START

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ENGINEERING CHANGE NOTICE

Page 1 of 1

1. ECN 164712

Proj. ECN

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

3. Originator's Name, Organization, MSIN, and Telephone No. W81221
M. T. Stankovich, RR/ENV/EEG, H4-55, 6-2493

4. Date
January 14, 1992

5. Project Title/No./Work Order No. PHIAA
100 Areas Nonintrusive Source Sampling Description

6. Bldg./Sys./Fac. No.
108-D

7. Impact Level
3

8. Document Number Affected (include rev. and sheet no.)
WHC-SD-EN-AP-067, Rev mo 1 0

9. Related ECN No(s).
NA

10. Related PO No.
NA

11a. Modification Work	11b. Work Package Doc. No.	11c. Complete Installation Work	11d. Complete Restoration (Temp. ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	NA	NA Cog. Engineer Signature & Date	NA Cog. Engineer Signature & Date

12. Description of Change
Updating the description of work to include regulator comments for the sodium dichromate tank sampling and to add three new sample activities: 108-D Office/Decon Facility, 100-DR-1 Septic System, and 166-D Fuel Oil Tank.

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

13b. Justification Details
Sampling activity required by the Tri-Party Agreement.

14. Distribution (include name, MSIN, and no. of copies)
See ~~Attached~~. mo Distribution list

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Engineering Change Notice

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 164712

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

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

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

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 M. T. Stankovich	1/14/92	PE	
		QA	
Cog./Project Engr. Mgr. M. J. Lauterbach	1/14/92		
		Safety	
QA G. S. Corrigan	1-15-92		
		Design	
Safety			
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			

SUPPORTING DOCUMENT

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2. Title	3. Number	4. Rev No.
100 Areas Nonintrusive Source Sampling Description	WHC-SD-EN-AP-067	1

5. Key Words

Nonintrusive sampling
100-D Area
Sodium Dichromate Tanks
108-D Office/Decon Facility
100-DR-1 Septic System
166-D Fuel Oil Tank

6. Author

Name: M. T. Stankovich

Signature 1/13/92

Organization/Charge Code 81221/PH1AA

7. Abstract

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.

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

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9. Impact Level 3

10. Authorized Manager's Name M. J. Lauterbach 1/13/92

Authorized Manager's Signature

Specify Distribution Limit: EXT

11. RELEASE STAMP

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RECORD OF REVISION	(1) Document Number WHC-SD-EN-AP-067	Page 1

(2) Title
100 Area Nonintrusive Source Sampling Description

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
1 RS	(7) **Section 1.0**, Added new paragraph describing changes to the DOW.		
	Section 2.1, Deleted reference to WHC-CM-7-7 in this section.		
	Section 2.2, Added information about readiness reviews.		
	Section 3.1, Minor editorial changes to aid clarity.		
	Section 3.2, Added new section describing sampling at 108-D Office Building and Equipment Decontamination Station		
	Section 3.3, Added new section describing sampling at 100-DR Septic Tanks/Tile Fields.		
	Section 3.4, Added new section describing sampling at 166-D Fuel Oil Tank.		
	Section 4.0, Added clarification between field and analytical samples and where the sample information will be recorded.		
	Section 5.0, Added new analyses list for liquids and changed all chemistry methods to CLP.		
	Section 6.0, Clarified when QA samples will be taken.		
	Section 7.0, Added new section of sampling schedule.		

CONTENTS

FIGURES:

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1.0 SCOPE OF WORK

This document details the field activities associated with nonintrusive source sampling in 100-DR-1 Operable Unit of the Hanford Site and will serve as a field guide for those performing the work (DOE-RL 1991, Task 2). It should be used in conjunction with *RCRA Facility Investigation/Corrective Measure Study Work Plan for the 100-DR-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 describes specific limited field investigation (LFI) activities and sampling locations in accordance with discussions at the June 27, 1991 100 Area work plan rescoping meeting.

Revision 0 of this description of work addressed sampling of the sodium dichromate tank location. This revision adds the 108-D office building and equipment decontamination station, the 100-DR-1 septic tank/tile fields, an the 166-D fuel oil tank.

2.0 GENERAL REQUIREMENTS

2.1 HEALTH AND SAFETY

All personnel working to this description will perform all work in accordance with the following:

- WHC-EP-0383, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan* (WHC 1990)
- WHC-CM-4-10, *Radiation Protection* (WHC 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 will be completed by the cognizant engineer before each sampling task is initiated. The readiness review will be completed per EII 1.13, Environmental Engineering and Geotechnology Readiness Review, (WHC 1988a). The Job 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 SODIUM DICHROMATE TANKS

3.1.1 Location

This description addresses the sampling of the original sodium dichromate tank location described in the 100-DR-1 Operable Unit work plan (DOE-RL 1991, Section 2.1.4.9.5).

