ALARA Program* (WHC 1988a)
- WHC-CM-4-3, *Industrial Safety Manual*, Vol. 1 through 3 (WHC 1987)
- WHC-CM-7-5, *Environmental Compliance Manual* (WHC 1988b)
- WHC-CM-7-7, *Environmental Investigations and Site Characterization Manual* (EII) (WHC 1988c)
- WHC-SD-EN-SAD-002, Rev. 0, *100 Area Low Hazard Characterization Activities Safety Assessment* (Taylor 1991)
- Site-specific health and safety plan/job safety analysis.

2.2 PREREQUISITES

Each item on the Drilling Planning Form (EII 6.7, Resource Protection Well and Test Borehole Drilling) (WHC 1988c) will be signed and dated by the cognizant engineer or field team leader prior to the start of work. In addition, all field work will be conducted in accordance with *Generic Well Specification*, (WHC 1991a).

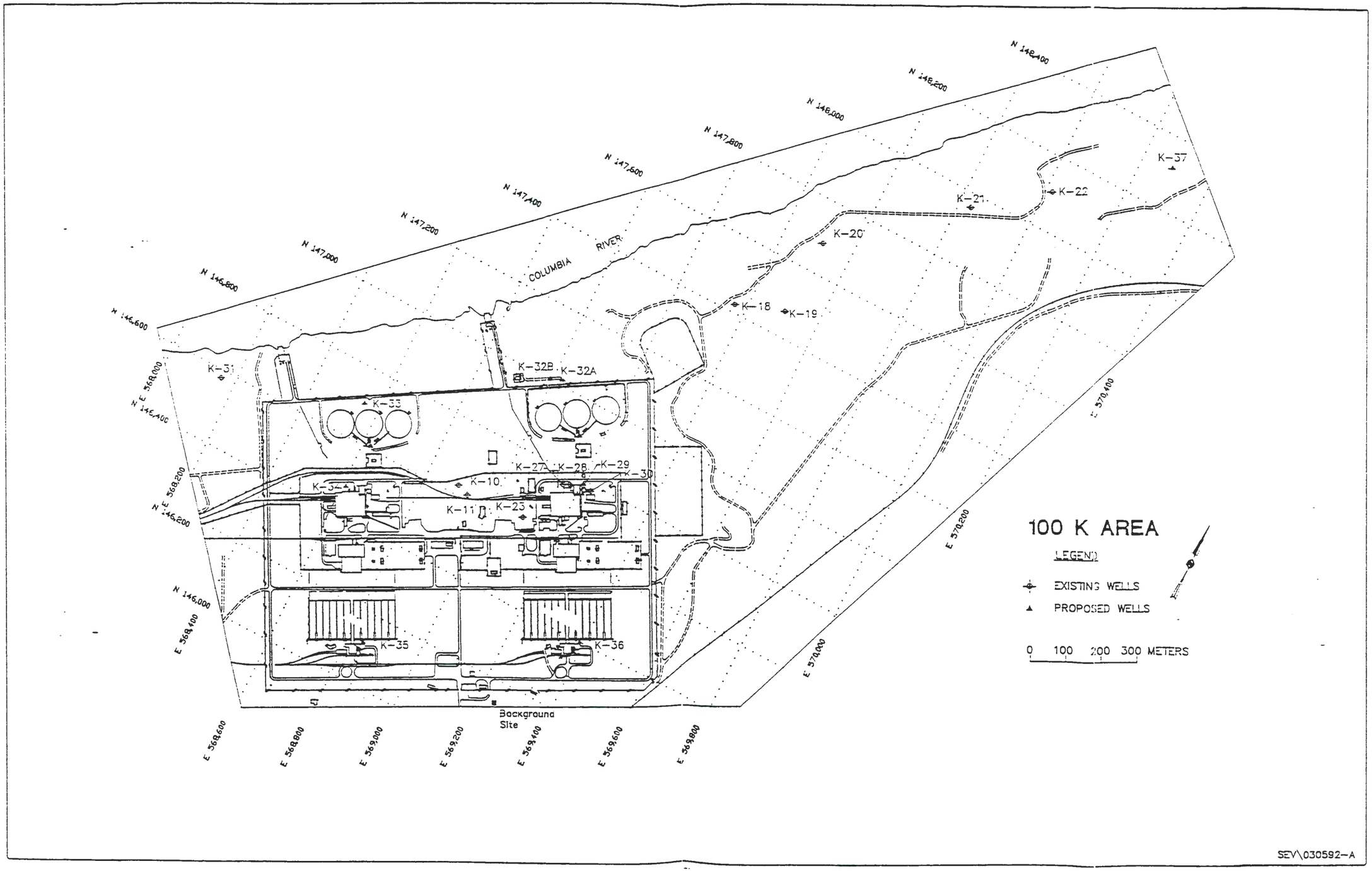

Figure 1. Location of Wells in 100-KR Area.

3.0 SAMPLING AND FIELD ACTIVITIES

3.1 SOIL SCREENING

All samples and cuttings will be field screened for evidence of volatile organics and radionuclides (Section 5.1.6.2.3 of the 100-KR-4 work plan) (DOE/RL 1991). Volatiles will be screened by the field geologist using an organic vapor monitor (OVM) that will be used, maintained, and calibrated consistent with EII 3.2, Health and Safety Monitoring Instruments (WHC 1988c) and EII 3.4, Field Screening (WHC 1988c). Radionuclide screening will be performed by the field geologist per EII 3.4, Field Screening (WHC 1988c). The field geologist will record screening results in the borehole log (EII 9.1, Geologic Logging) (WHC 1988c).

