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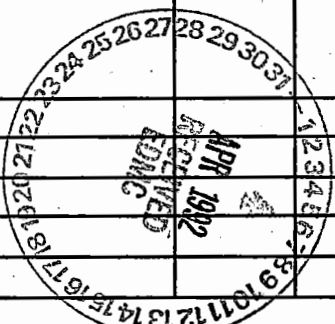
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Page 1 of 1

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1,2	1	Cog. Eng. MT Stankovich	<i>[Signature]</i>	3/18/92	H4-55				
1,2	1	Cog. Mgr. RP Henckel	<i>[Signature]</i>	3/18/92	H4-55				
1,2	1	QA GS Corrigan	<i>[Signature]</i>	3-30-92	3-30-92				
		Safety							
1,2	1	Env. Mgr. R. E. Nay	<i>[Signature]</i>	3/30/92	H4-55				

18. Signature of EDT Originator <i>[Signature]</i>		19. Authorized Representative for Receiving Organization <i>[Signature]</i>		20. Cognizant/Project Engineer's Manager <i>[Signature]</i>		21. DOE APPROVAL (if required) Ltr. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments	
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SUPPORTING DOCUMENT

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3. Number

WHC-SD-EN-AP-080

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116-C-5

6. Author

Name: M. T. Stankovich

M.T. Stankovich 3/18/92
Signature

Organization/Charge Code 81221/PHIAA

7. Abstract

U. Birkland
3/30/92

This activity plan details the field activities associated with the nonintrusive source sampling in the 100 Area of the Hanford Site and will serve as a field guide for those performing the work.

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1.0 SCOPE OF WORK

This document details the source investigation field activities of the 100-BC-1 Operable Unit and will serve as a field guide for those performing the work. It should be used in conjunction with *Remedial Investigation/Feasibility Study Work Plan for 100-BC-1 Operable Unit, Hanford Site, Richland, Washington* (DOE-RL 1991) for general investigation strategy and with *Environmental Investigations and Site Characterization Manual* (WHC 1988a) for specific procedures. This description of work (DOW) describes specific limited field investigation (LFI) activities and sampling locations in accordance with discussions initiated at the June 27, 1991, 100 Area work plan rescoping meeting and the January/February 1992, comment resolutions meetings.

This DOW addresses sampling of the 116-C-5 Retention Basin. The 100-B Electrical Facilities sampling was addressed in a previous DOW (Stankovich 1991). The 116-B-2 Fuel Storage Basin trench sampling activity has been removed as a source investigation activity and moved into the vadose drilling by comment resolution to the work plan (DOE-RL 1991).

2.0 GENERAL REQUIREMENTS

2.1 HEALTH AND SAFETY

All personnel working to this description will perform 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 1988b)
- WHC-CM-4-11, *ALARA Program Manual* (WHC 1988c)
- WHC-CM-4-3, *Industrial Safety Manual*, Vol. 1 through 3, (WHC 1987)
- WHC-CM-7-5, *Environmental Compliance Manual* (WHC 1988d)
- WHC-SD-EN-SAD-002, *100 Area Low Hazard Characterization Activities Safety Assessment*, Rev. 0 (Taylor 1991)
- Site-specific job safety analysis.

2.2 PREREQUISITES

A readiness review (RR) will be completed by the cognizant engineer before the sampling task is attempted. The RR will be completed per Environmental Investigation Instruction (EII) 1.13, Environmental Engineering and Geotechnology Readiness Review (WHC 1988a). The Sampling Status Checklist (Attachment 1) will be initialed by the cognizant engineer or field team leader and dated as each step of the task is completed.

3.0 SAMPLING AND FIELD ACTIVITIES

3.1 LOCATION

This DOW addresses the sampling of the residual sludge in the bottom of the 116-C-5 Retention Basins. The site is described in the 100-BC-1 Operable Unit work plan (DOE-RL 1991, Section 2.1.4.1.1 & 3.1.1.1.2). The 116-C-5 Retention Basins are being sampled to determine the nature of the contamination in the sludge. The work plan (DOE-RL 1991, Figure 2-1) shows the location of the basins in relation to other landmarks in 100-B/C Area. Figure 1 shows the 116-C-5 Retention Basins location and immediate landmarks in 100-BC-1 Operable Unit.

