NOV 29 1994

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT

608963

2. To: (Receiving Organization)
Distribution3. From: (Originating Organization)
7FD604. Related EDT No.:
N/A5. Proj./Prog./Dept./Div.:
W-1006. Cog. Engr.:
C. L. Bergeson7. Purchase Order No.:
N/A8. Originator Remarks:
For release.9. Equip./Component No.:
N/A10. System/Bldg./Facility:
N/A

11. Receiver Remarks:

12. Major Assm. Dwg. No.:
N/A13. Permit/Permit Application No.:
N/A14. Required Response Date:
N/A

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approv al Desig- nator	Reason for Trans- mittal	Orig- inator Dispo- sition	Recei- v- er Dispo- sition
1	WHC-SD-W100-WP-007		0	Work Plan for Waste Receiving and Processing Module 2A Waste Characterization Study	NA	1		

16.

KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)										(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog.Eng. CL Bergeson	<i>C. L. Bergeson</i>	11/13/94	G6-46	TL Yount			G6-47	3	
1	1	Cog. Mgr. CA Petersen	<i>C. A. Petersen</i>	11/18/94	G6-51	SWOC/DMC			G6-51	3	
		QA				Central Files (2)			L8-04	3	
		Safety				OSTI (2)			L8-07	3	
		Env.									
3	1	DE Ball			G6-46						
1	1	MD LeClair	<i>MD LeClair</i>	11/18/94	G6-47						

18.

C. L. Bergeson
C. L. Bergeson
Signature of EDT
Originator11/13/94
Date

19.

Authorized Representative Date
for Receiving Organization

20.

C. A. Petersen
C. A. Petersen
Cognizant Manager11/18/94
Date21. DOE APPROVAL (if required)
Ctrl. No.
☐ Approved
☐ Approved w/comments
☐ Disapproved w/comments

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

RELEASE AUTHORIZATION

Document Number: WHC-SD-W100-WP-007, Rev. 0

Document Title: Work Plan for Waste Receiving and Processing Module
2A Waste Characterization Study

Release Date: 11/21/94

**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Chris Willingham
C. Willingham

11/21/94

TRADEMARK DISCLAIMER. 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.

This report has been reproduced from the best available copy. Available in paper copy and microfiche. Printed in the United States of America. Available to the U.S. Department of Energy and its contractors from:

U.S. Department of Energy
Office of Scientific and Technical Information (OSTI)
P.O. Box 62
Oak Ridge, TN 37831
Telephone: (615) 576-8401

Available to the public from: U.S. Department of Commerce
National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161
Telephone: (703) 487-4650

SUPPORTING DOCUMENT		1. Total Pages 9
2. Title Work Plan for Waste Receiving and Processing Module 2A Waste Characterization Study	3. Number WHC-SD-W100-WP-007	4. Rev No. 0
5. Key Words receiving, processing, characterization	6. Author Name: C. L. Bergeson Signature <u>C. L. Bergeson</u> Organization/Charge Code 7FD60/A5212	
7. Abstract This WRAP 2A Waste Characterization Study effort addresses those certification strategy functions related to characterization by defining criteria associated with each function, identifying administrative and design mechanisms for accomplishing each of these functions and evaluating alternatives where applicable. This work plan provides direction for completing the study.		
		8. RELEASE STAMP <div style="border: 1px solid black; padding: 5px; width: fit-content;"> OFFICIAL RELEASE BY WHC DATE NOV 29 1994 35 Station 21 </div>

WORK PLAN FOR WASTE RECEIVING AND PROCESSING
MODULE 2A WASTE CHARACTERIZATION STUDY

November 1994

Cheryl L. Bergeson

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, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness 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. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Westinghouse Hanford Company
Richland, Washington

MASTER

CONTENTS

1.0	INTRODUCTION	1
1.1	SCOPE	1
1.2	OBJECTIVES	1
1.3	DELIVERABLES	2
2.0	TASK DESCRIPTIONS/ASSOCIATED DELIVERABLES	2
2.1	SUPPORT STUDY	2
	2.1.1 Develop Review Team	2
	2.1.2 Assign Study Team	4
	2.1.3 Prepare Study Documentation	4
2.2	IDENTIFY DATA REQUIREMENTS BY CHARACTERIZATION FUNCTION . . .	5
2.3	ALTERNATE CHARACTERIZATION METHODS AND STRATEGIES	5
	2.3.1 Identify Alternate Characterization Methods	5
	2.3.2 Define Evaluation Criteria	5
	2.3.3 Evaluate Characterization Function Alternatives . . .	6
2.4	IDENTIFY FUTURE VERIFICATION REQUIRED	6
3.0	REFERENCES	6

**WORK PLAN FOR WASTE RECEIVING AND PROCESSING
MODULE 2A WASTE CHARACTERIZATION STUDY**

1.0 INTRODUCTION

This Waste Receiving and Processing Facility Module 2A (WRAP 2A) Waste Characterization Study effort evaluates alternate means of acquiring needed data in key certification areas identified in the strategy document (LeClair 1994) to reduce operational cost and improve operational efficiency.