The action level for radionuclide screening is twice background. The action level for volatile organic screening is 5 ppm above background. Prior to initiating drilling, determine a one time instrument background reading using the above instruments at the background site located on Figure 2. Instrument background will be measured on freshly disturbed surface soil, holding the instruments less than 1 in. from the soil. The field geologist will record the background levels in the borehole log per EII 9.1, Geologic Logging (WHC 1988c) prior to the start of drilling.

3.2 GEOLOGIC SAMPLING

Geologic samples will be taken at 5-ft intervals for each hole and at major stratigraphic changes for the preparation of borehole logs, per Section 5.1.6.2.3 of the 100-KR-4 work plan (DOE/RL 1991) and EII 9.1, Geologic Logging (WHC 1988c). The field geologist shall archive the nonradioactive geologic samples per EII 5.7A, Hanford Geotechnical Sample Library Control (WHC 1988c).

At the completion of each groundwater well two composite samples will be collected (from unsaturated sediments): one from archive samples in the top half of the well and one from archive samples in the bottom half. An equal volume will be taken from each archive sample, composited in a stainless steel bowl, and placed in a 500-ml glass bottle. Each composite sample will be analyzed for Gamma Spec only, as a check on the radiation detection instrument. Results will be stored in the project files.

All waste generated during drilling activities will be handled according to EII 4.3, Control of CERCLA and Other Past-Practice Investigation Derived Waste (WHC 1988a).