3.2 SAMPLE ANALYSIS

3.2.1 Contaminants of Concern

The contaminants of concern for the 116-C-5 Retention Basins are low level fission and activation products from the discharge cooling water from regular reactor operation. Water treatment chemicals are also a possible contaminant of concern (DOE-RL 1991, Sections 2.1.4.1.1 and 3.1.1.1.2).

3.2.2 Laboratory Analysis

All samples will be analyzed per Section 5.0. The list of analytes is consistent with the work plan (DOE-RL 1991, Appendix A, Table QAPjP-1) with hexavalent chromium being added for informational purposes only. The field sampler will collect the sample in the following order and will record the event in the sampling logbook per EII 1.5, Field Logbooks (WHC 1988c):

1. Target Compound List (TCL) Volatiles
2. Radioisotopes
3. TCL Semivolatiles/PCB/Pesticides
4. Target Analyte List (TAL)
5. Anions: Fluoride, Nitrate, Sulfate
6. Hexavalent chromium
7. Total Activity.

3.3 TEST PIT CONSTRUCTION

Three test pits will be constructed in each retention basin. Approximate locations for these test pits are as shown in Figure 2. Each test pit will be of a size to allow for the appropriate material volume to be collected. Approximately 3 ft of overfill and 1/4 to 1/2 in. of residual sludge material are expected within the retention basins. Excavated overfill will be surveyed by the Health Physics Technician per the Radiation Work Permit. The excavated overfill will be temporarily placed on a sheet of plastic or silver-backed paper near the test pit. The residual sludge material will be collected and composited per Section 3.4. The excavated overfill will be replaced in the test pit per EII 5.2, Soil and Sediment Sampling, Appendix F, (WHC 1988a) after collection of the material. The area will be returned to its original condition.

