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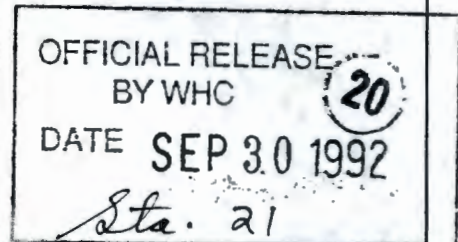
ENGINEERING CHANGE NOTICE

Page 1 of **33**

1. ECN 186756

Proj. ECN

2. ECN Category (mark one)		Supplemental <input checked="" type="checkbox"/>	Change ECN <input type="checkbox"/>	Supersedure <input type="checkbox"/>
Cancel/Void <input type="checkbox"/>		Direct Revision <input type="checkbox"/>	Temporary <input type="checkbox"/>	Discovery <input type="checkbox"/>
3. Originator's Name, Organization, MSIN, and Telephone No. B.E. Innis 200/300 Area Environmental Engineering H4-55, 2-3670			4. Date September 24, 1992	
5. Project Title/No./Work Order No. 300-FF-5 RI/FS		6. Bldg./Sys./Fac. No.		7. Impact Level 4
8. Document Number Affected (include rev. and sheet no.) DOE/RL 89-14 rev. 0		9. Related ECN No(s).		10. Related PO No.
11a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 11b) <input checked="" type="checkbox"/> 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 Attached is a complete copy of all 300-FF-5 Work Plan changes as of September 24, 1992. Included in this ECN are Change Control Forms 300-FF-5-01, 300-FF-5-02, 300-FF-5-04, 300-FF-5-05, 300-FF-5-06, 300-FF-5-07, 300-FF-5-08, 300-FF-5-10, 300-FF-5-11, 300-FF-5-12, 300-FF-5-13, 300-FF-5-14, 300-FF-5-15, 300-FF-5-17, 300-FF-5-19, 300-FF-5-20, and 300-FF-5-21. Also included is a change control log which identifies where discussions of the individual change forms can be found. Future work plan changes will be made on individual ECN's.				
13a. Justification (mark one)		Criteria Change <input checked="" type="checkbox"/>	Environmental <input type="checkbox"/>	Facilitate Const. <input type="checkbox"/>
Design Error/Omission <input type="checkbox"/>		Design Improvement <input type="checkbox"/>	As-Found <input checked="" type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>
13b. Justification Details See attached work plan changes.				
14. Distribution (include name, MSIN, and no. of copies) See attached distribution list			RELEASE STAMP	



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ENGINEERING CHANGE NOTICE

15. Design Verification Required <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	16. Cost Impact <table style="width: 100%;"> <tr> <th style="text-align: center;">ENGINEERING</th> <th style="text-align: center;">CONSTRUCTION</th> </tr> <tr> <td>Additional <input type="checkbox"/> \$</td> <td>Additional <input type="checkbox"/> \$</td> </tr> <tr> <td>Savings <input type="checkbox"/> \$</td> <td>Savings <input type="checkbox"/> \$</td> </tr> </table>	ENGINEERING	CONSTRUCTION	Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$	17. Schedule Impact (days) Improvement <input type="checkbox"/> Delay <input type="checkbox"/>
ENGINEERING	CONSTRUCTION							
Additional <input type="checkbox"/> \$	Additional <input type="checkbox"/> \$							
Savings <input type="checkbox"/> \$	Savings <input type="checkbox"/> \$							

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

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
NA		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog./Project Engineer L.C. Hulstrom, H4-55 <i>L.C. Hulstrom</i>	<i>9/15/92</i>	PE	_____
Cog./Project Engr. Mgr. R.A. Carlson, H4-55 <i>R.A. Carlson</i>	<i>9/15/92</i>	QA	_____
QA	_____	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	_____		_____

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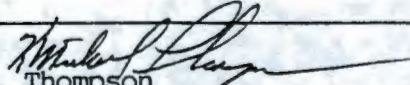
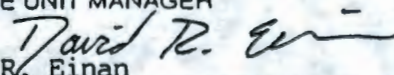
9/24/92

CHANGE CONTROL LOG

300-FF-5 OPERABLE UNIT

<u>Number</u>	<u>Date</u>	<u>Subject</u>	<u>Submitted</u>	<u>Approved</u>	<u>Reference</u>
01	12/18/90	Change from nested to cluster sites	12/90	12/19/90	Dec. UMM
02	6/26/91 (3/13/91)	Geophysical Logging	3/13/91	7/3/91	Mar/Jun UMM
03	4/23/91	Anal. Levels 3 vs 4	voided, replaced by 300-FF-5-18		
04	6/18/91	Waste Designation	6/19/91	6/26/91	Jun UMM
05	7/18/91	300 ASE Soil Gas Survey	7/18/91	9/9/91	Jul UMM
06	9/17/91	12 Wells Deferred	9/17/91	9/19/91	Sept UMM
07	9/18/91 (5/27/92)	Geol. Char. Wells	05/27/92	06/03/92	Jun 92 UMM
08	9/18/91	Aquifer Pump Test Wells	9/18/91	10/17/91	Sept/Oct UMM
09	10/18/91	Surf. Water/Spring sampling	voided, see Sept 1992 UMM		
10	11/18/91	Surf. Water/Spring sampling	11/18/91	12/11/91	Nov UMM
11	11/18/91	Biota Inv. sampling periods	11/18/91	12/17/91	Nov/Dec UMM
12	1/20/92	Well Remediation Variations	1/23/92	2/10/92	Jan/Feb UMM
13	2/27/92	Phased Aquatic Biota Approach	2/27/92	2/27/92	Feb UMM
14	06/23/92	Well 16D Abandonment	06/23/92	06/25/92	Jun UMM
15	06/23/92	Tracer Testing	06/23/92	06/25/92	Jun UMM
16	5/27/92	Baseline Schedule Changes	05/27/92	pending	
17	06/23/92	Need for SWS-2 River Station	06/23/92	06/25/92	Jun UMM
18	06/20/92	QAPP Table 1 Revisions	08/27/92	09/22/92	Aug/Sept UMM
19	7/29/92	Leach/Sorption Testing	07/30/92	09/21/92	Aug/Sept UMM
20	7/28/92	Surf. Water/Spring Sampling	07/30/92	09/24/92	Aug/Sept UMM
21	9/22/92	Near Shore River Sampling	09/24/92	09/24/92	Sept UMM

921275101

Change Number 300FF5-01	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type, or print in black	Date 12/18/90
Document Number & Title DOE/RL 89-14, Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington		Date Document Last Issued June, 1990
Originator L. C. Hulstrom	Phone 376-4034	
Description of Change Sections 5.3.4.1.1 of the Work Plan and 1.1 of the Sampling and Analysis Plan discuss drilling using a nested well concept. After discussions with WHC technical personnel, and meetings with DOE-RL, EPA, and Ecology it has been decided that based on past experience, technical and regulatory concerns and a cost analysis recently completed, new wells installed in the 300-FF-5 Operable Unit will utilize a cluster well design, rather than the nested well design. The existing approved generic well specification will not require further review or approval by the regulators. Only the borehole completion and seal testing specification will require regulatory review and approval. Note: Include affected page number		
Justification and Impacts of Change No significant cost or schedule impact will be made with the proposed changes.		
 K. M. Thompson	12/15/90	
DOE UNIT MANAGER  D. R. Einan	DATE 19 Dec 90	
LEAD REGULATORY UNIT MANAGER	DATE	
Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement, Section 9.3		

92127551012

Change Number 300-FF-5-02	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 6/26/91
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Modify the text to delete the requirement to use natural gamma, neutron epithermal, gamma gamma, resistivity and spontaneous potential, borehole logging techniques for groundwater wells, as identified in the text and on Table 31. Indicate that the high resolution spectral gamma ray logging equipment will be used to log the new 300 Area groundwater wells, with the exception of the outer perimeter background wells, where radionuclide contamination is not expected. In these outer wells gross gamma (same as natural gamma) techniques will be utilized to provide demarcation of lithologic changes. Two of these wells will also have spectral gamma logs run to aid in developing a correlation between the two techniques.

Note: Include affected page number WP-153, WP-156, SAP/FSP-14

Justification and Impact of Change

Current capability does not exist for obtaining defensible neutron epithermal neutron and gamma gamma borehole geophysical logs. WHC is performing model development to attain credible tools for use at Hanford in large diameter cased boreholes. The high resolution spectral gamma ray logging system will provide precise and accurate spatial resolution and quantification of radionuclides fulfilling one objective of geophysical logging techniques. Without the neutron-neutron or gamma-gamma logs, no downhole techniques for estimating formation densities or moisture content will be available.

D. S. Shafer <i>David S. Shafer</i> DOE Unit Manager	<u>3 July 1991</u> Date
D. R. Einan <i>David R. Einan</i> Lead Regulatory Unit Manager	<u>1 July 91</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551013

Change Number 300-FF-5-04	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 06/18/91
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator <i>L.C. Hulstrom</i> L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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92127551014

Description of Change

Add to the first paragraph of Section 1.1.4 on page SAP/FSP-11, the following:
 "Drill cuttings will be collected in appropriate containers, screened for radioactivity and hazardous constituents. The types of radioisotopic and chemical analyses to be performed for designation of the drill cuttings are specified in Table 25, Contaminants of Concern, of the Work Plan. Westinghouse Hanford Company procedure EII 4.2., "Interim Control of Unknown Waste", (WHC 1989) directs how drill cuttings are handled before analytical results are received and describes disposition and handling of the cuttings after the results are analyzed. The 90-day clock for storage requirements of hazardous and mixed waste would potentially begin at the time analytical results have been validated."