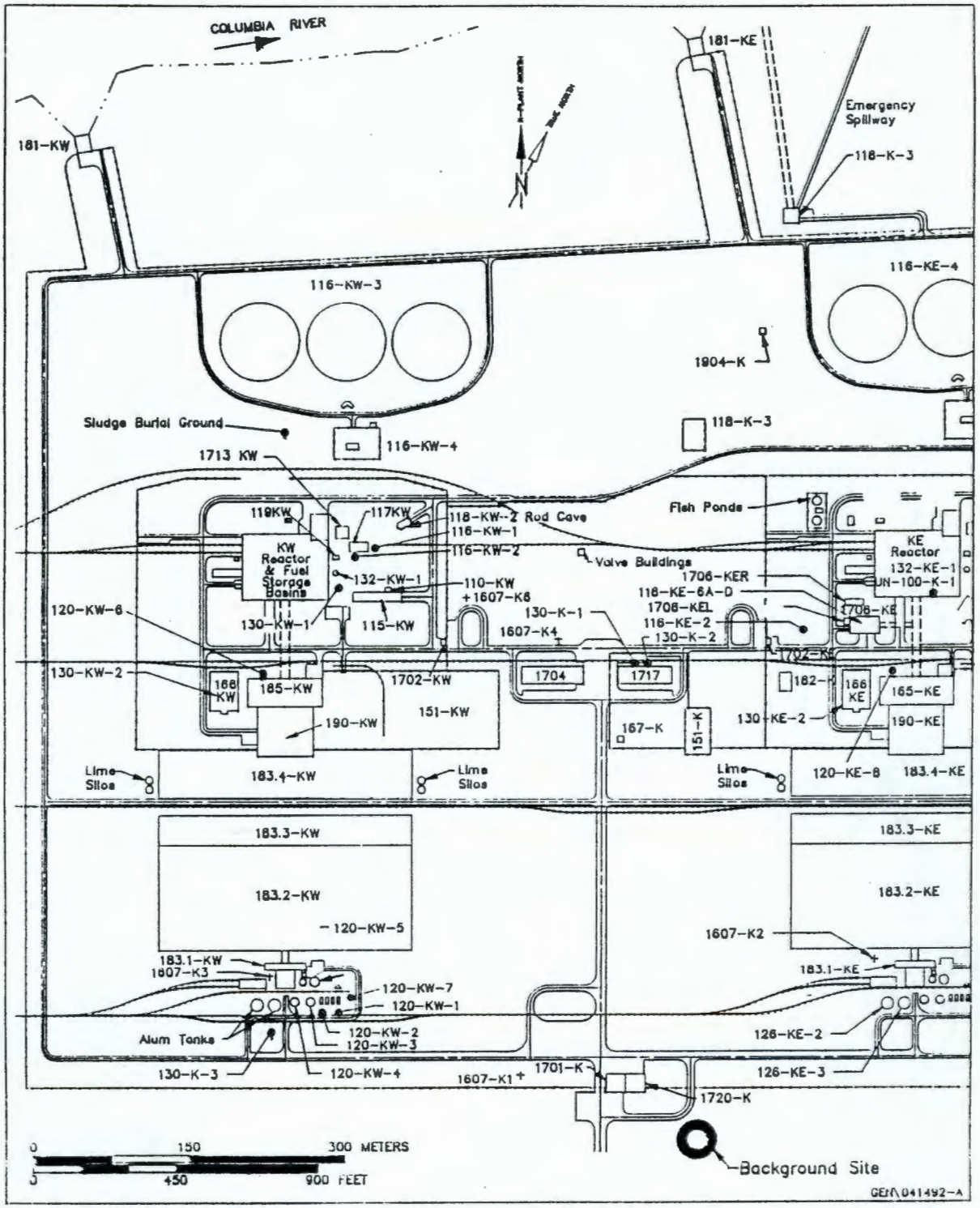

Figure 2. Location of the Instrument Background Site.

3.3 SOIL SAMPLING (PHYSICAL PROPERTY)

Collect four samples for physical property analysis per Section 5.1.5.3 of DOE/RL 1991 and EII 5.2, Appendix B, Soil and Sediment Sampling (WHC 1988c) from each of the following wells: 199-K-37, 199-K-33, and 199-K-35. Samples that do not meet the physical properties testing lab radiological acceptance criteria will not be collected for physical property testing. Alternate wells will be 199-K-32A, 199-K-34, and 199-K-36.

The goal for selecting physical property samples is to collect one sample from the top third, one from the middle third, and one from the bottom third of the unsaturated zone, and one within the saturated zone. The sample collected from the bottom third of the unsaturated zone must be collected as close as possible to the water table. The field geologist must use professional judgement to select samples that are representative of the principle soil types that can be sampled with the split-spoon sampler. Two 6-in. sleeves and one moisture tin will be collected. The field geologist will record the selected samples in the borehole log per EII 9.1, Geologic Logging (WHC 1988c).

These samples will be analyzed for the following parameters using American Society for Testing and Materials (ASTM) methods. Bulk density will be calculated. K_{unsat} will be measured and calculated, for comparative purposes.