1.1 SCOPE

This WRAP 2A Waste Characterization Study effort addresses those certification strategy functions related to characterization (LeClair 1994) by defining criteria associated with each function, identifying administrative and design mechanisms for accomplishing each of these functions and evaluating alternatives where applicable. This work plan provides direction for completing the study.

1.2 OBJECTIVES

This Characterization Study looks at alternatives to the Title 1 Design approach for incoming waste confirmation/ verification, radionuclide inventory tracking and final waste form testing. The primary objectives are listed below.

- Identify characterization data requirements for each characterization function defined in the certification strategy.
- Identify administrative and characterization/analytical mechanisms to accomplish each of the associated characterization functions.
- Evaluate alternate administrative and analytical methods by characterization function.
- Identify any future verification work required.

This Engineering Study will basically follow the standard engineering study format (WHC 1994).

1.3 DELIVERABLES

The primary objectives will result in an issued WRAP 2A Characterization Study that will contain the following deliverables.

- Preferred alternatives to the Title 1 Design approach to radionuclide inventory tracking.
- Preferred alternatives to the Title 1 Design approach for acquiring characterization data on incoming waste.
- Preferred alternative for assuring final waste form quality.

In addition, the information developed through this study effort will directly support other activities including the WRAP 2A Waste Analysis Plan development, Sample Plan development, and Data Management System functional requirements definition. These types of support are viewed as secondary objectives of the study effort.

The schedule for completing this effort is depicted in Table 1.

2.0 TASK DESCRIPTIONS/ASSOCIATED DELIVERABLES

This section defines the unique tasks that are required to complete the WRAP 2A Characterization Study effort. The tasks are grouped into functional areas to provide further definition.

2.1 SUPPORT STUDY

2.1.1 Develop Review Team

Assign appropriate personnel to perform periodic reviews of the WRAP 2A Characterization Study deliverables. Reviews will occur at designated phases in the study effort (e.g., 30%, 60% and 90%), and at each phase, interim deliverables will be provided to the review team. This breakout of deliverables by study phase as summarized in Table 2. The review team will have representation from the following organizations:

- WRAP Process Engineering;
- WRAP 2A Projects; and
- WRAP Mechanical Engineering.

DELIVERABLE 2.1.1: List of assigned review team participants.

Table 1. WRAP 2A WASTE CHARACTERIZATION STUDY

11/07/94

Task No.	Activities	Start Date	Finish Date	Fiscal Year 1995																														
				Nov '94				Dec '94				Jan '95				Feb '95				Mar '95				Apr '95				May '95				Jun '95		
				7	14	21	28	5	12	19	26	2	9	16	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29	5
2.1	SUPPORT STUDY	11/14/94	6/13/95																															
2.1.1	Develop Review Team	11/14/94	11/21/94																															
2.1.2	Assign Study Team	11/14/94	11/21/94																															
2.1.3	Document Study Results	12/19/94	6/13/95																															
2.2	IDENTIFY DATA REQMENTS BY CHARACTERIZATION FUNCTION	11/21/94	1/3/95																															
30%	Document 30% Deliverable	1/3/95	1/10/95																															
	Review Team Meeting	1/10/95																																
	Review 30% Deliverable	1/10/95	1/17/95																															
	Disposition 30% Comments	1/17/95	1/24/95																															
2.3	ALTERNATE CHARACTERIZATION METHODS & STRATEGIES	1/24/95	4/15/95																															
2.3.1	Identify Alternate Characterization Methods	1/24/95	2/21/95																															
2.3.2	Define Evaluation Criteria	2/21/95	3/2/95																															
60%	Document 60% Deliverable	3/2/95	3/16/95																															
	Review Team Meeting	3/16/95																																
	Review 60% Deliverable	3/16/95	3/30/95																															
	Disposition 60% Comments	3/30/95	4/6/95																															
2.3.3	Evaluate Characterization Functions Alternatives	4/6/95	4/15/95																															
2.4	IDENTIFY FUTURE VERIFICATION REQUIRED	4/6/95	4/17/95																															
90%	Document 90% Deliverable	4/17/95	5/2/95																															
	Review Team Meeting	5/2/95																																
	Review 90% Deliverable	5/2/95	5/16/95																															
100%	FINALIZE DOCUMENT	5/16/95	6/13/95																															
	Disposition 90% Comments	5/16/95	5/23/95																															
	Incorporate Comments / Finalize Document	5/23/95	5/30/95																															
	Final Review / Signatures	5/30/95	6/6/95																															
	Issue Document	6/6/95	6/13/95																															
	</																																	

WHC-SD-M100-WP-007 REV 0

TABLE 2. STUDY DELIVERABLES BY PHASE OF STUDY.