Note: Include affected page number SAP/FSP-11

Justification and Impact of Change

Drill cuttings are treated as unknown waste until analytical results ~~designate~~ ^{confirm the nature of} the cuttings. ~~as waste~~

<i>David S. Shafer</i> DOE Unit Manager	<u>6/20/91</u> Date
D. R. Einan <i>David R. Einan</i> Lead Regulatory Unit Manager	<u>26 Jun 91</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

Change Number 300-FF-5-05	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 7/18/91						
Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington		Date Document Last Issued June, 1990						
Originator L. C. Hulstrom, 300-FF-5 RI Coordinator		Phone (509) 376-4034						
Description of Change Upon further investigation and discussions with RCRA Facility Closure personnel it has been determined that it would be more appropriate to postpone the soil gas survey of the 300 Area Solvent Evaporator (ASE) area until the 300-FF-2 Operable Unit is activated. Present characterization of the 300 ASE is limited to only the top 6 inches of surface soils. Burial Ground #1 is known to be within 1 1/2 feet from the surface underlying the 300 ASE. Installation of soil gas probes to 4 feet would encounter and likely disturb the burial ground. Note: Include affected page number Task 4b, Section 5.3.4.2, WP-164								
Justification and Impact of Change No significant impacts.								
<table border="0" style="width: 100%;"> <tr> <td style="width: 40%; vertical-align: bottom;"> <i>David S. Staper</i> _____ DOE Unit Manager </td> <td style="width: 20%; vertical-align: bottom;"> <i>7/18/91</i> _____ Date </td> <td style="width: 40%;"></td> </tr> <tr> <td style="vertical-align: bottom;"> D. R. Einan <i>David R. Einan</i> _____ Lead Regulatory Unit Manager </td> <td style="vertical-align: bottom;"> <i>9 sept 91</i> _____ Date </td> <td></td> </tr> </table> <p>Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3</p>			<i>David S. Staper</i> _____ DOE Unit Manager	<i>7/18/91</i> _____ Date		D. R. Einan <i>David R. Einan</i> _____ Lead Regulatory Unit Manager	<i>9 sept 91</i> _____ Date	
<i>David S. Staper</i> _____ DOE Unit Manager	<i>7/18/91</i> _____ Date							
D. R. Einan <i>David R. Einan</i> _____ Lead Regulatory Unit Manager	<i>9 sept 91</i> _____ Date							

Change Number 300-FF-5-06	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 09/17/91
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

On April 10, 1991 a meeting with the regulators was held to discuss the groundwater modeling, wave propagation, tracer studies, groundwater level measurements, and water chemistry needs for all of the existing and proposed new groundwater wells for the 300-FF-5 OU. It was concluded at this meeting and concurred on at the April 17, 1991 UMM that the construction of the following proposed new wells would be deferred until the Phase II RI and/or such time as analysis of data from nearby well locations can be completed: 2A,B,C, 3B,C, 6C, 8B,C, 9A,B, 1-7B, and 8-3B.

(This has been documented in the April 10, and April 17, 1991 meeting minutes.)

Note: Include affected page number Section 5.3.4 (WP-157), and Section 1.1 of the Sampling and Analysis Plan (SAP/FSP-1)

Justification and Impact of Change

The WHC Environmental Engineering Group, Environmental Technology, Risk, and Performance Assessment Group, and Geosciences Group concluded that based on the needs defined in the work plan that construction of the 12 wells identified above was not justified at this time. This would be re-evaluated after such time as data from surrounding wells was analyzed. If any of these wells are required they would be installed as part of the Phase II RI.

<u>David S. Shaper</u> DOE Unit Manager	<u>9/19/91</u> Date
<u>D. R. Einan</u> Lead Regulatory Unit Manager	<u>19 Sept 91</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551016

Change Number 300-FF-5-07	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 9/18/91 (Revised 5/27/92)
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator <i>L.C. Hulstrom 6/3/92</i> L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Section 5.3.2.2 of the work plan describes the installation of two boreholes for geologic characterization purposes. Based on the core recovery that was achieved during the new groundwater well installations and the difficulties encountered when attempting to use mud rotary drilling techniques for the drilling of the first geologic characterization borehole it is proposed that attempts to install any geologic characterization boreholes be deferred until the Phase 2 RI, at which time the necessity of these boreholes can be re-evaluated.

Note: Include affected page number Section 5.3.2.2 (WP-150), Section 1.1 (SAP/FSP-1)

Justification and Impact of Change

Present core recovery and lithologic information from newly constructed groundwater well installations is better than previously anticipated. Cores retrieved during well construction have been used for physical property testing and sufficient information is presently available from which engineering decisions for RI/FS needs can be made. Deferral of this work scope to the Phase 2 RI will allow for the re-evaluation of the need for these boreholes at a later time.

R. G. McLeod <i>Robert G. McLeod</i> DOE Unit Manager	<u>6-3-92</u> Date
D. R. Einan <i>David R. Einan</i> Lead Regulatory Unit Manager	<u>3 Jun 92</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551017

Change Number 300-FF-5-08	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 9/18/91
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Section 5.3.4.1.1 of the work plan describes the installation of five aquifer pump test wells to determine aquifer transmissivity. Discussions held with the regulators during the April, 1991 UMM arrived at an agreement to defer installation of new groundwater wells at two of the locations where pump test wells were to also be located. Since that time additional analysis of previous tests conducted in the 300 area has been performed. The consensus of the WHC technical staff is that only two aquifer tests are required. Well sites 4 and 7 have been selected as the locations for these tests.

Note: Include affected page number Section 5.3.4.1.1(WP-162), Section 5.3.4.3(WP-175) Section 1.1 (SAP/FSP-1) and Section 1.3.1 (SAP/FSP-20)

Justification and Impact of Change

Two of the five aquifer pump test wells were deferred when the new groundwater wells were deferred until the Phase II RI. After technical evaluation of data from other pump tests conducted in the 300 Area it has been determined that only two additional tests are required. Elimination of one borehole creates no impact but does represent both a cost and schedule savings. *It has been concluded that a pump test near the river will not yield meaningful results*

Robert K. Stewart
 DOE Unit Manager

10/17/91
 Date

D. R. Einan David R Einan
 Lead Regulatory Unit Manager

17 Oct 91
 Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551018

Change Number 300-FF-5-10	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 11/18/91
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Task 5 - Surface Water and Sediment Investigation describes the process for obtaining information relevant to spring discharge from the 300 Area into the Columbia River. Task 5b in the work plan describes a one time sampling event to take place in late summer or early fall when the river stage is generally lowest. This same approach is described in Table 6 of the Sampling and Analysis Plan. The approved work plan schedule however shows four periods of sampling.

Note: Include affected page number Section 5.3.5 (WP-179) and Section 2.0 (SAP/FSP-24), and the approved work plan schedule

Justification and Impact of Change

An error was made during the development of the work plan schedule which is inconsistent with the remainder of the work plan. The schedule should be changed to show one period of sampling. This sampling will take place during the period when the river is at its lowest stage. This generally occurs around late summer to early fall.

E. D. Goller <i>E. D. Goller</i> DOE Unit Manager	<u>Dec. 11, 1991</u> Date
D. R. Einan <i>David R. Einan</i> Lead Regulatory Unit Manager	<u>2 Dec 91</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551019

Change Number 300-FF-5-11	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 11/18/91
Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington		Date Document Last Issued June, 1990
Originator L. C. Hulstrom, 300-FF-5 RI Coordinator		Phone (509) 376-4034
Description of Change Task 7 - Biota Investigation, describes the collection of aquatic biota for obtaining information relevant to possible biotic contaminant transport pathways. Section 5.3.7.1 of the work plan and section 3.1 of the Sampling and Analysis Plan describe collection of samples during four time periods. One such time period (March - April) was duplicated over a yearly span. Note: Include affected page number Section 5.3.7 (WP-187) and Section 3.1 (SAP/FSP-28), and the approved work plan schedule		
Justification and Impact of Change Several months ago discussions were held with the regulators regarding the same type of sampling for the 100 Areas. Instead of a quarterly approach a trimester or three period sampling approach was approved. For consistency and ease of comparison, a three period sampling approach (Fall, Winter, and Spring) is proposed for the 300-FF-5 aquatic biota sampling task. There is no major impact caused by the change.		
E. D. Goller <u><i>E. D. Goller</i></u> DOE Unit Manager		<u>Dec 17, 1991</u> Date
D. R. Einan <u><i>David R. Einan</i></u> Lead Regulatory Unit Manager		<u>4 Dec 91</u> Date
Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3		

92127551020

Change Number 300-FF-5-12 Page 1 of 2	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 01/20/92
Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990	
Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034	
Description of Change <p>Monitoring wells in the 300 Area used for chemical sampling are being remediated to meet RCRA/CERCLA requirements (July 16, 1990 letter from EPA and Ecology, "Policy on Remediation of Existing Wells and Acceptance Criteria for RCRA and CERCLA") and to comply with the requirements defined in Section 3.1.3.2 of the Work Plan.</p> <p>In most cases this remediation involves shortening the monitoring interval, using sand and bentonite, and installing a surface seal by overdrilling the surface casing and placing a cement grout seal. However, due to the initial construction of some of these wells, meeting the RCRA/CERCLA requirements for an 18 ft surface seal cannot be obtained. To date, wells which will not meet the specifications are wells 3-1-1, 3-2-1 and 3-4-7. Well construction and completion summaries are attached for each of these wells. This information will be included in Revision 1 of WHC-SD-ER-TI004, "Summaries of Well Construction Data and Field Observations for Existing 300-FF-5 Operable Unit Resource Protection Wells".</p> <p>Well 399-1-1 remediation:</p> <p>Well perforations extend from 20 to 75 ft. The interval was shortened in July of 1991 from 71.1 ft to 49.6 feet with silica sand. Bentonite pellets were then added from 45.8 ft to 49.6 ft and gravel was placed from 45.8 to 44.7 ft.</p> <p>In December of 1991, a surface seal was installed by overdrilling the casing to a depth of 20 ft and pumping cement grout. Cement grout entered the well through perforations at 20 ft and raised the fill in the well to 44.4 ft. A small amount of silica sand was then placed on top of the cement.</p> <p>Groundwater samples obtained for chemical analysis, should not be impacted by the presence of cement in the well. Elevated levels of calcium may occur, but these can be flagged.</p> <p>Well 399-2-1 remediation:</p> <p>Well perforations extend from 18 to 75 ft with a cement plug from 71.8 to 77 ft. The interval was shortened in July of 1991 from 71.8 to 53 ft with silica sand. Bentonite pellets were added from 53 to 48.4 ft and gravel was placed from 48.4 ft to 45 ft.</p> <p>In January of 1992, a surface seal was installed by overdrilling the 8 casing with a 15 inch auger. At 11 ft the auger bit collar broke, leaving the bottom 1.5 ft of the bit at a depth of 12.5. Cement grout was placed from 11 ft to the surface. A portion of the bit was left at a depth of 6 ft.</p>		

92127551021

Change Number 300-FF-5-12 Page 2 of 2	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 1/20/92
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Description of Change (continued)

Impacts to groundwater quality should not occur with only 11.5 ft of surface seal. As presented on the Well Construction and Completion Summary the first perforations are at 18 ft. Contaminants would have a significant distance to travel before they could enter the well. Additionally, the amount of material placed to shorten the monitoring interval should inhibit the movement of contaminants to deeper sections within the aquifer.