- Bulk density
  - Samples in the unsaturated zone only
- Particle Size Distribution (ASTM D422-63)
  - All samples
- Moisture Content (ASTM D2216)
  - Samples in the unsaturated zone only
- Moisture Retention (ASTM D2325-68, D3152-72)
  - Samples in the unsaturated zone only. Performed only on samples in which 25% of the sample passes the #10 screen.
- Saturated Hydraulic Conductivity (K_{sat}) (ASTM D2434-68)
  - All samples
- Unsaturated Hydraulic Conductivity (K_{unsat}) at 10% moisture content after full saturation
  - Samples in the unsaturated zone only. Performed only on samples in which 25% of the sample passes the #10 screen.

Data collected from these analyses will be stored in the 100-KR-4 project files.

3.4 ANALYTICAL SAMPLING

3.4.1 Soil

Collect analytical soil samples in all wells except those listed below per Section 5.1.6.2.3 of the 100-KR-4 work plan (DOE/RL 1991) and EII 5.2, Appendix B, Soil and Sediment Sampling (WHC 1988c). Collect these at 10 ft above the expected groundwater, one 5 ft above and one 5 ft below the groundwater. In addition, if screening values (including borehole cuttings and geologic samples) exceed screening action levels, collect analytical samples with a split-spoon sampler at 5-ft intervals until either: (1) two consecutive screening values fall below the screening action limits outlined above or (2) until 5 ft below groundwater.

Unless screening action levels are exceeded, only one analytical soil sample will be taken in well 199-K-32B, at the bottom of the unconfined aquifer. If additional samples are required, they will be collected by the screening criteria described above and recorded in the borehole log (EII 9.1, Geologic Logging) (WHC 1988c).

The integrity of the well seal will be tested according to the seal test plan written for the 300-FF-5 Operable Unit (EM-1029, AD-940).

Estimated depths and screened intervals for the 100-KR-4 wells are shown in Table 1.

Table 1. Well Depths and Installation Information.

Well number	Est. depth (ft)	Design type	Est. screened interval (ft)	Physical prop. samples
199-K-37	50	shallow	45 - 65	yes (4)
199-K-32A	90	shallow	85 - 105	no
199-K-32B	190	deep	180 - 190	no
199-K-33	90	shallow	85 - 105	yes (4)
199-K-34	90	shallow	85 - 105	no
199-K-35	90	shallow	85 - 105	yes (4)
199-K-36	90	shallow	85 - 105	no

3.4.2 Groundwater

Groundwater samples will be collected from each well per EII 5.8 Groundwater Sampling (WHC 1988c) and analyzed for the full suite of parameters listed below for the first two rounds of sampling (Section 5.1.6.3 of the 100-KR-4 work plan) (DOE/RL 1991).

3.4.3 Analyses

Samples collected for chemical analysis will be analyzed for the full suite of CERCLA Contract Laboratory Program (CLP) Target Compound List (TCL) and Target Analyte List (TAL) constituents, specific anions that may be present, and for radionuclides. Estimated quantity of material needed for analyses are shown in Tables 2 and 3, but may vary depending on the laboratory doing analyses. The laboratory will use existing Level IV CLP methods for nonradiological constituents and methods approved under their contract for radiological analyses (Level V). Sample custody will follow procedures as outlined in EII 5.1, Chain of Custody (WHC 1988c).

Table 2. List of Analytes (Soil).

Analyte	Method	Holding Time	Container/Volume
ICP/AA metals	CLP	6 months	G 250 ml
Mercury		28 days	
Cyanide		14 days	
VOA	CLP	14 days	G 125 ml
Semi-VOA	CLP	7 days[1]	aG 1,000 ml
PCB's/Pesticides	CLP	7 days[1]	
Anions			
Fluoride	EPA 300.0	28 days	
Nitrate	EPA 353.3	28 days	
Sulfate	EPA 300.0	28 days	
Gross alpha	lab SOP	6 months	G 1,000
Gross beta			
Gamma spec.			
Sr-90			
C-14			
U-235, 238			
Pu-239, 240			
Am-241			
Total Activity (222-S Lab)	lab SOP	6 months	G or P small vial (at least 1 gram)

[1] 7 days for extraction, 40 days after analysis for extraction.

