START

0024178

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 186759

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.
F. W. Gustafson, Env. Rest. Eng, H4-55, 376-1736

4. Date
10/02/92

5. Project Title/No./Work Order No.
Description of Work for 100 Area
Columbia River Sediment Sampling

6. Bldg./Sys./Fac. No.
n/a

7. Impact Level
3Q

8. Document Number Affected (include rev. and sheet no.)
WHC-SD-EN-AP-097, Rev. 2 1

9. Related ECN No(s).
n/a

10. Related PO No.
n/a

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

11b. Work Package Doc. No.
n/a

11c. Complete Installation Work
n/a
Cog. Engineer Signature & Date

11d. Complete Restoration (Temp. ECN only)
n/a
Cog. Engineer Signature & Date

12. Description of Change

Section 1, Added text to better define scope of work

Section 3.1, Added text (and modified figure) to include field reconnaissance effort for locating sampling points. Exact sampling locations were deleted. USGS maps will be used to document sampling locations as apposed to the used of the global positioning system.

Section 3.2, Made changes to number of estimated samples to be taken. Exact number of samples will be based upon field reconnaissance effort and sampling conditions.

Section 5.0, Made changes to contaminants of concern and associated analyses. A particle size distribution analysis was also added.

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

13b. Justification Details
Changes are a result of document reviews by EPA and Ecology

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

RELEASE STAMP
OFFICIAL RELEASE BY WHC
DATE OCT 20 1992
Station # 21

OCT 1992 RECEIVED EDMC

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

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

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 186759

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

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

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

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog./Project Engineer F.W. Gustafson	10/2/92	PE	
Cog./Project Engr. Mgr. R. P. Henckel	10/2/92	QA	
QA G. Corrigan	10-19-92	Safety	
Safety		Design	
Security		Other	
Proj. Prog./Dept. Mgr.			
Def. React. Div.			
Chem. Proc. Div.			
Def. Wst. Mgmt. Div.		DEPARTMENT OF ENERGY	
Adv. React. Dev. Div.			
Proj. Dept.			
Environ. Div.		ADDITIONAL	
IRM Dept.			
Facility Rep. (Ops.)			
Other			

SUPPORTING DOCUMENT

1. Total Pages 112

2. Title	3. Number	4. Rev No.
DESCRIPTION OF WORK FOR 100 AREA COLUMBIA RIVER SEDIMENT SAMPLING	WHC-SD-EN-AP-097	2

5. Key Words

Columbia River, Sediment, Sampling, Description of Work

APPROVED FOR PUBLIC RELEASE

6. Author

Name F. W. Gustafson

F.W. Gustafson 10/5/92

Signature

Organization/Charge Code 81225/P713B

7. Abstract

10/16/92 N. Dolier

This description of work was developed to investigate the impact to the Columbia River from the Operation of the production reactors in the 100 Areas. Approximately 63 samples will be taken downstream of the effluent pipelines and in areas of substantial sediment deposition.

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.

PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA.

DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

9. Impact Level 3Q

10. RELEASE STAMP

OFFICIAL RELEASE BY WHC

DATE OCT 20 1992

Station # 21

9312758103 3

RECORD OF REVISION	(1) Document Number WHC-SD-EN-AP-097	Page 1

(2) Title
DESCRIPTION OF WORK FOR 100 AREA COLUMBIA RIVER SEDIMENT SAMPLING

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) EDT - 159702		
1	Revised document based on DOE-RL comments. ECN 169796	Original Signature on file 7-23-92	Original signature on file 7-23-92
2 RS	Revised document based on EPA/Ecology comments. ECN 186759	[signature] 10/2/92	[signature] 10/5/92

CONTENTS

1.0 SCOPE OF WORK

This document details Columbia River sediment investigation field activities associated with 100 Area Operable Units remedial investigations. The scope of this effort is to complete a preliminary survey to determine if a notable level (statistically elevated contaminant levels when compared with reference samples) of chemical and radiological contaminants are present in Columbia River sediments and obtain preliminary data on the extent of contamination if present.. Sampling locations will be chosen based on areas of obvious sediment deposition downriver from outfall pipes and spillways and within backwater river channels.