Well 399-4-7:

Well perforations extend from 21 to 150 ft. The interval was shortened in June of 1987 by placing a wooden and cement plug from 155 to 80 ft. In July of 1991, the interval was shortened again from 80.7 to 51.2 ft using silica sand. Bentonite pellets were added from 51.2 to 49.2 ft and gravel was placed from 49.2 to 46.5 ft.

A surface seal will be installed in early 1992 by overdrilling the casing with an auger to 18 ft. Bentonite will be added from 18 to 16 ft and cement grout then pumped to the surface. This will result in a 16 to 17 ft surface seal.

Note: Include affected page number WP-73

Justification and Impact of Change

This represents no major impact on the integrity of samples to be taken from these wells. Rather it is a justifiable modification of the guidance provided in WAC 173-160-550 due to conditions encountered in the field. It is being noted as a Change Form to document regulatory concurrence with the actions taken or planned.

92127551022

E. D. Goller ED Goller 1/23/92
 DOE Unit Manager Date

C. S. Cline Charles S. Cline 2/10/92
 Ecology Unit Manager Date

D. R. Einan D. R. Einan 10 Feb 92
 Lead Regulatory Unit Manager Date

WELL CONSTRUCTION AND COMPLETION SUMMARY

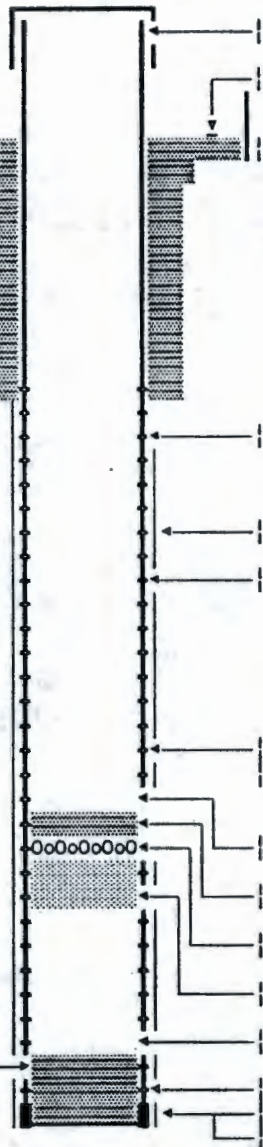
Drilling Method: <u>Cable tool</u> Fluid Used: <u>Water</u> Driller's Name: <u>Rumley</u> Company: <u>Not documented</u> Date Started: <u>08Nov48</u>	Sample Method: <u>Hard tool (nom)</u> Additives: <u>Not documented</u> Used: <u>Not documented</u> WA State: <u>Not documented</u> Lic Nr: <u>Not documented</u> Company: <u>Not documented</u> Location: <u>Not documented</u> Date Complete: <u>16Nov48</u>	WELL NUMBER: <u>399-1-1</u> Hanford <u>Richland</u> <u>Richland</u> Coordinates: N/S <u>N 56.607</u> E/W <u>E 16.056</u> State: <u>Not documented</u> Coordinates: N <u>382,570</u> E <u>2,309,877</u> Start Card #: <u>Not documented</u> T <u> </u> R <u> </u> S <u> </u> Elevation: <u>Not documented</u> Ground surface (ft): <u>373.7 Estimated</u>	TEMPORARY WELL NO: <u>303-3</u> Hanford <u>Richland</u> <u>Richland</u> Coordinates: N/S <u>N 56.607</u> E/W <u>E 16.056</u> State: <u>Not documented</u> Coordinates: N <u>382,570</u> E <u>2,309,877</u> Start Card #: <u>Not documented</u> T <u> </u> R <u> </u> S <u> </u> Elevation: <u>Not documented</u> Ground surface (ft): <u>373.7 Estimated</u>
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Depth to water: 33.0-ft Nov48
 (Ground surface) 29.4-ft Aug91

GENERALIZED Driller's
 STRATIGRAPHY Log

- 0~5: ROCKS and BOULDERS
- 5~40: SAND, ROCKS & Basalt BOULDERS
- 40~45: Fine black SAND
- 45~50: Coarse GRAVEL, BASALT and SAND
- 50~58: Fine SAND, GRAVEL, BASALT and ROCKS
- 58~60: Fine SAND, GRAVEL and BASALT
- 60~65: Fine water SAND and some SAND
- 65~70: Fine water SAND, ROCKS and GRAVEL
- 70~74: SAND, GRAVEL and BASALT
- 74~77: Coarse black SAND

REMEDICATION:
 Dec91~Jan92, by WHC/KEH
 Overdrilled 8-in casing with 15-in hollow-stem auger rig. Grouted annulus with cement. Cement entered borehole through upper existing perforations. Excavated and installed concrete surface pad, posts and survey marker. Extended casing 0.79-ft to 3.0-ft stickup.



- Elevation of reference point: [376.7-ft] (top of casing)
- Height of reference point above [3.0-ft] ground surface (Brass cap)
- Depth of surface seal [20-ft]
- Type of surface seal: Concrete pad, 4x4x.5-ft
Cement grout, 3-20-ft
15-in overdrilled annulus [ND]
- I.D. of riser pipe: [8-in]
- Type of riser pipe: Carbon steel
- Diameter of borehole: [9-in nom]
- Type of filler: Not documented
- Depth top of perforations: [20-ft]
- Description of perforations: 20-75-ft, 5 holes/ft
- Sand, ND-44.4-ft
- Cement, 44.4-44.7-ft
- Gravel, 44.7-45.8-ft
- Bentonite pellets, 45.8-49.6-ft
- Silica sand, 49.6-71.1-ft
- Depth bottom of perforations: [75-ft]
- Depth bottom of casing: [77-ft]
- Depth bottom of borehole: [77-ft]

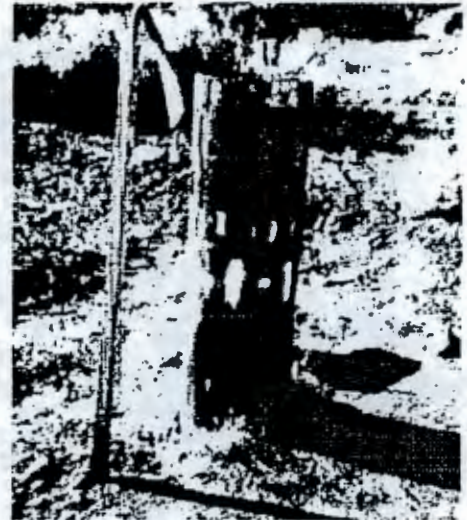
Cement plug set 74~77-ft
 Date not documented

Drawing By: RKL/3#01#01.ASB Date: _____
 Reference: HANFORD WELLS

9212751023

SUMMARY OF CONSTRUCTION DATA AND FIELD OBSERVATIONS
RESOURCE PROTECTION WELL - 399-1-1

WELL DESIGNATION : 399-1-1
 RCRA FACILITY : 300 Area Process Trenches
 CERCLA UNIT : 300-FF-5
 HANFORD COORDINATES : RN 56,607 RE 16,056
 LAMBERT COORDINATES : ND
 DATE DRILLED : Nov48
 DEPTH DRILLED (GS) : 77-ft
 MEASURED DEPTH (GS) : 45.0-ft, 22Jul91
 DEPTH TO WATER (GS) : 33-ft, Nov48; 29.4.9-ft, 01Aug91
 CASING DIAMETER : 8-in, carbon steel, +3.0-77-ft
 ELEV TOP CASING : 376.69-ft, Estimated
 ELEV GROUND SURFACE : 373.7-ft Estimated
 PERFORATED INTERVAL : 20-75-ft
 SCREENED INTERVAL : NA
 COMMENTS : FIELD INSPECTION, 19Oct90,
 Carbon steel casing. No pad, no posts,
 Capped, and locked.
 No permanent identification.
 Not located in radiation zone.
 OTHER: No documented surface seal.



399-1-1 Site Before Remediation

AVAILABLE LOGS : Driller
 TV SCAN COMMENTS : 11Jan91,
 Depths referenced to ground surface;
 Depth to bottom: 71.5-ft, silty
 Depth to water: 28.9-ft,
 some floating debris.

Vadose and submerged casing, no damage or corrosion. Perforations start at 17-ft, the perfs were open and clean, 5 cuts/rd/ft. Bottom not determined. Water clear, there was a small amount of suspended debris. The well was cleaned early in 90 and it was still clean. The well doesn't need to be recleaned.

DATE EVALUATED : Feb91
 EVAL RECOMMENDATION : 1) Reduce monitored interval to 15-20 ft.
 2) Install surface seal by overdrilling or installation of inner liner to 18-20 ft, grout annulus.
 3) Excavate and install concrete pad 4x4-ft x 6-in extending 3-ft into annulus. Place brass cap in pad.
 4) Place 4 equidistantly spaced protective posts. Paint.
 5) Survey to water level measurement standards.