AA = atomic absorber
CLP = Contract Laboratory Program
ICP = inductively coupled plasma
PCB = polychlorinated biphenyl
N/A = not applicable
SOP = standard operating procedures
VOA = volatile organic analyses
G = glass
aG = amber glass
P = plastic

If full sample volume requirements cannot be met, the sampling scientist will record the volume obtained in the sampling scientists logbook per EII 1.5, Field Logbooks (WHC 1988c) and analyze in the following order:

1. Volatiles
2. Semivolatiles/PCBs/Pesticides
3. Target Analyte List
4. Radioisotopes
5. Anions
6. Total Activity

3.5 GEOPHYSICAL LOGGING

Gross-gamma log all groundwater wells, performing the work in two stages: Stage 1 after completing the first 20 ft of drilling before reducing to a smaller casing. If the gross-gamma tool is not available within 4 h of when needed, skip logging the first 20 ft. Stage 2 after reaching total depth and before completing the well (EII 11.1, Geophysical Logging) (WHC 1988c). Spectral-gamma log groundwater wells only if contamination is indicated by the gross-gamma log (survey exceeds 100 cps for any depth interval) or by field screening.

Table 3. List of Analytes (Groundwater).

Analyte	Method	Holding Time	Container/Volume
ICP/AA metals Mercury	CLP	6 months 28 days	P 3X1000 ml[2]
Cyanide	CLP	14 days	P 3X1000 ml[2]
VOA	CLP	14 days	Gs 3X40 ml
Semi-VOA PCB's/Pesticides	CLP	7 days[1]	aG 3X2000 ml[2]
Anions F, SO_4 pH Conductivity	EPA 300.0 9040 9050	28 hours 28 days	P 500 ml
Gross alpha Gross beta Gamma spec. Sr-90 U-235, 238 Pu-239, 240 Am-241	lab SOP	6 months	P 6000 ml
C-14	lab SOP	6 months	P 500 ml
Tritium	lab SOP	6 months	Gs 250 ml
Tc-99	lab SOP	6 months	P 1000 ml
Total Activity	N/A	6 months	G or P small vial (at least 1 ml

[1] 7 days for extraction, 40 days after analysis for extraction.
[2] 3X is required for QA/QC in the CLP protocol.

AA = atomic absorber
CLP = Contract Laboratory Program
ICP = inductively coupled plasma
PCB = polychlorinated biphenyl
N/A = not applicable
SOP = standard operating procedures
VOA = volatile organic analyses
G = glass
aG = amber glass
P = plastic

3.6 AQUIFER TESTING

Perform a slug test on each well per Section 5.1.6.2.5 of the 100-KR-4 work plan (DOE/RL 1991) and EII 10.1, Aquifer Testing (WHC 1988c). A decision will be made whether to continue slug testing after analyzing data from the 100-HR-3 wells.

4.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Internal quality control samples shall be collected by the sampling scientist as stated below, per Appendix A, Quality Assurance Project Plan (DOE/RL 1991) and documented in the sampling logbook per EII 1.5, Field Logbooks (WHC 1988c). The trip blank and field blank have been deleted for soil sampling per EPA/540/G-87/004 Appendix C, Section C.6.

Groundwater:

1. Collect one duplicate for every 10 groundwater samples or a minimum of 1 per reactor area.
2. Collect one split sample per reactor area.
3. Collect field blanks at the same frequency as duplicates.
4. Collect one (VOA) trip blank per cooler that contains samples that will be analyzed for volatiles. Only analyze for volatiles.
5. Collect equipment blanks at the same frequency as duplicates.

Soil:

1. Collect one duplicate for every 20 soil samples.
2. Collect one split sample per reactor area.
3. Field blanks are not required
4. Collect one sample each month from any source of water introduced into the hole during drilling. Only one sample is required for both groundwater and vadose borings. Analyze for the full suite of water parameters.
5. Collect one (VOA) trip blank for each batch of containers shipped to the sampling (site) facility and analyze for volatiles only. The media shall be silica sand.
6. Collect equipment blanks at the same frequency as duplicates and analyze for the constituents listed in Table 2. The media shall be silica sand.