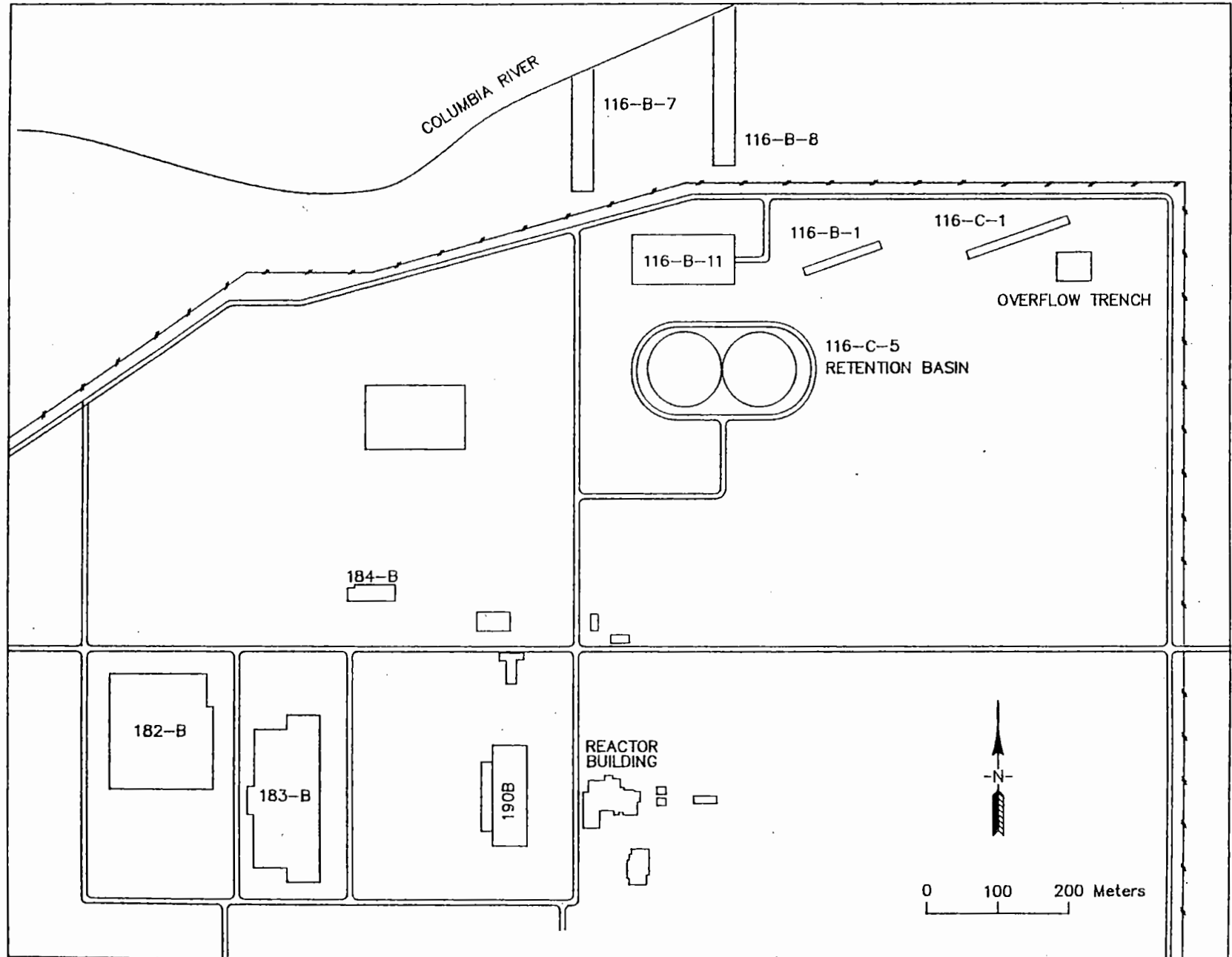


Figure 1. 100-C Retention Basin.