LISTED USE : None
 PUMP TYPE : Electric submersible, intake at 37.9-ft (40.18-ft TOC 01Aug91).
 MAINTENANCE : 07-08Jun77; Brushed and cleaned
 08-09Jun82; Brushed and bailed
 24-23Jul77; Brushed, bailed and set 3-ft cement plug 74-77-ft
 11Jun90; Brushed and bailed
 10Jan91; Pulled pump.
 11Jan91; TV camera run

REMEDIATION : 15Jan91; Reset electric submersible pump
 17Jul91; Pulled electric submersible pump. DTB=71.1-ft, (73.40-ft, TOC).
 Added 62.5-gal silica sand, DTB=49.6-ft, (51.88-ft, TOC).
 Added 6-gal bentonite pellets, DTB=45.8-ft, (48.10-ft, TOC),
 Added 2.5-gal gravel, DTB=44.7-ft, (47.04-ft, TOC).
 01Aug91; Reset electric submersible pump. Developed well to <5 NTU.
 18Dec91; Pulled electric submersible pump to allow remediation.
 19-20Dec91; Overdrilled casing with 15-in auger bit to 20-ft.
 30-31Dec91; Grouted outside casing with 97-sacks cement (Al powder added).
 Cement noted inside casing through upper perforations, (DTB=44.4-ft).
 The casing was again overdrilled to 15-ft where cement was contacted.
 11-sacks cement were used to complete seal.
 1/3 sack sand was poured downhole to hinder cement movement down hole.
 08-09Jan92; Excavated for pad, posts and annular extension.
 13Jan92; Poured reinforced pad using air-entrained concrete.
 Installed protective posts and brass marker.
 Extended casing 0.79-ft to 3.0-ft stickup.
 14Jan92; Stamped well number on pin and cleaned site.

9 2 1 2 7 5 5 1 0 2 4

WELL CONSTRUCTION AND COMPLETION SUMMARY

Drilling Method: Cable tool Fluid Used: Water Driller's Name: <u>Rumley</u> Company: <u>Not documented</u> Date Started: <u>27Oct48</u>	Sample Method: <u>Hard tool (nom)</u> Additives: <u>Not documented</u> WA State: <u>Not documented</u> Lic Nr: <u>Not documented</u> Company: <u>Not documented</u> Location: <u>Not documented</u> Date Complete: <u>05Nov48</u>	WELL NUMBER: <u>399-2-1</u> Hanford State Coordinates: N/S <u>N 55,068</u> Coordinates: N <u>ND</u> Card #: <u>Not documented</u> Elevation Ground surface (ft): <u>372.2 Estimated</u>	TEMPORARY WELL NO: <u>303-2</u> Richland State E/W <u>E 16,385</u> E <u>ND</u> T <u> </u> R <u> </u> S <u> </u>
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Depth to water: 37-ft Nov48
 (Ground surface) 28.5-ft Aug91

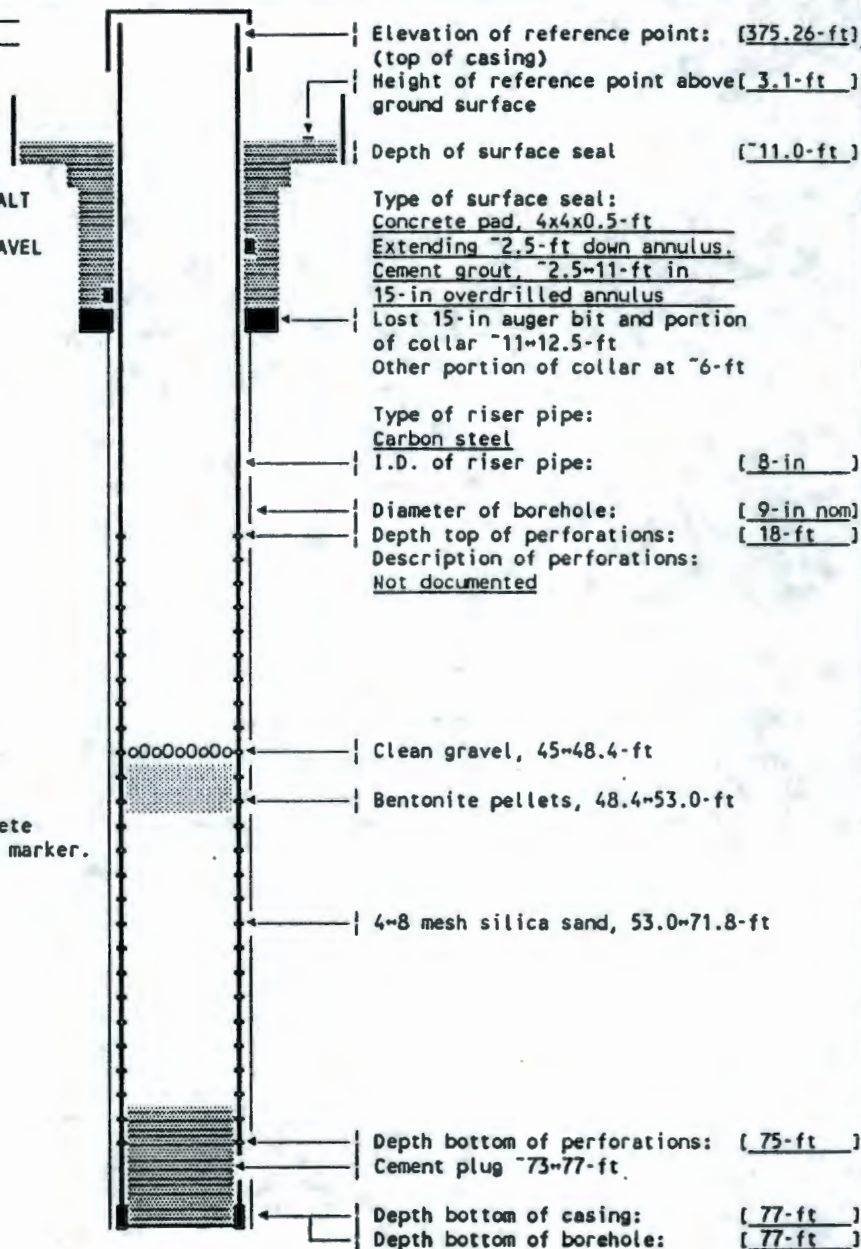
GENERALIZED STRATIGRAPHY Driller's Log

- 0-3: Not documented
- 3-10: BOULDERS-ROCKS-GRAVEL-BASALT
- 10-15: BASALT-ROCKS-GRAVEL-SAND
- 15-30: ROCKS-BOULDERS-BASALT-GRAVEL
- 30-45: SAND-ROCKS-BOULDERS
- 45-50: SAND-GRAVEL-BASALT
- 50-52: SAND-CLAY-SILT
- 52-55: Fine SAND
- 55-65: Fine SAND-BASALT-GRAVEL
- 65-75: SAND with CLAY
- 75-TD: SAND-BASALT

REMEDIATIONS:
 Row, Jun50:
 Perforated 18-75-ft

Not documented
 Placed cement plug.

WHC/KEH, Dec91-Jan92:
 Overdrilled 8-in casing with 15-in hollow-stem auger rig. Lost bit at about 12.5-ft. Grouted annulus with cement. Excavated and installed concrete surface pad, posts and survey marker.



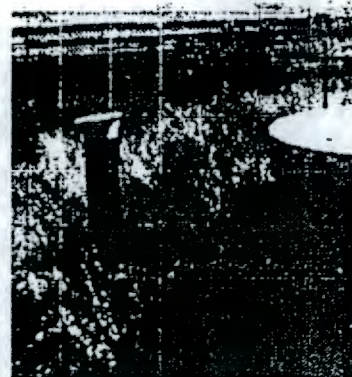
Drawing By: RKL/3#02#01.ASB Date: _____

Reference: HANFORD WELLS

92127551025

SUMMARY OF CONSTRUCTION DATA AND FIELD OBSERVATIONS
RESOURCE PROTECTION WELL - 399-2-1

WELL DESIGNATION : 399-2-1
RCRA FACILITY : 300 Area Process Trenches
CERCLA UNIT : 300-FF-5
HANFORD COORDINATES : RN 55,068 RE 16,385
LAMBERT COORDINATES : ND
DATE DRILLED : Nov48
DEPTH DRILLED (GS) : 77-ft
MEASURED DEPTH (GS) : 72.5-ft
DEPTH TO WATER (GS) : 37-ft, Nov48; 30.0-ft, Nov90
CASING DIAMETER : 8-in, carbon steel, +3.1-77-ft
ELEV TOP CASING : 375.26-ft
ELEV GROUND SURFACE : 372.2-ft Estimated
PERFORATED INTERVAL : 18-75-ft
SCREENED INTERVAL : NA
COMMENTS : FIELD INSPECTION, 19Oct90,
Carbon steel casing. No pad-posts, capped-locked.
No permanent identification.
Not in radiation zone.
OTHER: No documented surface seal.



399-1-2 Site Before
Remediation

AVAILABLE LOGS : Driller
TV SCAN COMMENTS : 13Nov90, depths referenced to ground surface;
Depth to bottom: 71-ft, silty.
Depth to water: 30-ft, no floating debris.
Perforations start at 23-ft, 6 cuts/rd/ft, bottom of perforations not observed.
Perforations open above water, those visible below water were open. The well for
a carbon steel well was very clean. There is some scale, but not that bad.
The perfs were quite visible below water and the deeper we went the more perfs were
visible. Water clear with some suspended scale and debris. Well requires cleaning.
26Nov90;

Depth to bottom; 72.5-ft, silty.
Perforations 20.6-ft to not determined, 4 cuts/rd/ft. Those visible both
above and below water were open. Water clear/murky with a lot of suspended
debris. When the camera went into the water it picked up some of the scum
that was on top.