5.0 SCHEDULE

The following schedule is for drilling in the 100-KR-4 Operable Unit for 1992. This schedule is subject to change and the operable unit coordinator should be contacted for current status. An Agreement Activity Notification form will be issued at least 5 days prior to start of field work.

Well number	Drilling dates
199-K-37	Early May - Mid May
199-K-32A	Mid May - End of May
199-K-32B	Early May - End of May
199-K-33	Early June - Mid June
199-K-34	Early June - Mid June
199-K-35	Mid June - End of June
199-K-36	Mid June - End of June

6.0 CHANGES TO THE DESCRIPTION OF WORK

Major changes to this description of work, such as analyzing different parameters, using different analytical methods, or changing the sampling interval will be submitted on the attached form (Attachment 1) and kept on file with the operable unit coordinator. Copies will be submitted to the lead regulatory agency and appropriate field personnel.

7.0 REFERENCES

DOE/RL, 1991, *Remedial Investigation/Feasibility Study Work Plan for the 100-KR-4 Operable Unit, Hanford Site, Richland, Washington*, DOE/RL-90-21, U.S. Department of Energy, Richland Field Office, Richland, Washington.

Taylor, 1991, *100 Area Low Hazard Characterization Activities Safety Assessment*, WHC-SD-EN-SAD-002, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

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, *Radiation Protection*, WHC-CM-4-10, 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, 1991a, *Generic Well Specification*, WHC-S-014, Westinghouse Hanford Company, Richland, Washington.

WHC, 1991b, *Health Physics Procedures Manual*, WHC-IP-0692, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

100-KR-4 DESCRIPTION OF WORK PROJECT CHANGE FORM

Date: _____

Person Initiating Change: _____

Change: _____

_____

_____

_____

_____

_____

_____

Reason for Change: _____

_____

_____

_____

_____

_____

_____

APPROVAL:

Field Team Leader: _____

Operable Unit Coordinator: _____

Quality Assurance: _____

INFORMATION RELEASE REQUEST

References: WHC-CM-3-4

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  - [ ] Summary
  - [ ] Abstract
  - [ ] Visual Aid
- [ ] Speakers Bureau
- [ ] Poster Session
- [ ] Videotape

(Check only one suffix)

- [ ] Reference
- [X] Technical Report
- [ ] Thesis or Dissertation
- [ ] Manual
- [ ] Brochure/Flier
- [ ] Software/Database
- [ ] Controlled Database
- [ ] Other

New ID Number:

Existing ID Number (include revision, volume, etc.): WHC-SD-EN-AP-082, REV 2

If previously cleared, list ID number: WHC-SD-EN-AP-082, REV 1

Date Release Required: JUNE 24, 1992

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Unclassified Category: UC-

Impact Level: 4 39

COMPLETE FOR SPEECH OR PRESENTATION

Title of Journal: NA

Group or Society Sponsoring: NA

Date(s) of Conference or Meeting: NA

City/State: NA

Will proceedings be published? [ ] Yes [X] No

Will material be handed out? [ ] Yes [X] No

Title of Conference or Meeting: NA

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer Name (printed)	Signature	Date
Classification/Unclassified Controlled Nuclear Information	[ ]	[X]			
Patent - General Counsel	[X]	[ ]	S W BERGLIN	S W Berglin	6/23/92
Legal - General Counsel	[X]	[ ]	B D Williamson	B D Williamson	6/23/92
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Communications	[ ]	[X]			
DOE-RL Program	per telecon with Carol Lynch. 6/16/92 [X]	[X]			
Publication Services	[X]	[ ]	L. Heumann for D.E. Smith	Linda Heumann for D.E. Smith	6/29/92
Other Program	[ ]	[X]			
References Available to Intended Audience	[X]	[ ]	J. W. ROBERTS		
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Part 1

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To: R. P. Henckel

From: J. W. Roberts

Date: June 10, 1992

Project Title/Work Order:

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EDT No.:

ECN No.: 168783

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