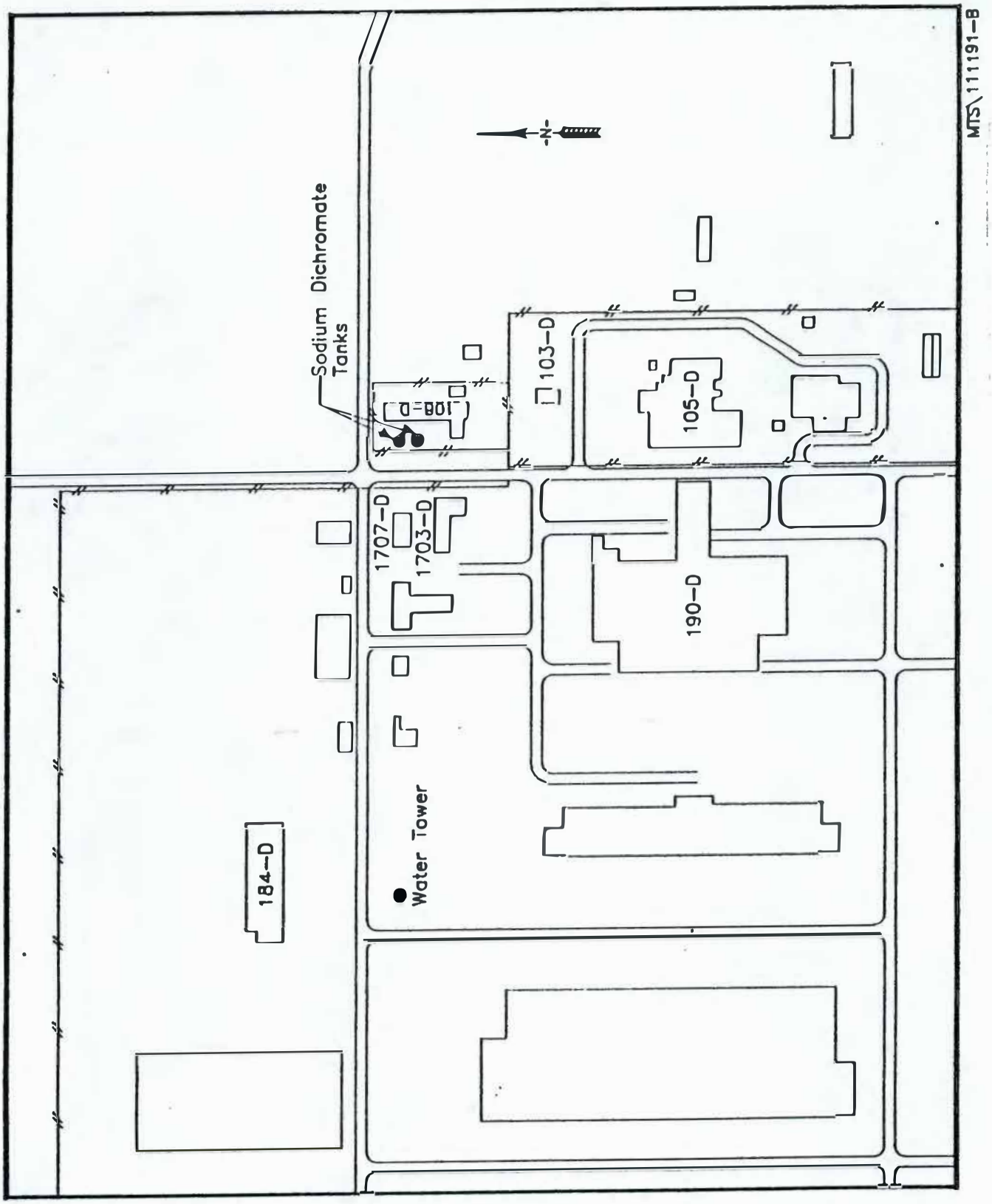
Two tanks were original installed aboveground west of 108-D building as shown in Figure 1. Photographs show the tanks inside the exclusion fence that surrounds the 108-D office/decontamination facility. The foundation of the tanks are believed to be under the fill material that was placed on the site after the 108-D building demolition.

3.1.2 Sample (Chemical)

The sample will be analyzed for:

Analyte	Method
Volatile	8240
Semivolatile	8270
PCB/Pesticides	8080
Phosphorus Pesticides	8140
Target Analyte List	6010
Mercury	7470
Anions	300.0
Cyanide	9010
Radiation	Performed under laboratory standard procedure
^{14}C	
^{90}Sr	
Gross Alpha	
Gross Beta	
Alpha Spec: to include $^{235/238}U$, $^{239/240}Pu$, and ^{241}Am	
Gamma Spec: report all identifiable and quantifiable isotopes	
Total Activity.	

Figure 1. 100-D Area Sodium Dichromate Tank Location.



3.1.3 Test Pit Construction

The test pit will be constructed at the dichromate tanks site within an area whose perimeter is approximately 5 ft greater than that of the tank's foundation pads (Figure 2). The perimeter will be staked out with the north boundary of the pit aligned with the north edge of building 1707-D foundation. The west boundary will be parallel to and 2 ft east of the exclusion area fence. The south boundary will be 40 ft from the north boundary. The east boundary will be 25 ft from the west boundary.

3.1.4 Sample Collection

As the test pit is excavated, one sample at each tank site will be field screened using a soil test kit for chromium (hexavalent). If the field screening detects chromium, a sample will be collected for offsite analysis. A minimum of two samples will be collected. In the event, field screening reveals that no chromium is present, samples will be collected from below and to the side of each tank site.

Field screening will be performed in accordance with the manufacturer's recommendations. Samples will be collected in accordance with Environmental Investigation Instruction (EII) 5.2, Soil and Sediment Sampling (WHC 1988a). 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 in accordance with EII 1.5, Field Logbooks (WHC 1988a).

3.2 108-D OFFICE BUILDING AND EQUIPMENT DECONTAMINATION STATION

3.2.1 Location

This section addresses the sampling of the soil at the north end of the 108-D office building site and adjacent to the sanitary sewer pipeline described in the 100-DR-1 Operable Unit work plan (DOE-RL 1991, Section 2.1.4.4.1). This site is being sampled because of the possibility that the integrity of the sewer pipeline was compromised by acidic decontamination fluids. The work plan (DOE-RL 1991, Figure 2-2) shows the location of the 108-D building in relation to other landmarks in 100-DR-1. A test pit, approximately 32 by 10 ft will be dug approximately 5 ft north of the 108-D building site. The sanitary pipeline location is shown in Figure 3.

A plot map of the 100-D Area sewer system shows where the sanitary drain line leaves the north side of the 108-D building. The sewer line goes north and crosses underneath the 100-D Area entrance road. After crossing the road, the sanitary line heads west until it ties into the main sanitary pipeline for the 1607-D2 sewer system. A ground-probing radar survey of the area was conducted for the vadose zone drilling of D-116-3 (December 1991). The survey showed the ground as being very disturbed and did not show the sanitary pipeline or the foundation of the 108-D building. Since there are no visible signs of the 108-D building, the location of the building will be identified and staked using aerial photos. The exact location of the sanitary pipeline egress from 108-D building is unknown, but is expected to be approximately 10 ft from the northeast corner of the building.

Figure 2. Sodium Dichromate Test Pit.