DATE EVALUATED : Feb91
EVAL RECOMMENDATION :

- 1) Reduce monitored interval to 15-20-ft.
- 2) Install surface seal by overdrilling or installation of inner liner to 18-20-ft. grout annulus.
- 3) Excavate and install concrete pad 4x4-ft x 6-in extending 3-ft into annulus. Place brass cap in pad.
- 4) Place 4 equidistantly spaced protective posts. Paint.
- 5) Survey to water level measurement standards.

LISTED USE : Water levels measured May50-Jan91; Sampled 1989 for ³H, U, NO₃, Cr, CCl₄
PUMP TYPE : Electric submersible, intake set at 37.1-ft (40.21-ft, TOC-01Aug91).
MAINTENANCE : 12Nov90; Pulled electric submersible pump. No contamination encountered.
13Nov90; Downhole TV run.
15Nov90; Brushed casing and bailed debris.
21Nov90; Developed well to >5 NTU. Removed development pump.
26Nov90; Made downhole TV run. Installed electric submersible pump.
17Jul91; Pulled electric submersible pump. No contamination encountered.
22Jul91; DTB=71.8-ft, (74.94-ft TOC).
Added 49.5-gal clean 4-8 mesh silica sand DTB=53.0-ft, (56.08-ft TOC).
Added 6-gal bentonite pellets DTB=48.4-ft, (51.46-ft TOC).
Added 5-gal clean gravel, DTB=45.0-ft, (48.08-ft TOC)
01Aug91; DTW=28.5-ft, (31.58-ft TOC). DTB=45.0-ft (48.08-ft TOC).
Installed electric submersible pump.

REMEDIATION: : 18Dec91; Removed pump from well to allow remediation.
31Dec91; Cleaned rig and mobilized to site.
02Jan92; Overdrilled 8-in casing with 15-in auger bit to 12.5-ft.
06Jan92; Lost bit at approximately 12.5-ft.
Decided to leave in place with Ecology waiver.
07Jan92; Cleaned annulus with 10-in auger bit to 11-ft.
Grouted from about 11-ft to 2.5-ft.
Bit and part of collar at 12.5-ft, other part of collar at about 6-ft.
08Jan92; Excavated for pad, postholes and annular extension.
13Jan92; Poured reinforced pad, posts and annular extension.
14Jan92; Stamped well number on pin and cleaned site.

9 2 1 2 7 5 1 0 2 6

WELL CONSTRUCTION AND COMPLETION SUMMARY

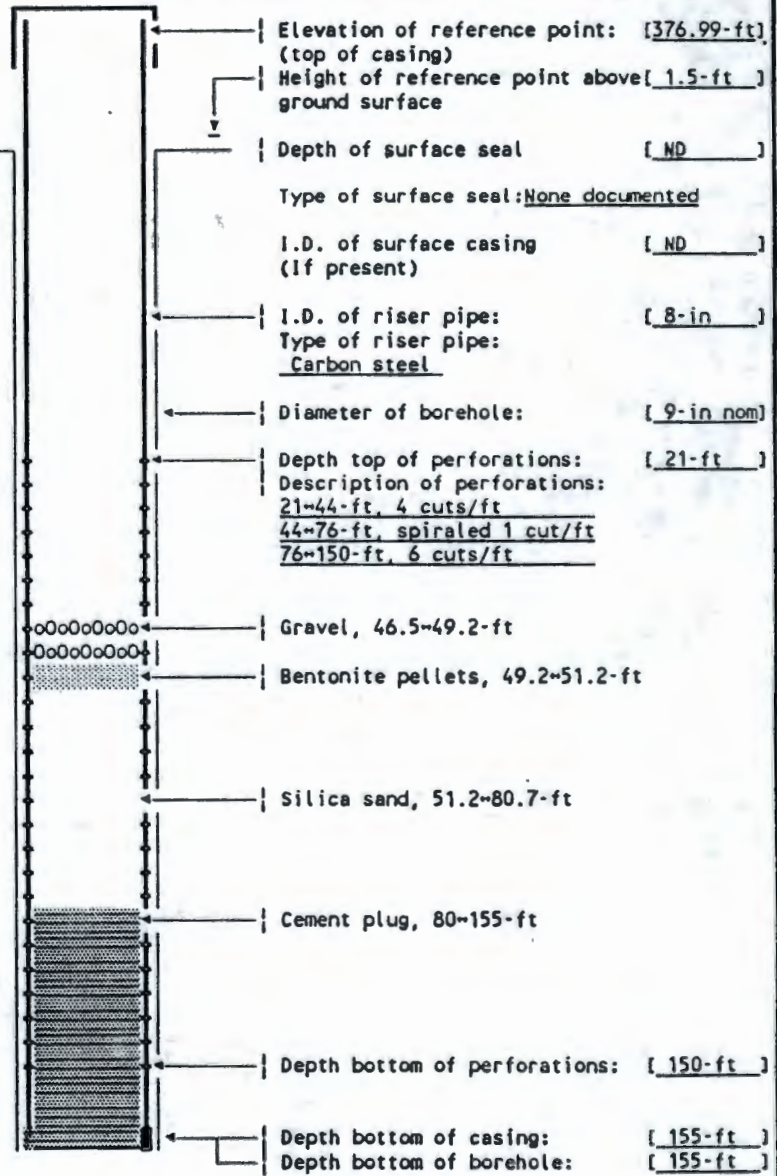
Drilling Method: <u>Cable tool</u>	Sample Method: <u>Hard tool (nom)</u>	WELL NUMBER: <u>399-4-7</u>	TEMPORARY WELL NO: _____
Drilling Fluid Used: <u>Water</u>	Additives Used: <u>Not documented</u>	<u>Hanford</u>	<u>Richland</u> <u>Richland</u>
Driller's Name: <u>Owens/Moore</u>	WA State Lic Nr: <u>Not documented</u>	Coordinates: N/S <u>N 52.999</u>	E/W <u>E 16.801</u>
Drilling Company: <u>Not documented</u>	Company Location: <u>Not documented</u>	State Coordinates: N <u>ND</u>	E <u>ND</u>
Date Started: <u>07Nov61</u>	Date Complete: <u>26Nov61</u>	Start Card #: <u>Not documented</u>	T _____ R _____ S _____
		Elevation Ground surface (ft): <u>375.5 Estimated</u>	

Depth to water: 39-ft Nov61
(Ground surface) 32.2-ft Aug91

GENERALIZED Driller's
STRATIGRAPHY Log

0-5: Not documented
5-10: SAND
10-35: SAND and COBBLES
35-40: SAND and GRAVEL
40-80: GRAVEL
80-85: COBBLES and GRAVEL
85-120: Cemented COBBLES and GRAVEL
120-155: Silty CLAY

REMEDIATION:
Bultena, Jun71
Installed cement plug to 80-ft



Drawing By: RKL/3#04#07.ASB Date: _____
Reference: HANFORD WELLS

92127551027

SUMMARY OF CONSTRUCTION DATA AND FIELD OBSERVATIONS
RESOURCE PROTECTION WELL - 399-4-7

WELL DESIGNATION : 399-4-7
 RCRA FACILITY : 300 Area Process Trenches
 CERCLA UNIT : 300-FF-5
 HANFORD COORDINATES : RN 52,999 RE 16,801
 LAMBERT COORDINATES : ND
 DATE DRILLED : Nov61
 DEPTH DRILLED (GS) : 155-ft
 MEASURED DEPTH (GS) : 46.5-ft, Aug91
 DEPTH TO WATER (GS) : 39-ft, Nov61; 32.2-ft, Aug91
 CASING DIAMETER : 8-in, carbon steel, +1.5-155-ft
 ELEV TOP CASING : 376.99-ft
 ELEV GROUND SURFACE : 375.5-ft Estimated
 PERFORATED INTERVAL : 21-150-ft
 SCREENED INTERVAL : NA
 COMMENTS :



FIELD INSPECTION, 19Oct90,
 8-in carbon steel casing.
 No pad. No posts. Capped and locked.
 No permanent identification.
 Access impaired by installed
 test equipment (solar panels).
 Not in radiation zone.
 OTHER: No documented surface seal. Cement plug to 80-ft.

AVAILABLE LOGS :
 TV SCAN COMMENTS :

Driller
 25Jan91, depths referenced to ground surface;
 Depth to bottom: 79.4-ft, silty.
 Depth to water: 31.2-ft, some floating debris.
 Vadose casing had corrosion/scale/rust. Submerged casing had heavy
 corrosion/scale/rust near the bottom. Perforations started at 21.7-ft at
 4 cuts/rd/ft. They were open above water. Water was somewhat clear with lots of
 suspended debris. The well has heavy scale below water, it needs to be cleaned.
 31Jan91;
 Depth to bottom; 80.7-ft, some silt.
 Depth to water; 31.2-ft, clean.
 Vadose/submerged casing clean.
 Water clear. Appeared to be a piece of plastic on bottom.

DATE EVALUATED :
 EVAL RECOMMENDATION :

- 1) Reduce monitored interval to 15-20-ft.
- 2) Install surface seal by overdrilling or installation of inner liner to 18-20-ft, grout annulus.
- 3) Excavate and install concrete pad 4x4-ft x 6-in extending 3-ft into annulus. Place brass cap in pad.
- 4) Place 4 equidistantly spaced protective posts. Paint.
- 5) Survey to water level measurement standards.