This description of work will serve as a field guide for those performing the work. It should be used in conjunction with the remedial investigation/feasibility study work plan for 100 Area Operable Units for general investigation strategy and with *Environmental Investigations and Site Characterization Manual* (WHC 1988c) for specific procedures.

2.0 GENERAL REQUIREMENTS

2.1 APPLICABLE PROCEDURES

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 1988d)
- WHC-CM-4-11, *ALARA Program Manual* (WHC 1988a)
- WHC-CM-4-3, *Industrial Safety Manual*, Vols. 1 through 3, (WHC 1987)
- WHC-CM-7-5, *Environmental Compliance Manual* (WHC 1988b)
- Site-specific job safety analysis.

The associated field activities will also conform to the requirements of a site-specific safety assessment to be completed prior to initiation of the field activities. The requirements of this assessment may potentially impact specific sampling protocol. All changes resulting from this assessment will be documented utilizing a Columbia River Sediment Sampling Project Change Form (Attachment 1).

2.2 PREREQUISITES

A readiness review will be completed by the cognizant engineer before sampling is attempted. The readiness review will be completed per EII 1.13,

Environmental Engineering and Geotechnology Readiness Review (WHC 1988c). The Sampling Status Checklist (Attachment 2) 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 description of work addresses the sampling of Columbia River sediments located around outfall structures, within backwater sloughs, and on the downriver side of islands. The extent of the sampling efforts will be limited to river sediments located between B Reactor and the Hanford Town Site. Reference samples will be taken from depositional zones up river from the Hanford site.

Exact sampling locations will be chosen during a reconnaissance effort to be conducted prior to initiating the sampling activities. This reconnaissance effort will survey areas where contaminants were likely to settle out (i.e., areas of low velocity). Sample material will consist of silts and sands. Cobble material will be avoided. A representative from each of the regulatory agencies will be invited to participate in the reconnaissance effort. If space on the boat is limited, the regulatory agencies will be asked to choose a single representative.

Figure 1 identifies areas to be investigated during the field reconnaissance activities. These areas include backwater areas as well as the outfall structures. Locating sediments in the vicinity of the outfall structures is doubtful however, as the outfall structures were typically placed near areas of high river velocity. From these areas, approximately 25 locations will be identified. Two additional sample locations will be selected in backwater depositional areas up river from the Hanford Site.

A minimum of three of the sample locations will be taken in the same vicinity of spring sediment sampling locations from the fall of 1991. This information will allow for comparison of data obtained during the earlier sampling effort.

Additional samples may be taken at the discretion of the field team leader. Sample numbers may be reduced if the field reconnaissance efforts indicate a lack of adequate sediments. A sediment sample will be taken from surface material (0 to 6 in.) and from a composite of sediments below the 1-ft level at the same location if an adequate sediment bed exists. It is assumed (for planning purposes) that two samples, one surface and one subsurface, will be collected from each location.

The brief description of each sampling point will be recorded in the field logbook. United States Geological Survey topographic maps will be used to document the approximate sampling location. A global positioning system survey instrument will be used to obtain the approximate latitude/longitude for each location. The information obtained from the global positioning system will be for information only as the reliability of the system is still being determined.