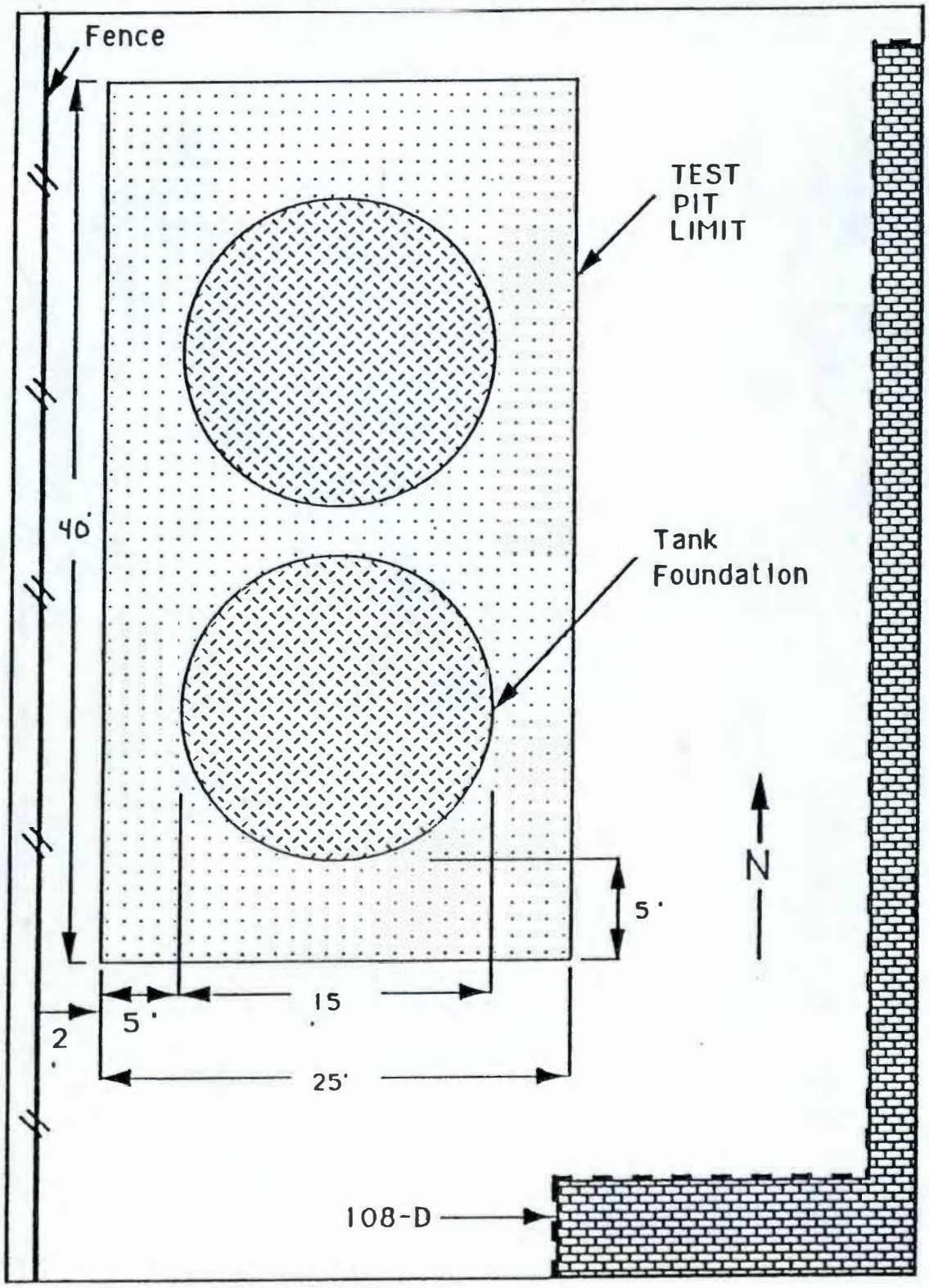
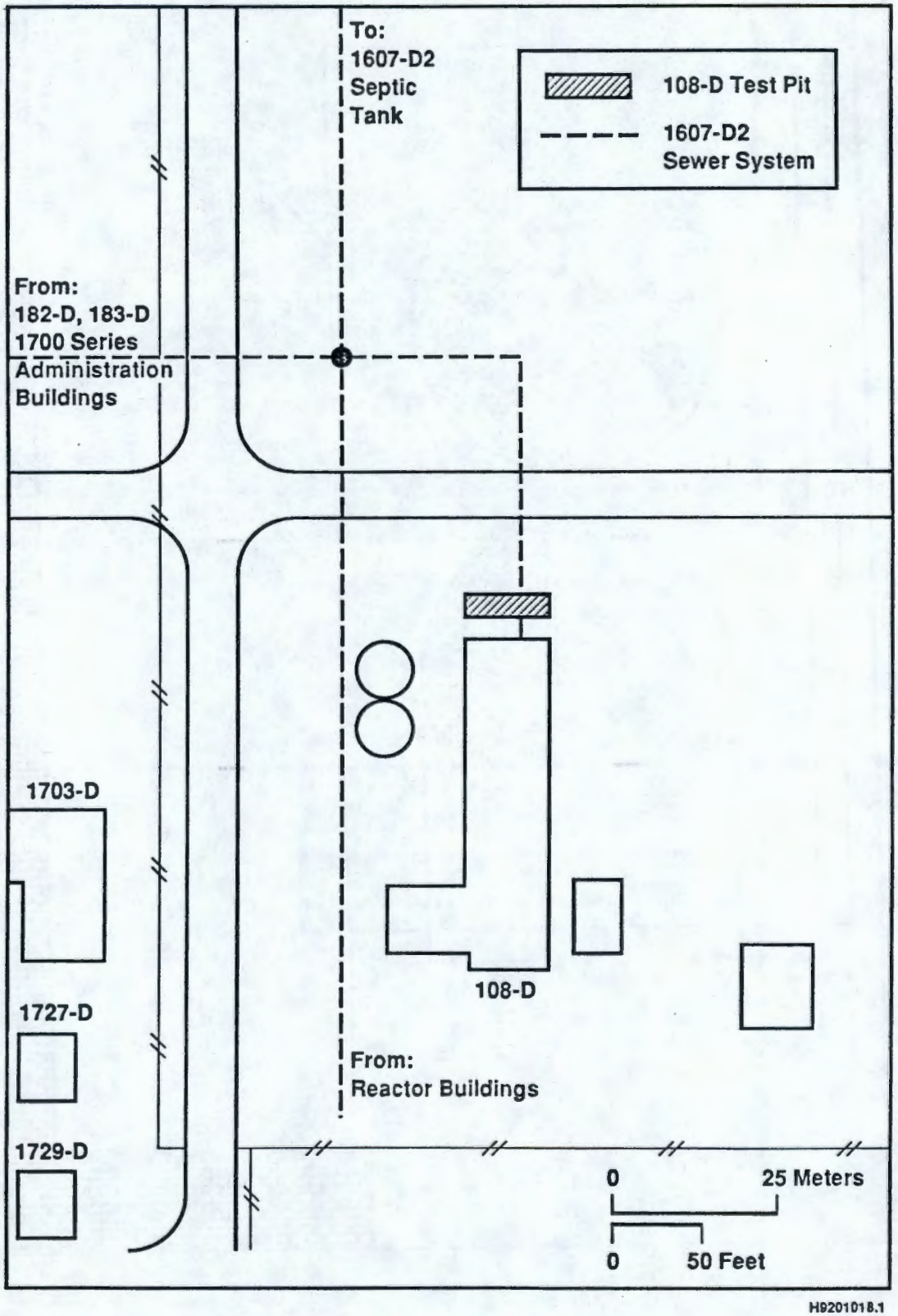


Figure 3. 100-D Area 108-D Building, Associated Structures and Test Pit.