WHC-SD-EN-AP-080, Rev. 0

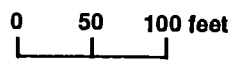
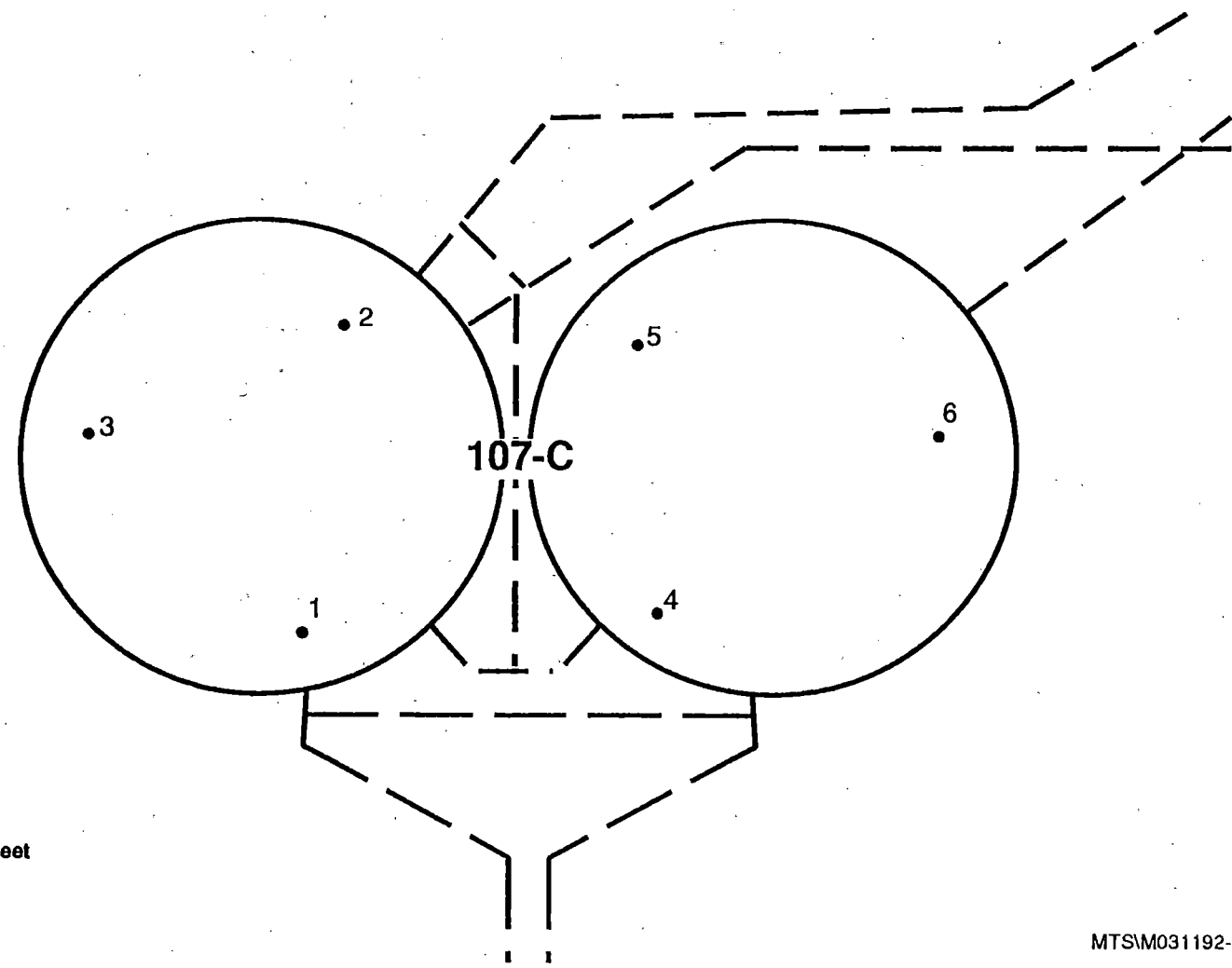
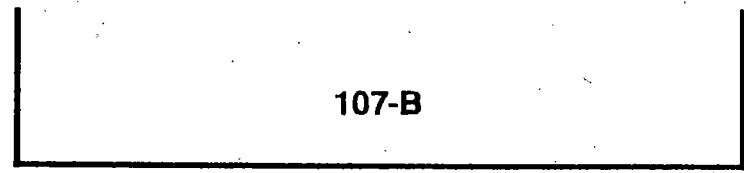


Figure 2. Typical Retention Basin Layout:

3.4 SAMPLE COLLECTION

Sample collection shall be biased to collect only the residual sludge material. The material shall be collected per EII 5.2, Soil and Sediment Sampling, Appendix F (WHC 1988a) from the bucket of the excavator. One TCL volatile sample will be collected from each test pit. The remaining residual sludge material shall be composited into a sample for analysis of the remaining analytes as listed in Section 3.2.2.

The composite sample shall consist of equal amounts of material from each of the three test pits. The composite sample shall be a homogenous mixture of the material. The sample will be collected in the order shown in Section 3.2.2. A field logbook (WHC-N-429-1) will be used to document activities associated with the sample collection. The logbook will be used and maintained per EII 1.5 Field Logbooks (WHC 1988a).

A total of 11 samples will be collected including quality assurance/quality control (QA/QC). The trip blank and field blank have been deleted per EPA\540\G-87\003 (EPA 1987). The equipment blank media shall be silica sand. The following is a summary of the samples to be collected:

- TCL volatile (west retention basin test pit #1)
- TCL volatile (west retention basin test pit #2)
- TCL volatile (west retention basin test pit #3)
- Composite sample #1 (west retention basin)
- QA duplicate sample (west retention basin)
- QA equipment blank (silica sand)
- TCL volatile (east retention basin test pit #4)
- TCL volatile (east retention basin test pit #5)
- TCL volatile (east retention basin test pit #6)
- Composite sample #2 (east retention basin)
- QA split sample (east retention basin).