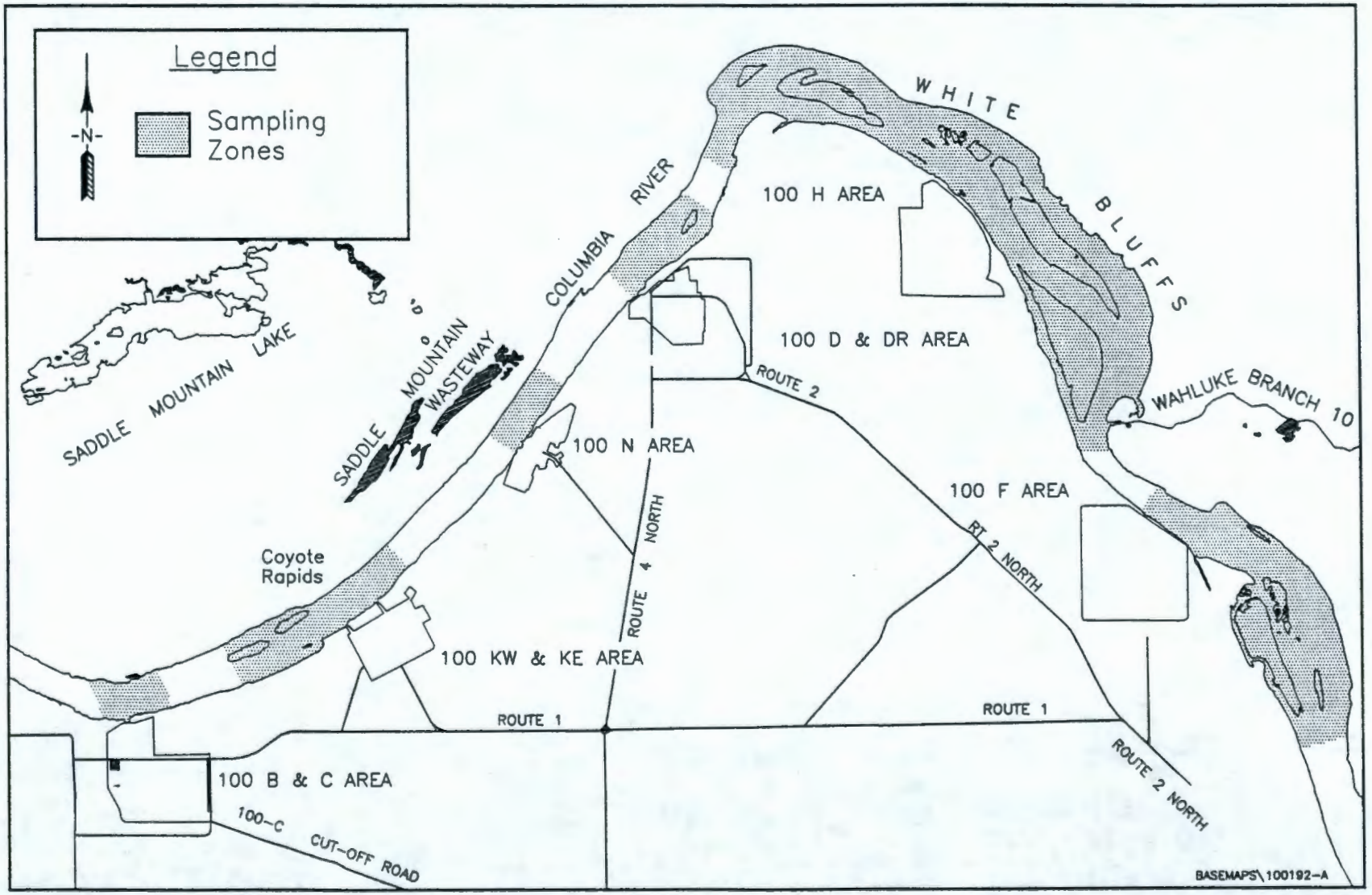

Figure 1. Columbia River Sediment Sampling Locations.

3.3 SAMPLE COLLECTION

The river sediment samples will be collected in accordance with the requirements of EII 5.2, Soil and Sediment Sampling (WHC 1988c). Samples will be collected using standard industry sampling equipment. Specific sampling equipment used will depend on specific site conditions. Sampling should be conducted during periods of low flow (typically late fall to early spring). No field monitoring equipment will be used during sample collection.

A field logbook 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 1988c).

An estimated total of 63 samples will be collected, including quality assurance/quality control (QA/QC) samples. Sample numbers may be increased or decreased at the discretion of the field team leader. The regulatory representative(s) will have input on the exact number of samples taken during the reconnaissance effort. The trip blank and field blank have been deleted per OSWER Directive EPA/540/G-87/004 Appendix C, Section C.6 (p.13). The equipment blank media shall be silica sand.