The 108-D building was located just north of the 103-D fuel-element storage building and has been demolished. The building was a large structure with three floors and a basement, approximately 132 ft long, 32 ft wide, and 41 ft high. The 108-D building was built for the purpose of adding chemicals to the process water before it entered the reactor. The original purpose for this building, however, was abandoned and it was used as an office complex and a decontamination and repair shop for contaminated reactor process tube replacement equipment.

3.2.2 Sample Analysis

3.2.2.1 Contaminants of Concern. The contaminants of concern for the 108-D septic sewerline are: (1) low level fission products from the maintenance shops and cask decontamination pad (DOE-RL 1991); and (2) decontamination solution (DOE-RL 1991, Section 4.2.1.2.3).

3.2.2.2 Field Screening. The field screening discussed in this section is not for health and safety determination. Health and safety issues are covered in the Radiation Work Permit (RWP) or the Job Safety Analysis (JSA). Field screening covered in this section is for the purpose of selecting samples for laboratory analysis. Samples will be field screened for volatiles and radioactivity. If the Field Team Leader (FTL) finds radioactive contamination two times background or volatiles contamination five times background, a sample will be taken per Section 3.2.4.

All volatiles will be screened using an organic vapor monitor (OVM). Radiation field screening will be performed using a Geiger-Mueller (GM) instrument with a P-11 probe. The OVM will be calibrated and maintained per EII 3.4, Field Screening, (WHC 1988a).

3.2.2.3 Laboratory Analysis. The samples will be analyzed for:

Analyte	Method
Volatile	CLP (contract lab procedure)
Semivolatile	CLP
PCB/Pesticides	CLP
Phosphorus Pesticides	CLP
Target Analyte List	CLP
Mercury	CLP
TCLP (toxic characteristic leach procedure)	CLP
Cyanide	CLP
Anions	CLP
Radiation:	Performed under laboratory standard procedure
^{14}C	
^{90}Sr	
Gross Alpha	
Gross Beta	
Alpha Spec: to include $^{235/238}U$, $^{239/240}Pu$, and ^{241}Am	
Gamma Spec: report all identifiable and quantifiable isotopes	
Total Activity	

3.2.3 Test Pit Construction

The test pit will be constructed parallel to and no closer than 5 ft to the north side of the 108-D building. It will be approximately 32 ft long by 3 ft wide and 7 ft deep. It will be constructed per the JSA. Excavated material will be surveyed by the HPT per the RWP. If found to be in excess of the guidelines, material will be treated as contaminated. The excavated material will be replaced in the test pit as instructed by EII 5.2, Soil and Sediment Sampling, Appendix F, (WHC 1988a) when the testing is completed.

3.2.4 Sample Collection

Samples shall be taken from the bucket of the backhoe before the excavated material is placed on the ground. Prior to sampling, the bucket of excavated material shall be screened for radioactivity and organics. All sample material will be collected in the order shown in Section 3.2.2.3. A minimum of one sample or a maximum of two samples will be collected per the following guidance. Criteria for sample selection are as follows:

- Collect one sample the first time the material does not pass the radiation or organic screening criteria.
- If the sanitary sewer pipeline is located, collect one sample adjacent to and immediately below the pipeline elevation.
- If the sanitary sewer pipeline is not located, collect one sample at the bottom of the pit at the expected location of the pipeline.

All test pit material will be field screened for volatiles and radioactive per Section 3.2.2.2. Sample material will be collected per EII 5.2 Soil and Sediment Sampling, Appendix F (WHC 1988a). 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).

All samples collected will be packaged and sent to an offsite laboratory for analysis. The packaging of the samples is done per EII 5.11, Sample Packaging and Shipping (WHC 1988a). A chain of custody is initiated and maintained after the sample is collected. The chain of custody is done per EII 5.1 Chain of Custody (WHC 1988a).

Any excavated soil will be replaced in the test pit site after sampling is completed. This will be done per EII 5.2 Soil and Sediment Sampling, Appendix F (WHC 1988a).

3.3 100-DR SEPTIC TANKS/TILE FIELDS

3.3.1 Location

This section addresses the sampling of the three septic tanks and tile fields as described in the 100-DR-1 Operable Unit work plan (DOE-RL 1991, Section 2.1.4.6). The location of sanitary septic systems in relation with

other landmarks in the 100-DR-1 Operable Unit is provided by DOE (DOE-RL 1991, Figure 2-2). The sanitary sewer transfer, treatment, and disposal facilities to be sampled are the 1607-D2 (124-D-2), the 1607-D4 (124-D-4), and the 1607-D5 (124-D-5) sanitary septic systems. Figure 4 shows the locations of these facilities.

Sanitary sewage generated at the 100-D/DR Area was treated in underground septic tanks and subsequently discharged to associated tile fields. There is no documentation of hazardous wastes being disposed of in these facilities. Because of the diversity of the support functions carried out in the 100-D/DR Area (e.g., the laboratory and the maintenance shops, which included a paint shop and an automotive repair shop), it is conceivable that some chemical or radiological wastes could have been disposed of in these facilities.

Brief descriptions of the three facilities are as follows:

- 1607-D2 (124-D-2) sanitary septic system: This system is active. It's location is clearly documented in drawings, aerial photographs, and by field features. This tank served the 182-D, 183-D, 190-D, and several 1700-D office and maintenance service buildings. It also served the 118-D-6 reactor building. The septic tank is located in the area of the 116-D-7 and 116-DR-9 retention basins, in the northeast corner of the 100-DR-1 Operable Unit. The original tile field was constructed in the present location of 116-DR-9, but was relocated in 1950 when 116-DR-9 was constructed.

- 1607-D4 (124-D-4) sanitary septic system: The site appears to have been decommissioned, but no documentation was found to confirm this. This septic tank received sanitary sewage from the 115-D gas recirculation building. It is located in the southeast corner of 100-DR-1 near the 118-D-6 reactor building and related facilities. Although there are some conflicting descriptions as to the tank's location, it is believed to be approximately 100 ft east of the south end of the 115-D building.

- 1607-D5 (124-D-5) sanitary septic system. This system is active. It's location is clearly documented in drawings, aerial photographs, and by field features. This tank and tile field received sanitary sewage from the 181-D river pumphouse. It is located in the southwest corner of 100-DR-1 near the banks of the Columbia River adjacent to the river pumphouse.