LISTED USE :
 PUMP TYPE :
 MAINTENANCE :

Water levels measured Mar68-Jan91; Sampled 1989 for ³H, U, NO₃, Cr, CCl₄
 Electric submersible, intake set at 40.1-ft, (41.58-ft TOC), 08Aug91 .
 16-20Jun71; Remove bent casing, welded casing, brushed.
 Set wooden and cement plug to 80-ft.
 02Jul81; Brushed and bailed.
 30-32Jul77; Brushed and bailed.
 25Jan91; Pulled electric submersible pump. Downhole TV run.
 30Jan91; Developed to <5 NTU.
 31Jan91; Downhole TV run. Reinstalled electric submersible pump.
 19Jul91; Pulled electric submersible pump.
 25Jul91; DTB=80.7-ft, (82.20-ft TOC)
 Added 77.5-gal clean silica sand, DTB=51.2-ft, (52.72-ft TOC)
 Added 3.5-gals bentonite pellets, DTB=49.2-ft, (50.66-ft TOC)
 Added 6-gal clean gravel, DTB=46.5-ft, (48.04-ft TOC)
 08Aug91; Installed electric submersible pump. Developed to <5 NTU

9 2 1 2 7 5 5 1 0 2 8

Change Number 300-FF-5-13	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 02/27/92
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

The work plan in section 5.3.7.1 states "Although sampling of aquatic biota will initially emphasize the lower trophic levels because they are most likely to contain measurable amounts of contaminants, attention also must be paid to the higher trophic levels because of the possibility of biomagnification of certain contaminants." Rather than sampling several trophic levels at one time, a phased approach is proposed. Table 7 of the FSP indicates sampling would be conducted in five groups: periphyton, macrophytes, rock benthos, soft bottom benthos, and suckers. The proposal suggests sampling of periphyton and macrophytes first, with the results of these samplings input into the Baseline Risk Assessment of the Phase I RI. Based on the results of the risk assessment additional sampling of higher trophic levels could be conducted in the Phase II RI if necessary.

Note: Include affected page number Section 5.3.7.1 (WP-187) and Section 3.1 of the Sampling and Analysis Plan (SAP/FSP-28)

Justification and Impact of Change

A phased approach is a good utilization of time and available resources. Additional analysis can still be performed if required during the Phase II RI.

E. D. Goller <i>Eric Goller</i> DOE Unit Manager	<u>2-27-92</u> Date
D. R. Einar <i>David R. Einar</i> Lead Regulatory Unit Manager	<u>27 Feb 92</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551029

Change Number 300-FF-5-14	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 06/23/92
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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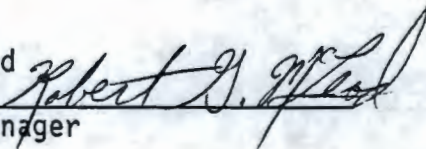
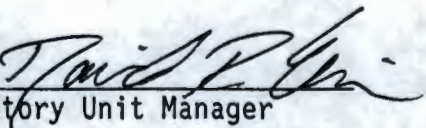
Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Section 5.3.4.4 Task 4d (pg. WP-93, WP-176)-Aquifer Intercommunication, describes a process for restoring hydraulic isolation between the unconfined and confined aquifers at 399-1-16D. These activities at well 16D will be deferred to the Phase 2 RI, when it can be determined if they will be necessary.

Justification and Impact of Change

Evaluation of recent VOA sampling results by WHC and PNL RCRA and CERCLA staff indicates that well 16D is probably not the cause of the drawdown problem found at 399-1-16C. Anomalous head readings and groundwater analysis results from well 16C support the hypothesis that the hydraulic intercommunication may be occurring at well 16C rather than at well 16D. DOE and WHC will conduct a seal test to detect for potential leakage at casing joints in well 16C. The test results will be evaluated and presented to the regulators. If the results are inconclusive, further discussions with the regulators will be scheduled to develop a new strategy to address the situation at 16C. The seal material used around the casing is another potential area for leakage at 16C. If the results conclusively identify leakage, a remedial plan will be developed and submitted to the regulators for review. If no evidence of a leak is identified at well 16C, the potential for a leak at well 16D will be reevaluated. The proposed change does not have a major impact on the remedial investigation program. Quarterly sampling will continue at the site to enhance the data base on the levels of VOAs that are present.

R. G. Mcleod  DOE Unit Manager	<u>June 25, 1992</u> Date
D. R. Einan  Lead Regulatory Unit Manager	<u>25 Jun 92</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551030

Change Number 300-FF-5-15	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 6/23/92
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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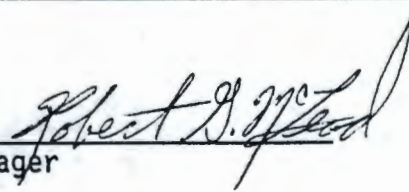
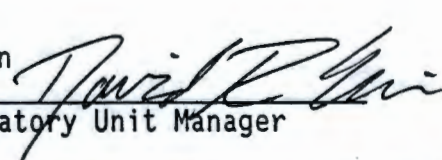
Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Section 5.3.4.3 (pg. WP-175) of the Work Plan and section 1.3.2 (pg. SAP/FSP-21) of the Sampling and Analysis Plan describe the performance of three tracer tests to be performed in the Phase 1 RI. The tracer tests will be deferred to the Phase 2 RI, if at that time they are deemed necessary.

Justification and Impact of Change

The transducer network in place in the 300 area (34 units) will supply sufficient data to meet the Phase 1 RI modelling needs. Effects of the river stage, which have fluctuated greatly within the time necessary to run a single test, will have a great impact on the interpretation of the data gathered. The results of the tests would be used to evaluate the potential for future transport of uranium to the Columbia river; this potential has already been reduced by a large reduction of discharge to the process trenches, and the removal of contaminated sediments from the bottom of the trenches. Historical data (Dilution of 300 Area Uranium Wastes Entering the Columbia River, 1957) indicates that soluble uranium is not retained in the 300 Area sediments. Current groundwater analysis data indicates decreasing uranium concentrations in the wells nearest to the process trenches. Future groundwater data will be evaluated to confirm this trend, which may obviate the need for the tracer test.

R. G. McLeod  DOE Unit Manager	<u>6-25-92</u> Date
D. R. Einar  Lead Regulatory Unit Manager	<u>25 Jun 92</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551031

Change Number 300-FF-5-18	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date June 20, 1992
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator B. E. Innis, 300-FF-5 Assistant RI Coordinator	Phone (509) 376-4034
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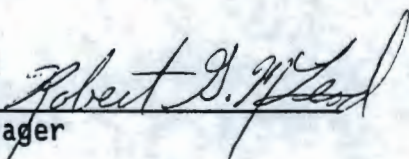
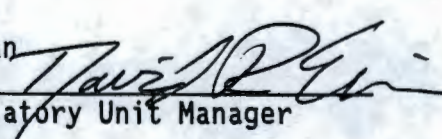
Description of Change

See attached pages containing changes to the 300-FF-5 Work Plan required by DOE-RL audit finding 91-03-WHC-02, which required the QAPP's for the various operable units be revised to include contract laboratory precision and accuracy limits, detection limits, and several text changes, see attached.

Note: Include affected page number:PMP-1 which references page PMP-3 of DOE/RL 88-31 300-FF-1 Work Plan, SAP/QAPP-5,7,8,11,24,26,27.

Justification and Impact of Change

Response to DOE-RL audit finding.

R. G. Mcleod DOE Unit Manager	 Date <u>8-27-92</u>
D. R. Einar Lead Regulatory Unit Manager	 Date <u>22 Sept 92</u>

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551032

Change Number 300-FF-5-17	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 06/23/92
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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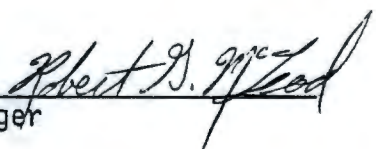

Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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Description of Change

Section 5.3.4.3 (pg. WP-173, SAP/FSP-15) discusses the need for a second river stage monitoring station within the Operable Unit, designated SWS-2. Due to the current and anticipated modeling limitations the requirement for this second monitoring station will be removed from the Work Plan.

Justification and Impact of Change

It is the change in river gradient that alters aquifer hydrologic topography and might affect the validity of the groundwater model. Three stations now monitor river stage, 2 in the 100 Areas and SWS-1 in the 300 Area. The average river gradient measured by these stations is 1.1 ft/mile. The change in gradient from highest to lowest stage is 4% or .05 ft/mile. The change in gradient from the proposed location of SWS-2 to SWS-1 would be no more than .02 ft even with the influence of the McNary pool included in the calculation. The current 300-FF-5 groundwater model does not have the resolution required to distinguish this small of a change in gradient. There will be no significant impact to the validity of the groundwater model or the RI/FS due to this change. Based on existing groundwater level versus river stage data, it appears that the groundwater system is responding to only a single river stage regime. Therefore only a single river stage recorder is needed.

R. G. McLeod  DOE Unit Manager	<u>Jun-25-92</u> Date
D. R. Einar  Lead Regulatory Unit Manager	<u>25 June 92</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551033

REVISIONS TO 300-FF-5 QAPP

- 1) In the last sentence of section 2.2 of the QAPP (pg. SAP/QAPP-5) the reference requiring all laboratory work to be subject to the surveillance controls invoked by QI 7.3, "Source Surveillance and Inspection" shall be deleted. The last sentence of section 2.2 will read:

"All analyses shall be coordinated through the Westinghouse Hanford Office of Sample Management and shall be performed in compliance with Westinghouse Hanford approved laboratory QA Plans and analytical procedures."

- 2) See attached table revising the original QAPP preliminary target values for detection limits, precision, and accuracy, to correspond to the actual values that the contracted laboratories can produce. Also add references to section 15.0 as follows:

EPA, 1979, *Handbook for Analytical Quality Control in Water and Wastewater Laboratories*, Office of Research and Development, Environmental Monitoring and Support Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio.

Lindahl, P.C., 1984, *Determination of Inorganic Anions in Aqueous and Solid Samples of Ion Chromatography*, EPA/6004-84/017, Argonne National Laboratory Argonne, Illinois.

- 3) The text in the QAPP section 4.1.2 (pg. SAP/QAPP-11) requiring OSM to meet qualifications defined in EII 1.7 and control records as defined in EII 1.6 will be revised as follows:

"All reviewers as necessary, shall be qualified under the requirements of EII 1.7 or MRP 4.22 as applicable. All participant contractor or subcontractor procedures, plans, and/or manuals shall be retained as project quality records in compliance with WHC-CM-3-5 Section 5 (WHC 1990),..."

- 4) The text in the QAPP section 11.0 (pg. SAP/QAPP-24) defining requirements for the preventive maintenance of laboratory analytical equipment shall be revised as follows:

"When samples are analyzed using EPA reference methods, the preventive maintenance requirements for laboratory analytical equipment are as defined in the procured laboratory's QA plan(s)."