Exact sampling locations will be determined during field reconnaissance efforts. The following is a summary of the samples to be collected (Note: the sample numbers below assume two samples will be taken from each location).

- 50 samples from within the Hanford Reach of the river between B Reactor and the Hanford Town site
- 4 reference samples from locations up river of the Hanford Site
- 3 equipment blank samples
- 3 duplicate samples
- 3 split samples.

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 the *Hanford Environmental Information System (HEIS) Operator's Manual* (WHC 1991). The sample location and corresponding HEIS numbers will be documented in the field logbook. Analytical results obtained from this investigation will be loaded into the HEIS.

5.0 SAMPLE ANALYSES

The contaminants of concern for the Columbia River sediments are based on those identified for the spring sampling effort conducted in the fall of 1991. Samples will be analyzed for ICP metals, lead, mercury, standard gamma scan radionuclides, gross alpha, gross beta, ^{90}Sr, and total activity. These contaminants are known to exist in groundwater plumes located near the river as well as contaminants present in the effluent from the reactor river discharge lines.

Estimated quantity of material needed for analyses are shown in Table 1. The laboratory will use existing CLP Level IV methods for the chemical/metal constituents and Level V methods for radionuclides. Sample custody will follow EII 5.1, Chain of Custody (WHC 1988a).

A total activity analysis (required for offsite sample shipment and analysis) will also be performed. If total activity levels are above release limits (200 pCi/gm beta/gamma, 60 alpha) a physical sample will be sieved into two size fractions (>60 mesh and <60 mesh) and a total activity analysis performed on each size fraction. If total activity limits are below release limits on whole samples, a particle size distribution analysis will be performed on sediments from each sampling location. This data can be compared with the analytical results to determine the sediment type most likely to retain contaminants.

Table 1. Sediment Sample Analysis Requirements.

Analyte	Method	Holding time	Sample Volume (grams)
Total Activity (222-S Laboratory)	Laboratory SOP		TBD
ICP/AA metals, mercury, and lead	CLP	6 mo, 28 d, & 14 d	TBD
Strontium-90 Gross beta Gamma spec Alpha spec	Laboratory SOP	6 mo	TBD
Particle Size Distribution (WHC Geotechnical Lab)	Laboratory SOP	N/A	TBD

6.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

Internal QA/QC samples shall be collected as specified in Appendix A, Quality Assurance Project Plan (DOE-RL 1992) and documented in the sampling logbook per EII 1.5, Field Logbooks (WHC 1988c). Quality assurance samples

will include three equipment blank samples, three duplicate samples, and three split samples. The trip blank and field blank have been deleted per OSWER Directive 9355.0-7B Appendix C, Section C.6 (p.13). The equipment blank media shall be silica sand.

7.0 SCHEDULE

A field implementation date has not yet been established for the Columbia River sediment sampling activities. The activities should be planned for periods of low flow, typically fall to early spring. Approximately 3 to 4 weeks will be needed to collect all of the samples identified. The exact schedule will be developed once the necessary resources are obtained. An Agreement Activity Notification form will be issued at least 5 days prior to the start of field work.

8.0 CHANGES TO DESCRIPTION OF WORK

Unforeseeable major changes to this description of work, such as analyzing different parameters or using different analytical methods, will be submitted on the Project Change Form (Attachment 2). As a minimum, the change will require the verbal approval of the field team leader and the operable unit coordinator. The change will be filed as an Engineering Change Notice and a copy will be inserted into the project file. Copies will be submitted to the regulatory agencies and the appropriate field personnel within 10 working days of the change. Foreseeable major changes will be submitted to the regulators for review or approval prior to deviating from the description of work.

9.0 REFERENCES

DOE-RL, 1992, *Remedial Investigation/Feasibility Study Work Plan for the 100-BC-1 Operable Unit, Hanford Site, Richland, Washington*, DOE/RL-92-07, U.S. Department of Energy, Richland Field Office, Richland, Washington.