3.3.2 Sample Analysis

3.3.2.1 Contaminants of Concern. The contaminants of concern for the sanitary septic system are: (1) solvent products from the maintenance shops (DOE-RL 1991, Section 4.2.1.2.3); and (2) possible low level radioactive contaminants from the reactor buildings (DOE-RL 1991, Section 4.2.1.2.3).

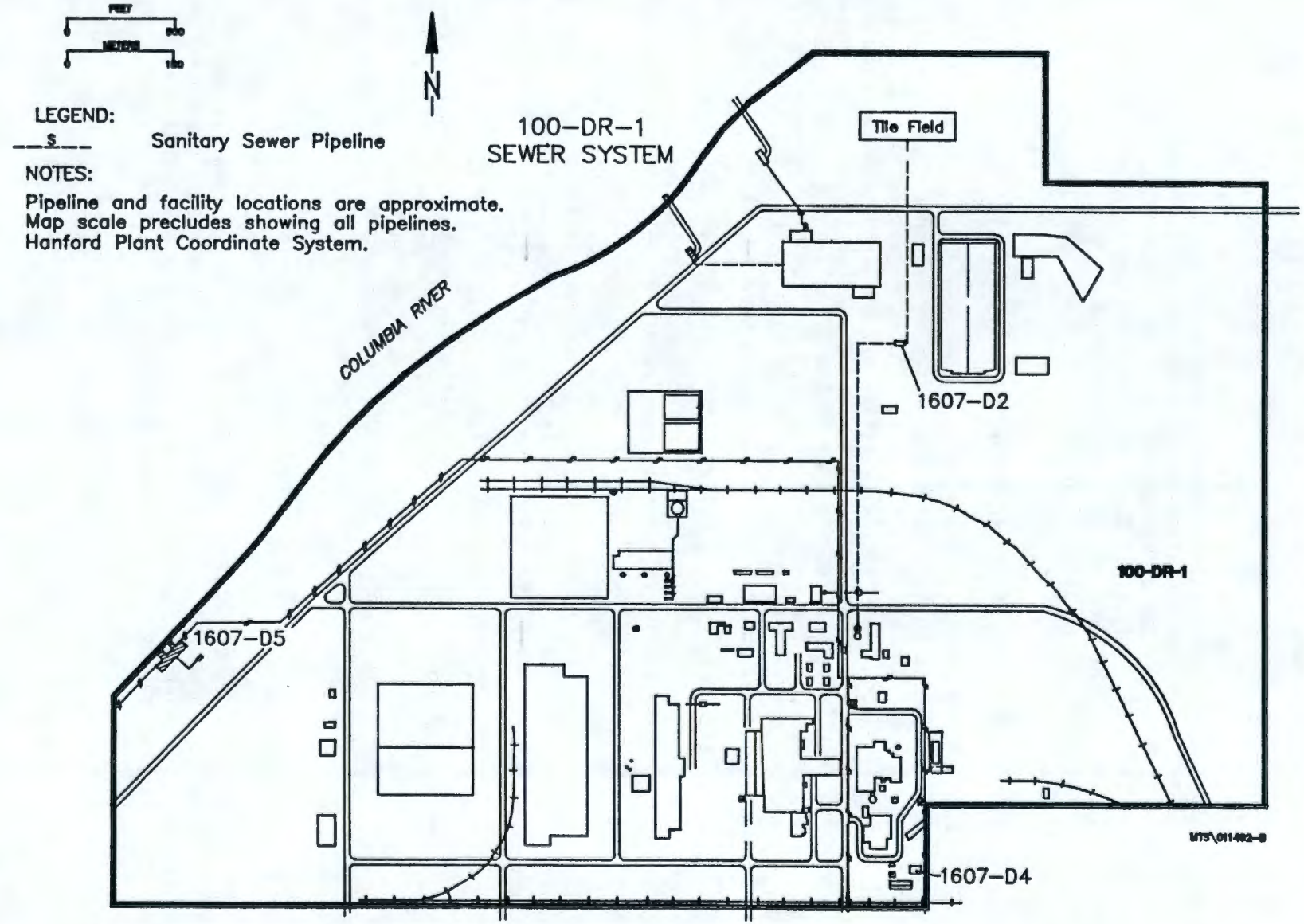


Figure 4. 1607-D2, 1607-D4, and 1607-D5 Sanitary Sewer Systems.

3.2.2.2 Field Screening. The field screening discussed in this section is not for health and safety determination. Health and safety issues are covered in the RWP or the JSA. Field screening covered in this section is for the purpose of selecting samples for laboratory analysis. Samples will be field screened for volatiles and radioactivity. If the FTL finds radioactive contamination two times background or volatiles contamination five times background, a sample will be taken per Section 3.3.4.

The samples will be field screened for volatiles and radioactivity. The volatiles will be screened using an OVA. Radiation field screening will be performed using a Geiger-Mueller (GM) instrument with a P-11 probe. The OVA will be calibrated and maintained per EII 3.4, Field Screening (WHC 1988a).

3.3.2.3 Laboratory Analysis. The soil samples will be analyzed for:

Analyte	Method
Volatile	CLP
Semivolatile	CLP
PCB/Pesticides	CLP
Phosphorus Pesticides	CLP
Target Analyte List	CLP
Mercury	CLP
TCLP	CLP
Cyanide	CLP
Anions	CLP
Radiation	Performed under laboratory standard procedure
^{14}C	
^{90}Sr	
Gross Alpha	
Gross Beta	
Alpha Spec: to include $^{235,238}U$, $^{239/240}Pu$, and ^{241}Am	
Gamma Spec: report all identifiable and quantifiable isotopes	
Total Activity.	

The liquid samples will be analyzed for:

Analyte	Method
Volatile	CLP
Semivolatile	CLP
PCB/Pesticides	CLP
Phosphorus Pesticides	CLP
Target Analyte List	CLP
Mercury	CLP
Cyanide	CLP
Anions	CLP
Sulfide	CLP
Radiation	Performed under laboratory standard procedure
^{14}C	
^{90}Sr	
^{99}Tc	
Gross Alpha	
Gross Beta	
Alpha Spec: to include $^{235,238}U$, $^{239/240}Pu$, and ^{241}Am	
Gamma Spec: report all identifiable and quantifiable isotopes	
Tritium	EPA 906
Total Activity.	