9212751034

Table QAPJP-1. Analytical Methods, Analytical Parameters, Detection Limits, and Precision and Accuracy Requirements for the 300-FF-5 Operable Unit. (sheet 1 of 3)

Category of Analysis	Analyte of Interest	Analytical Level ^a	Analytical Method	CRDL or CRQL (Soil) ^b	Precision (Soil) ^c	Accuracy (Soil) ^c	CRDL or CRQL (Water) ^b	Precision (Water) ^c	Accuracy (Water) ^c
Radiation Screening	Gross alpha Gross beta/gamma	I	Field screening with hand held instrument ^d	N/A	N/A	N/A	N/A	N/A	N/A
Volatile Organics Screening	All Volatile Organics	I	5020/5030 ^e	j	±30	65-135	j	±30	65-135
Radionuclides ^f	Gross alpha	III	EP-10, PRO-032-302, PRO-032-1, RL-2302 (Water); EA-82, PRO-032-15, RL-2302 (Soil)	10 pCi/g	±35 ^h	30-105	3 pCi/L	±35 ^h	30-105
	Gross beta	III	EP-10, PRO-032-302, PRO-032-1, RL-2302 (Water); EA-82, PRO-032-15, RL-2302 (Soil)	15 pCi/g	±35 ^h	30-105	4 pCi/L	±35 ^h	30-105
	Cesium-137	V	RC-30, PRO-042-5, RL-4303, RL-4304 (W,S)	0.1 pCi/g	±35 ^h	30-105	15 pCi/L	±35 ^h	30-105
	Cobalt-60	V	RC-30, PRO-042-5, RL-4303, RL-4304 (W,S)	0.05 pCi/g	±35 ^h	30-105	25 pCi/L	±35 ^h	30-105
	Strontium-90	V	RC-306, RC-303, RC-309, RC-304, RL-2314 (W,S); PRO-032-16(W); PRO-032-38, PRO-032-25 (S)	1 pCi/g	±35 ^h	30-105	2 pCi/L	±35 ^h	30-105
	Uranium-235	V	EP-70, EP-71, EP-5, PRO-052-32, RL-2322 (W,S)	1 pCi/g	±35 ^h	30-105	1 pCi/L	±35 ^h	30-105
	Uranium-238	V	EP-70, EP-71, EP-5, PRO-052-32, RL-2322 (W,S)	1 pCi/g	±35 ^h	30-105	1 pCi/L	±35 ^h	30-105
Metals ^g	Aluminum	IV	EPA 200.7, 202.1, 202.2	20	±35	75-125	200	±20	75-125
	Antimony	IV	EPA 200.7, 204.1, 204.2	6	±35	75-125	60	±20	75-125
	Beryllium	IV	EPA 200.7, 210.1, 210.2	0.5	±35	75-125	5	±20	75-125
	Cadmium	IV	EPA 200.7, 213.1, 213.2	0.5	±35	75-125	5	±20	75-125
	Chromium	IV	EPA 200.7, 218.1, 218.2	1	±35	75-125	10	±20	75-125

ECN-186756 Pg. 27 of 33

Table QAPjP-1. Analytical Methods, Analytical Parameters, Detection Limits, and Precision and Accuracy Requirements for the 300-FF-5 Operable Unit. (sheet 2 of 3)

Category of Analysis	Analyte of Interest	Analytical Level ^a	Analytical Method	CRDL or CRQL (Soil) ^b	Precision (Soil) ^c	Accuracy (Soil) ^c	CRDL or CRQL (Water) ^b	Precision (Water) ^c	Accuracy (Water) ^c
Metals (cont.) ^d	Copper	IV	EPA 200.7, 220.1, 220.2	2.5	±35	75-125	25	±20	75-125
	Iron	IV	EPA 200.7, 236.1, 236.2	10	±35	75-125	100	±20	75-125
	Lead	IV	EPA 200.7, 239.1, 239.2	0.5	±35	75-125	5	±20	75-125
	Manganese	IV	EPA 200.7, 243.1, 243.2	1.5	±35	75-125	15	±20	75-125
	Mercury	IV	EPA 245.1, 245.2, 245.5	0.02	±35	75-125	0.2	±20	75-125
	Nickel	IV	EPA 200.7, 249.1, 249.2	4	±35	75-125	40	±20	75-125
	Silver	IV	EPA 200.7, 272.1, 272.2	1	±35	75-125	10	±20	75-125
	Zinc	IV	EPA 200.7, 289.1, 289.2	2	±35	75-125	20	±20	75-125
Ions	Ammonia	IV	EPA 350.3 ^e	N/A	N/A	N/A	100	±20	75-125
	Fluoride	IV	EPA 300/mod. ^f or 340.2 ^g	2.5	±35	75-125	500	±20	75-125
	Nitrate	IV	EPA 300/mod. ^f , 352.1, 353.2, 353.3 or 354.2 ^g	1.25	±35	75-125	250	±20	75-125
	Nitrite	IV	EPA 300/mod. ^f or 354.1 ^g	1.25	±35	75-125	250	±20	75-125
Volatile Organics ^d	1,2-Dichloroethene	IV	EPA 624	5	d	d	5	d	d
	Methylene Chloride	IV	EPA 624	5	d	d	5	d	d
	Tetrachloroethene	IV	EPA 624	5	d	d	5	d	d
	Trichloroethene	IV	EPA 624	5	d	d	5	d	d
Pesticides/PCBs ^d	Aroclor-1248	IV	EPA 608	80	d	d	0.5	d	d
Other	Cation Exchange Cap.	III	9080/9081 ^h	N/A	N/A	N/A	N/A	N/A	N/A
	pH (soil)	III	9045 ^h	N/A	N/A	N/A	N/A	N/A	N/A
	pH (water)	III	i	N/A	N/A	N/A	N/A	N/A	N/A

ECN-186756 Pg. 28 of 33

Table QAPjP-1. Analytical Methods, Analytical Parameters, Detection Limits, and Precision and Accuracy Requirements for the 300-FF-5 Operable Unit. (sheet 3 of 3)

Category of Analysis	Analyte of Interest	Analytical Level ^a	Analytical Method	CRDL or CRQL (Soil) ^b	Precision (Soil) ^c	Accuracy (Soil) ^c	CRDL or CRQL (Water) ^b	Precision (Water) ^c	Accuracy (Water) ^c
<p>^a Analytical Levels are as defined in Section 4.3.1 of <u>Data Quality Objectives for Remedial Response Activities: Volume 1, Development Process</u> (EPA 1987) and Table 45 of the work plan for this operable unit.</p> <p>^b For all CLP analytical categories, CRDL refers to the Contract Required Detection Limit specified on the <i>US EPA Contract Laboratory Program Statement of Work for Inorganics Analysis</i> (EPA 1989); CRQL refers to the Contract Required Quantitation Limit specified in the <i>US EPA Contract Laboratory Program Statement of Work for Organics Analysis</i> (EPA 1988a). CRQLs are provided for all other (non-CLP) categories, and represent maximum values that can be reliably achieved by analytical laboratories under routine normal conditions. Unless otherwise specified, all inorganic soil values are expressed in mg/Kg, and all organic soil values are expressed as µg/Kg; CLP Target Compound List (TCL) values for inorganic soil CRDLs are the lower of the values specified in the CLP SOW (EPA 1989). All CRDL/CRQL values for water are expressed in µg/L. Laboratory agreements for services shall require updating as necessary to accommodate periodic updates of the CLP SOWs (EPA 1989 and 1988a).</p> <p>^c Acceptable ranges for precision and accuracy for EPA Contract Laboratory Program (CLP) TCL organics and TAL inorganic parameters shall be as specified for each analyte by the applicable CLP Statements of Work (SOWs; see EPA 1988a and 1989). For all other parameters, the ranges provided shall be considered maximum values that can be reliably achieved by the laboratories under routine normal conditions. Precision is expressed as Relative Percent Difference (RPD); accuracy is expressed as percent recovery (%R). In all cases, these limits apply to sample results greater than five times the CRDL or CRQL, and shall be considered requirements in the absence of known or suspected interferences which may hinder achieving the limit by the analytical laboratory.</p> <p>^d Methods, CRDLs, CRQLs, precisions and accuracies are as specified in the CLP SOWs (EPA 1988a and EPA 1989) for organic and inorganic analysis. For Volatile Organics and Pesticides/PCBs, the EPA has designated representative compounds to be used as spikes and has defined precision and accuracy numbers for these compounds. If the spiked compounds meet the criteria outlined by the EPA, the other compounds analyzed also meet the criteria.</p> <p>^e Methods specified are from <i>Methods for Chemical Analysis of Water and Wastes</i> (EPA 1979).</p> <p>^f Method specified is from <i>Determination of Inorganic Anions in Aqueous and Solid Samples by Ion Chromatography</i> (Lindahl 1984), and is a modification of EPA method 300.0.</p> <p>^g Methods specified are from <i>Test Methods for Evaluating Solid Waste</i> (EPA 1986).</p> <p>^h Methods specified are from the contracts with Roy F. Weston Inc. (methods with prefix PRO- and RL-), and Thermo-Analytical Inc. (all other methods listed).</p> <p>ⁱ Parameter shall be measured in the field in compliance with EII 5.8, "Groundwater Sampling" (Brown 1989)</p> <p>^j Parameter varies depending on the constituent(s) found present. For details of these parameters, refer to the reference cited for the analytical method.</p> <p>^k For radiological analysis Relative Percent Difference between the sample and duplicate analysis must be within the control limits of ±35% for results >5X the LLD. A control limit of ± 2X the LLD is applied if one or both of the sample values are <5X the LLD. If both values are < LLD, no control limit is applicable.</p> <p>^l Analytical methods shall be approved Westinghouse Hanford or Westinghouse Hanford-approved participant contractor or subcontractor procedures. All procedure reviews and approvals shall be in compliance with applicable Westinghouse Hanford procedure control or procurement procedures as noted in Sections 2.1 and 2.2.</p>									

ECN-186756 Pg. 29 of 33

Change Number 300-FF-5-19	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date July 29, 1992
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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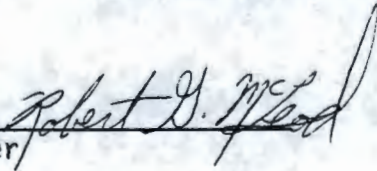
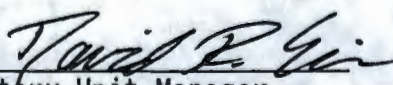
Originator B. E. Innis, 300-FF-5 Assistant RI Coordinator	Phone (509) 376-4034
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Description of Change

Task 3 pages WP-156 and WP-157 of the 300-FF-5 RI/FS Work Plan discusses performing sediment leaching and adsorption-desorption tests on selected "highly contaminated" samples from the vadose zone (obtained in 300-FF-1 investigation) and the upper unconfined aquifer. This change form will defer these vadose zone and aquifer sample tests until the treatability testing for 300-FF-1 soils is completed, when the need for this testing can be re-evaluated.