WHC, 1987, *Industrial Safety Manual*, WHC-CM-4-3, Vol. 1 through 3, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988a, *ALARA Program Manual*, WHC-CM-4-11, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988b, *Environmental Compliance Manual*, WHC-CM-7-5, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988c, *Environmental Investigations and Site Characterization Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988d, *Radiation Protection*, WHC-CM-4-10, Westinghouse Hanford Company, Richland, Washington.

WHC, 1990, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan*, WHC-EP-0383, Westinghouse Hanford Company, Richland, Washington.

WHC, 1991, *Hanford Environmental Information System (HEIS) Operator's Manual*, WHC-SP-0660, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

COLUMBIA RIVER SEDIMENT
SAMPLING CHECKLIST

Activity Performed	Signature/Date
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
COLUMBIA RIVER SEDIMENT SAMPLING PROJECT CHANGE FORM

Date: _____

Person Initiating Change: _____

Change: _____

_____

_____

_____

_____

_____

_____

Reason for Change: _____

_____

_____

_____

_____

_____

_____

APPROVAL:

Field Team Leader: _____

Operable Unit Coordinator: _____

Environmental QA Representative: _____

Date Received: 10/6/92	INFORMATION RELEASE REQUEST	Reference: WHC-CM-3-4

Complete for all Types of Release

Purpose

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

ID Number (include revision, volume, etc.): WHC-SD-EN-AP-097, REV. 2

List attachments.

Date Release Required: 10/12/92

Title: DESCRIPTION OF WORK FOR 100 AREA COLUMBIA RIVER SEDIMENT SAMPLING

Unclassified Category: UC-

Impact Level: 3Q

New or novel (patentable) subject matter? [X] No [] Yes
If "Yes", has disclosure been submitted by WHC or other company?
[] No [] Yes Disclosure No(s).

Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions?
[X] No [] Yes (Identify)

Copyrights? [X] No [] Yes
If "Yes", has written permission been granted?
[] No [] Yes (Attach Permission)

Trademarks?
[X] No [] Yes (Identify)

Complete for Speech or Presentation

Title of Conference or Meeting

Group or Society Sponsoring

Date(s) of Conference or Meeting

City/State

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

Title of Journal

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval: Name (printed)	Signature	Date
Classification/Unclassified Controlled Nuclear Information	[]	[X]			
Patent - General Counsel	[X]	[]	SWBERGLIN	JWBerglin	10/7/92
Legal - General Counsel	[X]	[]			
Applied Technology/Export Controlled Information or International Program	[]	[X]			
WHC Program/Project	[]	[X]			
Communications	[]	[X]			
RL Program/Project	[]	[X]			
Publication Services	[X]	[]	L.A Brown	Leslie Brown	10/16/92
Other Program/Project	[]	[X]			

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

	Yes	No
References Available to Intended Audience	[X]	[]
Transmit to DOE-HQ/Office of Scientific and Technical Information	[]	[X]

Author/Requestor (Printed/Signature) Date
F. W. Gustafson F.W. Gustafson 10/5/92 060892

Intended Audience
tXernal [] Sponsor [X] External

Responsible Manager (Printed/Signature) Date
W. L. Johnson W.L. Johnson 10/5/92

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

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

APPROVED FOR RELEASE OFFICIAL DOCUMENT Date 10/16/92

Date Cancelled | Date Disapproved

DISTRIBUTION SHEET

To: Distribution

From: Environmental Restoration

Date: 10/17/92

Project Title/Work Order:

Description of Work for 100 Area Columbia River Sediment Sampling

EDT No.:

ECN No.: 186759

Name	MSIN	With Attachment	EDT/ECN & Comment	EDT/ECN Only
F.W. Gustafson (5)	H4-55	X		
W.L. Johnson	H4-55	X		
S.G. Weiss	H4-55	X		
R.W. Peterson	H4-56	X		
V.G. Johnson	H5-29	X		
R.E. Day	H4-55	X		
R.P. Henckel	H4-55	X		
A.D. Krug	H4-55	X		
~~J.A. Bircher~~	~~N2-12~~	~~X~~		
Central Files	L8-04	X		
EDMC (2)	H4-22	X		