3.3.3 Inactive Septic Tank Sample Collection

The sampling activity of the 1607-D4 (124-D-4) sanitary septic system is divided into three parts: achieving access to the tank, sampling the contents of the tank, and returning the site to it's preexisting condition. This section only covers the source sampling of the tank. If the tank is not present or if it has been backfilled and access is not possible with hand-held equipment, sampling will be postponed and addressed at a later date.

Geophysics techniques EII 1.2, Geophysical Survey Work (WHC 1988a) will be used to locate and stake out the septic tank location. The cover material will be removed from the top of the septic tank to gain access to the cleanout ports. As the cleanout port covers are removed, the HSO and HPT will monitor as specified by the JSA and RWP.

After access to the tank is achieved, the field team leader will determine the sample(s) according to the following guidelines:

Situation	Criteria
Empty tank (no liquid, sludge, or fill material)	No sample will be taken. Document sampling attempt in field logbook and close tank.
Liquid	Take a sample of liquid from each compartment in tank. After liquid is sampled, probe liquid to verify presence of sludge below liquid. If sludge present, take sample. If no sludge is present, document sampling attempt in field logbook and close tank after sampling completed.
Sludge	Take sample of sludge from each compartment in tank. Document sampling in field logbook and close tank after sampling completed.
Fill material	If tank contains fill material, attempt to auger to bottom to determine if sludge is present. If sludge is present, take sample. Document sampling in field logbook. If auger attempt is unsuccessful, document in field logbook and close tank.

All material removed from inside of the septic tank will be field screened for volatiles and radioactivity per Section 3.3.2.2. All samples will be collected in the order shown in Section 3.3.2.3. Sludge samples will be collected per EII 5.2, Soil and Sediment Sampling, Appendix G (WHC 1988a). Liquid samples will be collected as recommended by the EPA (EPA 1986, Section 9.2.2.4). A field logbook (WHC-N-429-1) will be used to document activities associated with the sample collection. The log-book will be used and maintained per EII 1.5, Field Logbook (WHC 1988a).

All samples collected will be packaged and sent to an offsite laboratory for analysis. The packaging of the samples is done per EII 5.11, Sample Packaging and Shipping (WHC 1988a). A chain of custody is initiated and maintained after the sample is collected. The chain of custody is done per EII 5.1, Chain of Custody (WHC 1988a).

The excavated dirt will be replaced over the septic tank site after sampling is completed and the cleanout port cover has been secured. The excavation and return of the site to normal will be covered by EII 5.2, Soil and Sediment Sampling, Appendix F (WHC 1988a).

3.3.4 Active Septic Tank Sample Collection

In the active septic system tile fields, 1607-D2 (124-D-2) and 1607-D5 (124-D-5), one shallow auger boring close to the inlet of each tile field will be used for sample collection. Geophysics techniques will be used to assist in locating the augering location.

All augered material will be field screened for volatiles and radioactivity per Section 3.3.2.2. All samples will be collected in the order shown in Section 3.3.2.3. Sample material will be collected per EII 5.2, Soil and Sediment Sampling, Appendix E (WHC 1988a). 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).

All samples collected will be packaged and sent to an offsite laboratory for analysis. The packaging of the samples is done per EII 5.11, Sample Packaging and Shipping (WHC 1988a). A chain of custody is initiated and maintained after the sample is collected. The chain of custody is done per EII 1.5, Chain of Custody (WHC 1988a).

Any excavated soil will be replaced over the augered site after sampling is completed. This will be done per EII 5.2, Soil and Sediment Sampling, Appendix F (WHC 1988a).

3.4 166-D FUEL OIL TANK

3.4.1 Location

This section addresses the soil sampling at the site of the aboveground 180,000-gal diesel fuel storage tank (now removed) that was located at the confluence of the railroad tracks north of the 184-D powerhouse and described in the 100-DR-1 Operable Unit work plan (DOE-RL 1991, Section 2.1.4.9.4). The location of the 166-D fuel oil tank in relation to other landmarks in 100-DR-1 Operable Unit is shown in the work plan also (DOE-RL 1991, Figure 2-2).

3.4.2 Sample Analysis

3.4.2.1 Contaminants of Concern. The contaminant of concern for the 166-D fuel tank is diesel fuel (DOE-RL 1991, Section 2.1.4.9.4).

3.4.2.2 Field Screening. The field screening discussed in this section is not for health and safety determination. Health and safety issues are covered in the RWP or the JSA. Field screening covered in this section is for the purpose of selecting samples for laboratory analysis. Samples will be field screened for volatiles and radioactivity. If the FTL finds radioactive contamination two times background or volatiles contamination five times background, a sample will be taken per Section 3.4.4.

The samples will be field screened for volatiles and radioactivity. The volatiles will be screening using an OVM. Radiation field screening will be performed using a Geiger-Mueller (GM) instrument with a P-11 probe. The OVM will be calibrated and maintained per EII 3.4, Field Screening, (WHC 1988a).

3.4.2.3 Offsite Analysis. The soil samples will be analyzed for:

Analyte	Method
Volatile	CLP
Semivolatile	CLP
PCB/Pesticides	CLP
Phosphorus Pesticides	CLP
Target Analyte List	CLP
Mercury	CLP
TCLP	CLP
Cyanide	CLP
Anions	CLP
Radiation	Performed under laboratory standard procedure
^{14}C	
^{90}Sr	
Gross Alpha	
Gross Beta	
Alpha Spec: to include $^{235,238}U$, $^{239/240}Pu$, and ^{241}Am	
Gamma Spec: report all identifiable and quantifiable isotopes	
Total Activity.	