Justification and Impact of Change

No "highly contaminated" soil samples from the saturated zone were found in the groundwater monitoring wells for use in the adsorption-desorption testing. A source of groundwater with sufficient contaminants for testing purposes has not been identified in the 300-FF-5 OU. The only 300-FF-1 soil samples that contain contamination above MTCA limits for the contaminants of concern occur within the top 5' of soil. If the treatability test for the 300-FF-1 is successful, all of these soils will be treated to remove the low concentrations of contaminants present to a proposed depth of 10'-15' and would not pose a risk of potentially leaching into the ground-water.

R. G. McLeod DOE Unit Manager	 Date 9-21-92
D. R. Einan Lead Regulatory Unit Manager	 Date 21 Sept 92

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551038

Change Number 300-FF-5-20	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 07/28/92
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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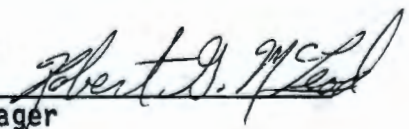

Description of Change

The description for Task 5 - Surface Water and Sediment Investigation subdivides data collection into 3 phases. This change form proposes to defer phase 2 and 3 activities until the Phase 2 RI at which time evaluation of data collected during the Phase I RI will have been completed. This presumes that collection of samples in 1992 is possible. Only collection of spring water, groundwater from wells adjacent to several springs, spring sediment, and nearshore river water samples will be collected during the Phase I RI. All other activities described as phase 2 and 3 will be deferred to the Phase II RI. This includes survey and sampling of springs on the east side of the river (Section 5.3.5.2), near shore sediment sampling (WP-183), determination of background near shore river concentrations (WP-183), bathymetric surveys and velocity measurements (WP-184), and Task 5d Transect River Water (Section 5.3.5.4).

Note: Include affected page number Task 5, Section 5.3.5, WP-178 - WP-187, and Task 5, Section 2.0, SAP/FSP-22 - 27

Justification and Impact of Change

Due to high water conditions encountered during 1991 which prevented sampling it is necessary to postpone several activities to the Phase 2 RI. Pending successful collection of samples in 1992 it will be possible to better define future needs for the Phase 2 RI.

R. G. McLeod  DOE Unit Manager	<u>9-24-92</u> Date
D. R. Einan  Lead Regulatory Unit Manager	<u>24 Sept 92</u> Date

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

92127551039

Change Number 300-FF-5-21	APPROVED DOCUMENT CHANGE CONTROL FORM Do not use blue ink. Type or print in black.	Date 09/22/92
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Document Number & Title DOE/RL 89-14, "Remedial Investigation/ Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington	Date Document Last Issued June, 1990
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Originator L. C. Hulstrom, 300-FF-5 RI Coordinator	Phone (509) 376-4034
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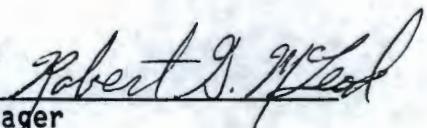
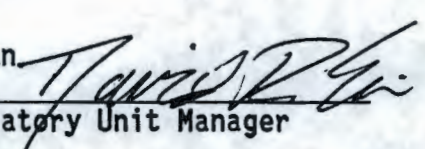
Description of Change

In Task 5C, Near Shore River Water and Sediment, described in Section 5.3.5.3 of the work plan a sampling scheme is described. This is shown as Figure 43 in the work plan. As a result of a meeting held on September 17, 1992 with the regulators it was agreed that sampling of the river would be modified. Figure 1 from the FSP (WHC-SD-EN-AP-107) for this activity is also attached and identifies the 4 major spring locations that were sampled in conjunction with the river sampling. Upriver from spring site 6 a transect sampling at about 3 ft, 10 ft, and 20 ft from shoreline would be performed. Samples would be taken at mid river depth from each location. Immediately below spring site 9 a similar transect sampling would be performed. Downstream from spring site 11 a third and final transect sampling would be performed. Instead of 4 samples at all spring locations only 3 samples at 3 locations would be taken.

Note: Include affected page number Section 5.3.5.3 (WP-181-184), Figure 43 (WP-182), Section 2.2 (SAP/FSP-23), Table 6 (SAP/FSP-24), Figure 5 (SAP/FSP-26)

Justification and Impact of Change

Spring Sites 6, 7, 9, and 11 are representative of the springs that discharge into the river at the 300 Area. Transect sampling at sites 6 and 11 represent upstream and downstream conditions while site 9 represents discharge from a spring. Transect sampling at 3, 10, and 20 ft from shoreline relates to dispersion of the springs in the river. Sufficient data will be obtained by this method of sampling from which impacts to the river from the springs may be assessed.

R. G. McLeod DOE Unit Manager	 Date 9-24-92
D. R. Einan Lead Regulatory Unit Manager	 Date 24 Sept 92

Per Action Plan for Implementation of the Hanford Consent Order and Compliance Agreement Section 9.3

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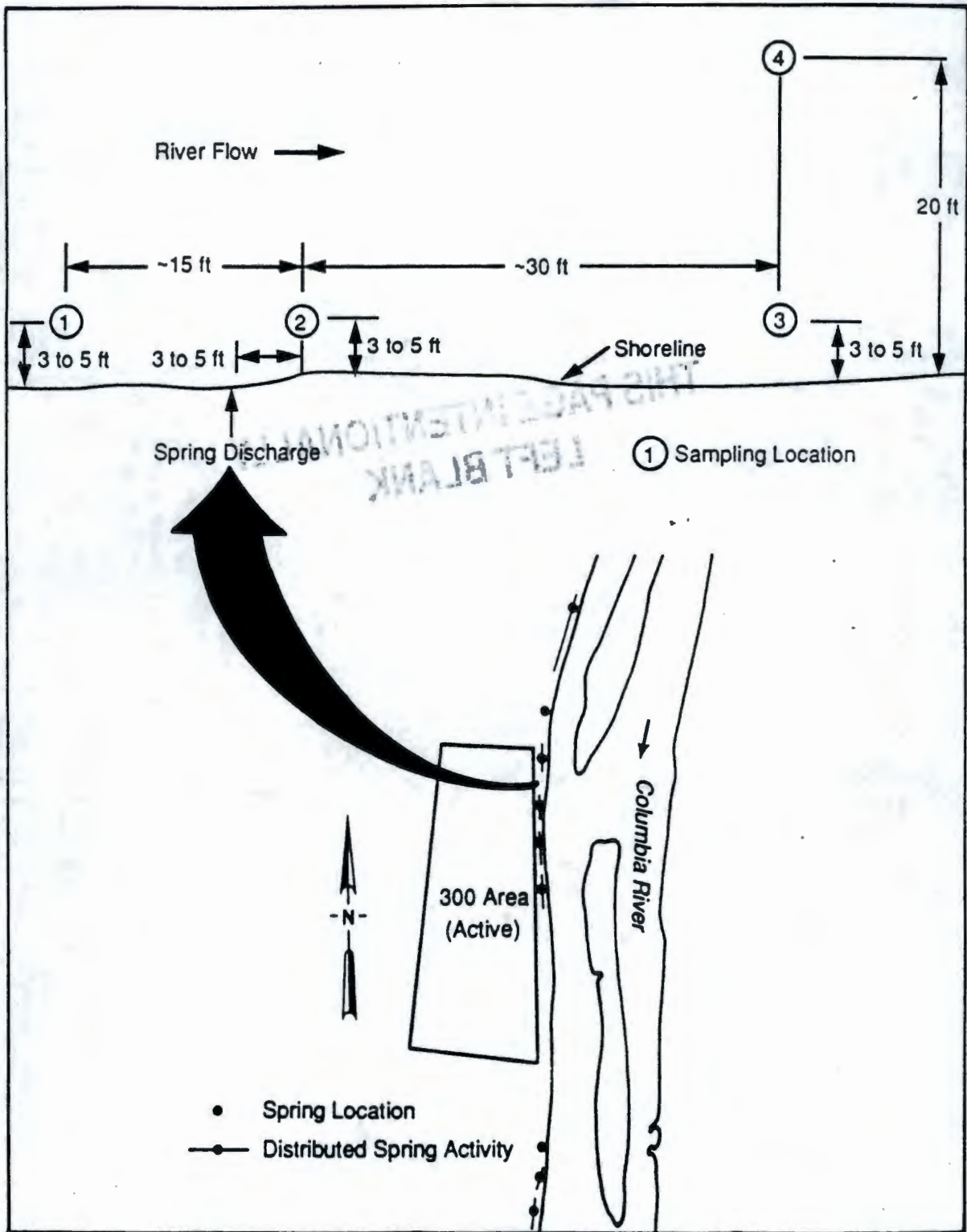


Figure 43. River Sampling Layout Associated with Riverbank Spring Locations.

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Date Received: 9/28/92

INFORMATION RELEASE REQUEST

Reference: WHC-CM-3-4

Complete for all Types of Release

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