Percent Completion	Associated Deliverables
30%	2.1.1: List of assigned review team participants.
	2.1.2: List of study team participants and associated task responsibilities.
	2.2: Definitive list of analytical data requirements by characterization function.
60%	2.3.1: Alternatives to accomplish characterization functions.
	2.3.2: Evaluation criteria.
90%	2.3.3: Preferred alternatives to accomplish characterization functions.
	2.4: Identification of future verification.
100%	2.1.3: An engineering Study which documents all information and conclusions generated from this study effort.

2.1.2 Assign Study Team

Assign personnel to be responsible for task completion. For each of the tasks defined in this work plan, one individual will have lead responsibility for completion of the task and others may be assigned to assist in the task. Task leads will provide information in the agreed upon format per the schedule and will be requested to status their tasks at integration meetings held periodically with all study participants.

DELIVERABLE 2.1.2: List of study team participants and associated task responsibilities.

2.1.3 Prepare Study Documentation

Coordinate with individual contributors to develop 30%, 60%, and 90% deliverables as defined in Table 2. Issue documentation to review team at each of the review phases documenting all information generated to date. Consolidate comments, and work with individual contributors to resolve and incorporate comments. The final effort of this task will be the issuance of the engineering study per the standard format (WHC 1994).

DELIVERABLE 2.1.3: An engineering study which documents all information and conclusions generated from this study effort.

2.2 IDENTIFY DATA REQUIREMENTS BY CHARACTERIZATION FUNCTION

The data required to accomplish each certification strategy function associated with characterization will be identified. These functions are listed below.

- Determine Radionuclide Composition. The radionuclide composition of the incoming waste as well as the radionuclide composition of the final waste form must be known.
- Confirm Incoming Waste Identity. This function confirms the generator's physical and chemical characterization through limited analysis of the waste feed. This confirmation is the means by which operations assures that the waste received is the waste expected. The verification of bulk physical/chemical characterization also serves to assure that process control parameters are maintained.
- Support Formulation Selection. In order to assure the waste can be treated effectively, key chemical and physical characteristics/concentrations of new waste streams are assessed to support treatability studies. This information is used to select an appropriate formulation for treating the waste.
- Overcheck Final Waste Form Quality. Final waste form quality is confirmed analysis and testing in order to demonstrate final waste form adherence to the disposal site waste acceptance criteria and the concentration-based treatment standards.

DELIVERABLE 2.2: Definitive list of analytical data requirements by characterization function.

2.3 ALTERNATE CHARACTERIZATION METHODS AND STRATEGIES

2.3.1 Identify Alternate Characterization Methods

Identify existing and emerging analysis methods and strategies to support characterization. The existing and emerging analysis methods are to include on-line (e.g., raman spectroscopy) applications. Establish a technology data sheet to include a description, history, and applicability band (technology search).

DELIVERABLE 2.3.1: Alternatives to accomplish characterization functions.

2.3.2 Define Evaluation Criteria

Develop objective criteria with bounding parameters for each of the key analytical technologies/strategies that will be used to assess the alternative methods for accomplishing each regulatory function. The main objective is to support operations requiring less laboratory analysis.

DELIVERABLE 2.3.2: Evaluation criteria.

2.3.3 Evaluate Characterization Function Alternatives

Evaluate alternatives against criteria and arrive at preferred characterization strategy for obtaining necessary data elements. Criteria will be established from a function and operations position. At the conclusion of the study effort, preferred alternatives will be documented in the engineering study report (Task 2.1.3). Any issues, uncertainties or subsequent actions should also be identified and documented.

DELIVERABLE 2.3.3: Preferred alternative(s) to accomplish characterization functions.

2.4 IDENTIFY FUTURE VERIFICATION REQUIRED

This study will identify areas requiring further verification. These areas would include verification work and design modifications required to be performed beyond the conclusion of this study.

DELIVERABLE 2.4: Identification of future verification.

3.0 REFERENCES

- LeClair, M. D., 1994, *Waste Receiving and Processing Module 2A Waste Certification Strategy*, WHC-SD-W100-SP-001, Revision 0, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1994, *Engineering Practice Guidelines: Engineering Studies*, WHC-IP-1026, Appendix C, Revision 0, Westinghouse Hanford Company, Richland, Washington.