4.0 SAMPLE LABELING

The Hanford Environmental Information System (HEIS) is used to track the sample and laboratory data obtained during environmental investigations conducted under this DOW. Each sample will be identified and labeled with a unique HEIS sample number. HEIS numbers will be assigned in the field per EII 1.11, Technical Data Management (WHC 1988a). The sample location and corresponding HEIS numbers will be documented in the field logbook (WHC-N-429-1).

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5.0 ANALYSES

Samples collected for chemical analysis will be analyzed for the full suite of Comprehensive Environmental Restoration, Compensation, and Liability Act of 1980 (CERCLA) Contract Laboratory Program (CLP) TCL and TAL constituents, specific anions, radionuclides, and for hexavalent chromium. Hexavalent chromium shall be analyzed for informational purposes only and is not a requirement of the work plan (DOE-RL 1991). Estimated quantity of material needed for analyses are shown below. The laboratory will use existing Level IV methods for the CLP TCL and TAL constituents, Level V methods for radionuclides, and Level III methods for hexavalent chromium. The specific anions will be analyzed using the a modified U.S. Environmental Protection Agency (EPA) 300 method (EPA 1986). Sample custody will follow the procedures as specified in the 100-BC-1 Operable Unit work plan (DOE-RL 1991, Appendix A, Section 5.1) and EII 5.1, Chain of Custody (WHC 1988a).

Analyte	Method	Holding Time	Container/Volume
ICP/AA metals, mercury, and cyanide	CLP	6 mo, 28 d, & 14 d	Glass/250 mL
Volatile organic	CLP	14 d	Glass/125 mL
Semivolatile organic PCB/pesticides	CLP	7 d ^a	Amber glass/1,000 mL
Anions: Fluorides, Nitrates, Sulfates	EPA 300 modified	28 d, 48 h ^c , + 28 d	
Hexavalent chromium	SW-846 7197	24 h ^b	Glass/250 mL
Carbon-14 Strontium-90 Gross alpha Gross beta Gamma spec Alpha spec ^d	Lab SOP	6 mo	Glass or plastic/1,000 mL
Total Activity (222-S Lab)		6 mo	Plastic or glass vial (at least 1 g)

^a7 d for extraction, 40 d after extraction for analysis.

^bHexavalent chromium is for informational purposes only; 24-h holding time may be missed.

^c48 h for extraction.

^dIsotopes of concern are ^{235,238}U, ^{239/240}Pu, and ²⁴¹Am.

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6.0 QA/QC REQUIREMENTS

Internal QA/QC samples shall be collected as specified in Appendix A, Quality Assurance Project Plan (DOE-RL 1991) and documented in the sampling logbook per EII 1.5, Field Logbooks (WHC 1988a). The trip blank and field blank have been deleted per EPA\540\G-87\003 (EPA 1987). The equipment blank media shall be silica sand.

<u>QA Sample</u>	<u>QC</u>	<u>Medium</u>
Equipment Blank 1 sample	A pedigree of the matrix will be included in the project file.	Silica Sand
Duplicate Sample 1 sample		West Retention Basin residual sludge material
Split Sample 1 sample		East Retention Basin residual sludge material

7.0 SCHEDULE

The 116-C-5 sampling activity is scheduled to be initiated during the last part of April, 1992, with a 3- to 5-d duration. The activity is scheduled to be completed by the end of April, 1992. This schedule is subject to change and the U.S. Department of Energy, Richland Field Office (RL) operable unit manager should be contacted for current status. An Agreement Activity Notification form will be issued at least 5 d prior to the start of field work.

8.0 CHANGES TO DESCRIPTION OF WORK

Major changes to this DOW, such as analyzing different parameters or using different analytical methods, will be submitted on the Project Change Form (Attachment 2). The change will require, at least, the verbal approval of field team leader and the operable unit coordinator. The change will be filed as an Engineering Change Notice (ECN) and a copy will be inserted into the 100-BC-1 project file. Copies will be submitted to the regulatory agencies and the appropriate field personnel within 10 working days of the change.