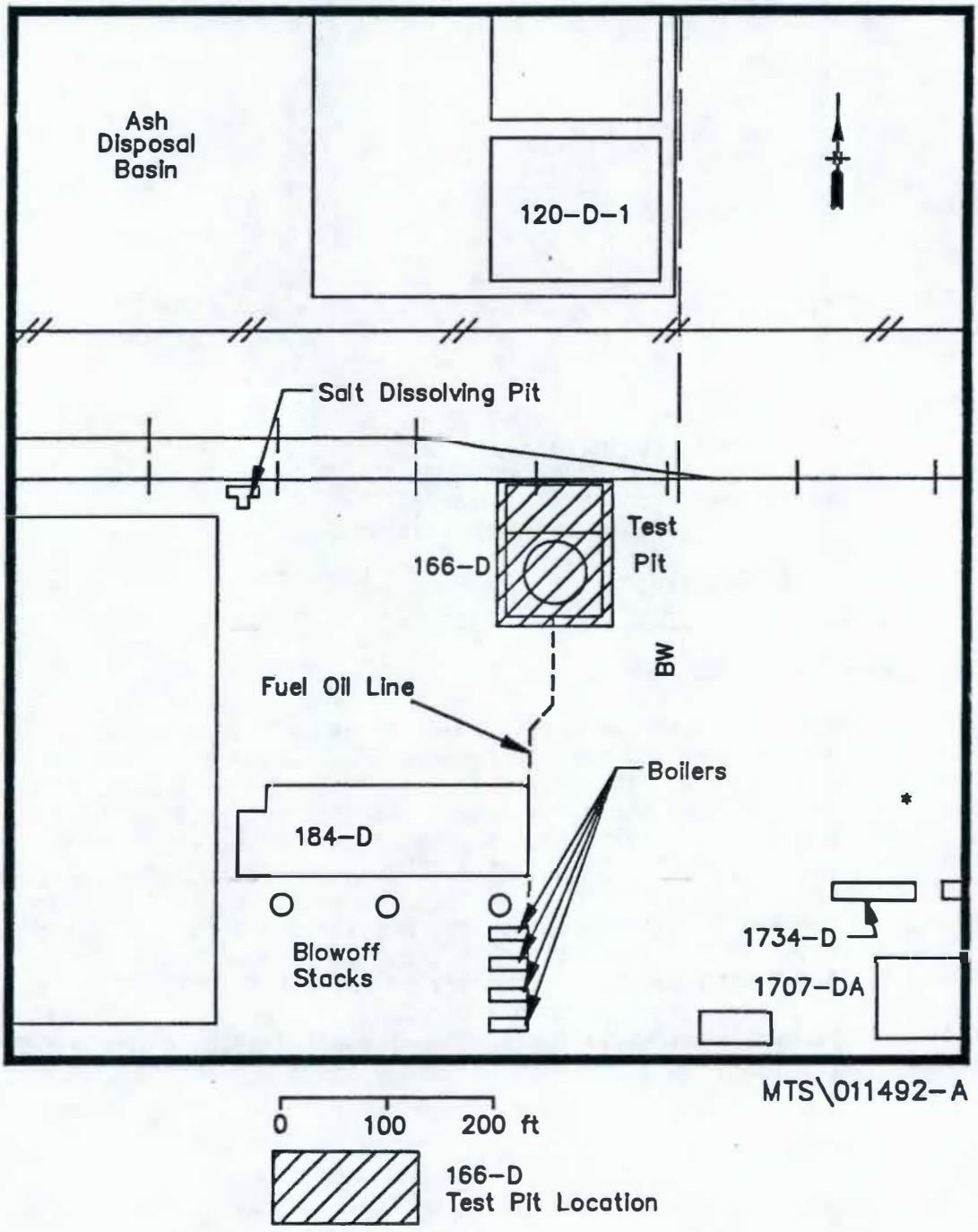
3.4.3 Test Pit Construction

The tank site was approximately 20 by 30 ft. This area will be staked out using available maps and aerial photographs. The test pit will form a cross over the tank site. The east-west arm of the test pit will start at the west boundary, 10 ft from the north edge. The test pit will be dug due east until the east edge of the site boundary is reached. The width of the pit will be approximately 3 ft (one bucket width). The north-south arm of the pit will start on the north edge and go south. The starting point will be 15 ft from the west edge. The width of the test pit will be 3 ft. Figure 5 shows the site location and the test pit perimeter. The perimeter of the test pit will be staked out with the north boundary of the pit 5 ft south and parallel to the railroad tracks. The north pit boundary will be 30 ft long. The sides of this test pit will run south for 40 ft. The pit will be a maximum of 4 ft deep.

3.4.4 Sample Collection

Excavation will begin at the west edge of the east-west arm and continue until the east edge is reached or field screening shows contamination. If screening shows contamination, a sample will be taken from the bucket, prior to dumping the material to the ground. Excavation will continue for another 6 ft. At that time, a second sample will be collected and sampling terminated. If no contamination is found on the east-west leg, excavation will resume on the north-south leg with sampling following the process just described. If no contamination is found, one sample will be collected from the intersection of the two legs.

Figure 5. 166-D Fuel Oil Tank Site.



All test pit material will be field screened for volatiles and radioactivity per Section 3.4.2.2. Sample material will be collected per EII 5.2, Soil and Sediment Sampling, Appendix F (WHC 1988a). 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).

All samples collected will be packaged and sent to an offsite laboratory for analysis. The packaging of the samples is done per EII 5.11, Sample Packaging and Shipping (WHC 1988a). A chain of custody is initiated and maintained after the sample is collected. The chain of custody is done per EII 5.1, Chain of Custody (WHC 1988a).

Any excavated soil will be replaced into the test pit site after sampling is completed. This will be done per EII 5.2, Soil and Sediment Sampling, Appendix F (WHC 1988a).

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 description of work. 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). Field sampling data will be collected and recorded in the field logbook (WHC-N-429-1).

5.0 ANALYSES

The laboratory will use EPA analytical methods (CLP Level IV). The sample volumes shall be collected unless modified by the Environmental Engineering Group cognizant engineer to accommodate additional requirements. Soil and sludge samples will be analyzed as shown below:

Analyte	Method	Holding Time	Container/Volume
AA metals and mercury	CLP	6 mo	Glass/250 mL
Cyanide	CLP	14 d	Glass/250 mL
Volatile organic	CLP	14 d	Glass/150 mL
Semivolatile organic PCB/pesticides	CLP CLP	7 d[a]	Amber glass/1,000 mL
Anions	CLP	48 h[b]	Amber glass/250 mL
TCLP	CLP	6 mo	Glass/250 mL
Carbon-14	Lab SOP	6 mo	Plastic or glass/10 g
Strontium-90 Gross alpha Gross beta Gamma spec	Lab SOP	6 mo	Glass/1,000 Ml
Alpha spec	Lab SOP		
Total Activity (222-S Lab)		6 mo	Plastic or glass vial (at least 1 g)

[a]7 d for extraction, 40 d after extraction for analysis.
[b]48 h for extraction.

Liquid samples will be analyzed as shown below:

Analyte	Method	Holding Time	Container/Volume
AA metals and mercury	CLP	6 mo	Glass/250 mL
Cyanide	CLP	14 d	Glass/250 mL
Volatile organic	CLP	14 d	Glass/150 mL
Semivolatile organic PCB/pesticides	CLP CLP	7 d[a]	Amber glass/1,000 mL
Anions	CLP	48 h[b]	Amber glass/250 mL
Carbon-14	Lab SOP	6 mo	Plastic or glass/10 g
Strontium-90 Gross alpha Gross beta Gamma spec	Lab SOP	6 mo	Glass/1,000 Ml
Alpha spec	Lab SOP		
Total Activity (222-S Lab)		6 mo	Plastic or glass vial (at least 1 g)

[a]7 d for extraction, 40 d after extraction for analysis.
[b]48 h for extraction.