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9.0 REFERENCES

- DOE-RL, 1991, *Remedial Investigation/Feasibility Study Work Plan for the 100-BC-1 Operable Unit, Hanford Site, Richland, Washington*, DOE/RL-90-07, Draft B, U.S. Department of Energy, Richland Field Office, Richland, Washington.
- EPA, 1986, *Test Methods for Evaluating Solid Waste Physical/Chemical Methods*, SW-846, U.S. Environmental Protection Agency, Washington, D.C.
- EPA, 1987, *Data Quality Objectives for Remedial Response Activities, Development Process*, EPA\540\G-87\003, U.S. Environmental Protection Agency, Washington, D.C.
- Stankovich, M. T., 1991, *100-H & 100-B Area Electrical Facilities Source Sampling*, WHC-SD-EN-AP-064, Rev 0, Westinghouse Hanford Company, Richland, Washington.
- Taylor, W. E., 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, *Environmental Investigations and Site Characterization Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988b, *Radiation Protection*, WHC-CM-4-10, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988c, *ALARA Program Manual*, WHC-CM-4-11, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1988d, *Environmental Compliance Manual*, WHC-CM-7-5, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1990a, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan*, WHC-EP-0383, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

100-AREA NONINTRUSIVE
SOURCE SAMPLING STATUS CHECKLIST

Sampling Task: _____

Signature/Date

LANDLORD CONTACTED FOR ENTRANCE

100 AREA ENVIRONMENTAL PROTECTION NOTIFIED

PREJOB SAFETY MEETING COMPLETED

SAMPLES COLLECTED AND LABELED

SAMPLES SURVEYED BY HPT

SAMPLE PACKAGED IN SHIPPING CONTAINER

TOTAL ACTIVITY SCAN OF SAMPLES COMPLETED

CHAIN OF CUSTODY FORM COMPLETED

SAMPLES SHIPPED TO LABORATORY

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ATTACHMENT 2
100-BC-1 NONINTRUSIVE SOURCE SAMPLING PROJECT CHANGE FORM

Date: _____

Person Initiating Change: _____

Change: _____

Reason for Change: _____

APPROVAL:

Field Team Leader: _____

Operable Unit Coordinator: _____

Environmental QA Representative: _____

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INFORMATION RELEASE REQUEST

References:
WHC-CM-3-4

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Title Source Investigation Field Activities for the 100-BC-1 Operable Unit Description of Work	Unclassified Category UC- NA	Impact Level 4
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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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will material be handed out? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Title of Conference or Meeting NA			

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Publication Services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	D. E. Smith	<i>D.E. Smith</i>	3/24/92
Other Program	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
References Available to Intended Audience	<input checked="" type="checkbox"/>	<input type="checkbox"/>	R. E. Day	<i>RE Day</i>	3-16-92
Transmit to DOE-HQ/Office of Scientific and Technical Information	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

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

Author/Requestor (Printed/Signature) R. E. Day <i>RE Day</i>	Date 3/16/92
Responsible Manager (Printed/Signature) M. J. Lauterbach <i>M. J. Lauterbach</i>	Date 3/16/92
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R. P. Henckel

From:
M. T. Stankovich

Date:
March 17, 1992

Project Title/Work Order:

100 Area Nonintrusive Source Sampling Description

EDT No.: 158320

ECN No.:

Name	MSIN	With Attachment	EDT/ECN & Comment	EDT/ECN Only
D. R. Baker	H7-02	X		
G. S. Corrigan	H4-16	X		
R. E. Day	H4-55	X		
K. A. Gano	X0-21	X		
E. D. Goller	A5-19	X		
J. D. Goodenough	A5-19	X		
C. E. Heiden	H4-55	X		
D. O. Hess	L6-57	X		
J. E. Hodgson	X7-02	X		
W. L. Johnson	H4-55	X		
A. D. Krug	H4-55	X		
R. Mabry	X7-02	X		
N. M. Naiknimbalkar	H4-55	X		
J. F. Ranken	X7-02	X		
M. T. Stankovich	H4-55	X		
J. Vaughn	N3-06	X		
EDMC (2)	H4-22	X		
Central Files	L8-04	X		
IRM Clearance	H4-17	X		