6.0 QA/QC REQUIREMENTS

Internal QC samples shall be collected as specified in the work plan Appendix A, Quality Assurance Project Plan.

The following QA sample will be collected for the 108-D Office Building and Equipment Decontamination Station and the 166-D Fuel Oil Tank.

QA Sample	QC	Medium
Trip blank (one per trip container)	A pedigree of matrix will be included in project file.	Silica sand
Field duplicate (one sample)		First soil sample taken
Split (one sample)		First soil sample taken

The following QA sample will be collected for the 100-DR Septic Tank/Tile Fields.

QA Sample	QC	Medium
Trip blank (one per trip container)	A pedigree of matrix will be included in project file.	Deionized distilled water
Field duplicate (one sample of each matrix)		From chamber closest to inlet to tank water, sludge
Split (one sample of each matrix)		From chamber closest to inlet to tank
Equipment blank (one sample of liquid matrix)		Deionized distilled water
Field blank (one sample of liquid matrix)		Deionized distilled water

The FTL will document in the field logbook the QA sample's HEIS number, sample location, sample medium, and any relationship to other samples.

7.0 SCHEDULE

The following schedule is for nonintrusive source sampling in the 100-DR-1 Operable Unit. This schedule is subject to change and the operable unit coordinator should be contacted for current status. An agreement activity notification form will be issued at least 5 d before start of field work.

Sample task	Sampling date
108-D Office Building and Equipment Decontamination Station	Last 2 wk of March
100-DR Septic Tanks	Last 2 wk of March
16-D Fuel Oil Tank	Last 2 wk of March

8.0 CHANGES TO DESCRIPTION OF WORK

Major changes to this description of work, such as analyzing different parameters or using different analytical methods, will be submitted on the Source Sampling Project Change Form (Attachment 2). The change will require, at least, the verbal approval of FTL and operable unit coordinator. The change will be filed as an Engineering Change Notice (ECN) and a copy will be inserted into the 100-H and 100-B areas' project file. Copies will be submitted to the appropriate field personnel.

9.0 REFERENCES

DOE-RL, 1991, *RCRA Facility Investigation/Corrective Measure Study Work Plan for the 100-DR-1 Operable Unit, Hanford Site, Richland, Washington*, DOE/RL-89-09, Draft C, 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.

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

	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	

ATTACHMENT 2
100-AREA NONINTRUSIVE SOURCE SAMPLING PROJECT CHANGE FORM

Date: _____

Person Initiating Change: _____

Change: _____

_____

_____

_____

_____

_____

_____

Reason for Change: _____

_____

_____

_____

_____

_____

_____

APPROVAL:

Field Team Leader: _____

Operable Unit Coordinator: _____

Environmental QA Representative: _____

ECN 164715

INFORMATION RELEASE REQUEST

INFORMATION

References: WHC-CM-3-4

COMPLETE FOR ALL TYPES OF RELEASE

Purpose

- [ ] Speech or Presentation (Check only one suffix)
  - [ ] Full Paper
  - [ ] Summary
  - [ ] Abstract
  - [ ] Visual Aid
- [ ] Speakers Bureau
- [ ] Poster Session
- [ ] Videotape
- [ ] Reference
- [X] Technical Report
- [ ] Thesis or Dissertation
- [ ] Manual
- [ ] Brochure/Flier
- [ ] Software/Database
- [ ] Controlled Database
- [ ] Other

New ID Number: NA

Existing ID Number (Include revision, volume, etc.): WHC-SD-EN-AP-067, Rev 1

If previously cleared, list ID number: NA

Date Release Required: 1/17/92

Title: 100 Area Nonintrusive Source Sampling Description

Unclassified Category: UC- NA

Impact Level: 3

COMPLETE FOR SPEECH OR PRESENTATION

Title of Journal: NA

Group or Society Sponsoring: NA

Date(s) of Conference or Meeting: NA

City/State: NA

Will proceedings be published? [ ] Yes [ ] No

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

Title of Conference or Meeting: NA

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer Name (printed)	Signature	Date
Classification/Unclassified Controlled Nuclear Information	[ ]	[X]			
Patent - General Counsel	[X]	[ ]	S W Baglin	S W Baglin	1/17/92
Legal - General Counsel	[X]	[ ]	B D Williamson	B D Williamson	1/20/92
Applied Technology/Export Controlled Information or International Program	[ ]	[X]			
WHC Program	[X]	[ ]	J. K. Patterson	J. K. Patterson	1/23/92
Communications	[ ]	[X]			
DOE-RL Program	[X]	[ ]	~~J. K. Erickson~~	~~E.J. Erickson~~	~~3/5/92~~
Publication Services	[X]	[ ]	D.E. Smith	D.E. Smith	3/6/92
Other Program	[ ]	[X]			
References Available to Intended Audience	[ ]	[X]	M. T. Stankovich	M. T. Stankovich	1/14/92
Transmit to DOE-HQ/Office of Scientific and Technical Information	[ ]	[X]			

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

Author/Requestor (Printed/Signature) Date

M. T. Stankovich M. T. Stankovich 1/14/92

Responsible Manager (Printed/Signature) Date

M. J. Lauterbach M. J. Lauterbach 1/14/92

Intended Audience

[ ] Internal [ ] Sponsor [X] External

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

Stamp is required before release. Release is contingent upon resolution of mandatory comments.

APPROVED FOR RELEASE OFFICIAL NS DOCUMENT Date 3/6/92

Date Received 1-16-92 NS

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DISTRIBUTION SHEET

To: M. J. Lauterbach

From: M. T. Stankovich

Date: January 14, 1992

Project Title/Work Order:

100 Area Nonintrusive Source Sampling Description

EDT No.:

ECN No.: 164712

Name	MSIN	With Attachment	EDT/ECN & Comment	EDT/ECN Only
D. R. Baker	X7-02	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		
R. P. Henckel	H4-55	X		
D. O. Hess	L6-57	X		
J. E. Hodgson	X7-02	X		
A. D. Krug	H4-55	X		
R. Mabry	X7-02	X		
N. M. Naiknimbalkar	H4-55	X		
M. T. Stankovich	H4-55	X		
J. Vaughn	N3-06	X		
EDMC	H4-22	X		
Central Files	L8-04	X		
IRM Clearance	H4-17	X		

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