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1. EDT No 612161

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Characterization Plans and Reports	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Tank 241-B-106/Waste Management/CPR/Char. Technical Basis	6. Cog. Engr.: John M. Conner	7. Purchase Order No.: N/A
8. Originator Remarks: This document is being released into the Supporting Document System for retrievability purposes.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks: For Release.		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date:

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	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-TSAP-002	N/A	0	Tank 241-B-106 Push Mode Core Sampling and Analysis Plan	Q	2	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	4. Review	1. Approved	4. Reviewed no/comment
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Document Number: WHC-SD-WM-TSAP-002, REV 0


Document Title: Tank 241-B-106 Push Mode Core Sampling and Analysis Plan

Release Date: 6/15/95

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A-6001-400 2 (09/94) UFF254

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SUPPORTING DOCUMENT

1. Total Pages 20

2. Title

Tank 241-B-106 Push Mode Core Sampling and Analysis Plan

3. Number

WHC-SD-WM-TSAP-002

4. Rev No.

0

5. Key Words

Tank 241-B-106, Tank B-106, B-106, Push Mode, Core Sampling, Analysis Plan

6. Author

Name: John M. Conner


Signature

Organization/Charge Code 75310/MDR21

7. Abstract

N/A

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**TANK 241-B-106 PUSH MODE CORE
SAMPLING AND ANALYSIS PLAN**

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LIST OF ABBREVIATIONS

ACL	Analytical Chemistry Laboratory
B-106	Tank 241-B-106
DOE	Department of Energy
DQO	data quality objective
DSC	Differential Scanning Calorimetry
HHF	hydrostatic head fluid
IC	ion chromatography
ICP	inductively coupled plasma (atomic emission spectroscopy)
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RSST	Reactive System Screening Tool
SAP	Sampling and Analysis Plan
SARP	Safety and Analysis Report Packaging
TCP	Tank Characterization Plan
TGA	thermogravimetric analysis
TOC	total organic carbon
TWRS	Tank Waste Remediation System
WHC	Westinghouse Hanford Company

1.0 SAMPLING AND ANALYSIS OBJECTIVES

This Sampling and Analysis Plan (SAP) will identify characterization objectives pertaining to sample collection, laboratory analytical evaluation, and reporting requirements in accordance with the *Tank Safety Screening Data Quality Objective* (Babad and Redus 1994). This Data Quality Objective (DQO) is described in the Tank Characterization Plan (TCP) for tank 241-B-106 (B-106) (Conner 1995). This SAP will also identify procedures and requirements for collecting and characterizing samples from tank B-106 by the push mode core sampling method.

2.0 SAMPLING EVENT REQUIREMENTS

2.1 SAMPLING PREPARATION

Before push core sampling in tank B-106 can be performed, available risers must be identified for use in this sampling event (see section 2.2 below). The selected risers must be inspected and prepared to confirm their ability to be used in sampling. Safety hazards must be identified for which special precautions must be made.

2.2 SAMPLING REQUIREMENTS

Tank B-106 currently stores 443 kL (117 kgal) of non-complexed waste, which corresponds to a waste depth of approximately 97 cm (38 inches). The waste is comprised of 439 kL (116 kgal) of saltcake, and 3.8 (1 kgal) of supernatant with no pumpable liquid remaining (Brevick et al. 1994). However, this contradicts with the Hanlon document which states that there are 0 kL (0 kgal) of saltcake, 439 kL (116 kgal) of sludge, with no pumpable liquid remaining (Hanlon 1995).

Tank B-106 is currently scheduled to be core sampled. Two core samples shall be collected from risers 2 (or 3) and 7 of the tank (risers 2 and 3 both have abandoned tapes beneath them; the sampling crew will decide which riser to sample and document the riser chosen). If a different riser is capable of meeting the intent of other requirements in the DQO, it may be used if the riser number is recorded and approved in writing in advance by the sampling cognizant engineer. Risers used may be recorded on a permanent data sheet, or recorded directly in the work package.

Based on current waste volume information, each of the core samples is expected to consist of two segments. Both segments are expected to be 48 cm (19 inches). It should be noted that the sampling objective is to obtain a vertical profile of the waste; therefore, more or less segments may need to be taken depending on the accuracy of the current waste volume records. For detailed information regarding the sampling activities, refer to work package ES-95-00222. This document contains the operating procedures and the chain-of-custody records for this sampling event.

One field blank for this tank shall be obtained by filling a sampler with deionized water. This field blank is to accompany the samples to the laboratory hot cell. All collected samples shall be shipped to the laboratory according to procedure TO-080-090 ("*Load/Transport Sample Cask(s)*"). Core samples shall be transported to the laboratory within three calendar days of each segment's removal from the tank.

Occasionally, hydrostatic head fluid (HHF), with lithium bromide (LiBr) as a tracer, may be used to aid in the collection of the core samples. If LiBr is used, Sampling Operations must state this in the chain-of-custody form that accompanies the sample to the laboratory, and must also provide an HHF blank for the laboratory. The HHF blank shall consist of a container filled with HHF (with LiBr tracer) from the same batch of HHF used during the sampling. It shall be analyzed for Li (and Br if the Li notification limit is exceeded) in order to determine the concentration of the tracer at the time the core was taken. Only one LiBr solution blank per tank is required. The LiBr HHF blank is required in addition to the field/trip blank (sampler filled with water).

3.0 LABORATORY ANALYSIS REQUIREMENTS

3.1 ANALYSIS SCHEME

Flowcharts depicting the general safety screening sample breakdown and analysis scheme are presented in Figures 1, 2, and 3. These steps are described in detail to provide the hot cell and laboratory chemists with guidance for the breakdown of the segments and may be altered as appropriate by the performing laboratory. Several analyses listed in Table 1 require a 45-day reporting time, as noted. The 45-day reporting format, Format III, is explained in Section 7.3.

As a precautionary measure, the Safety and Analysis Report Packaging (SARP) in the tank procedure TO-080-090 ("*Load/Transport Sample Cask(s)*") has been reviewed for any safety issues involved with transportation of core samples from tank B-106. **For core samples from tank B-106, the shipping containers must be vented every 47 days to release retained gas.**

Any decisions, observations, or deviations made to this work plan, or during the sample breakdown or analysis, shall be documented in writing with justifications. These decisions and observations shall also be reported in the data report. The reporting formats for analyses are contained in Table 1.

- Step 1 Receive core samples at the laboratory in accordance with approved procedures.
- Step 2 Conduct the following on the material from each extruded segment:
 - ▶ Perform a visual examination of the segment(s).

- ▶ Record observations. This may include a sketch of the extruded core sample in addition to written documentation of pertinent descriptive information such as color, texture, homogeneity, and consistency.
- ▶ Take color photographs and/or a videotape to visually document the extruded core segments.

Step 3 Does the segment contain drainable liquids?

Yes: Proceed to Step 4A

No: Proceed to Step 5

Step 4A Separate any drainable liquid from the solids. Measure and record the volume. Retain drainable liquids for further processing.

Step 4B Is the segment 100% drainable liquid?

Yes: Proceed to Step 11

No: Proceed to Step 5

SOLIDS PATH

Step 5 Divide each extruded core segment into half-segments.

Step 6 Homogenize each half-segment using the appropriate, approved procedure.

Step 7 Will a homogenization test be performed?

Yes: Proceed to Step 8

No: Proceed to Step 9

NOTE: One homogenization test, at a minimum, should be used if a homogenization test is to be performed. Additional tests may be performed at the laboratory's discretion.

Step 8 Conduct the homogenization test by taking 1 to 2 g aliquots from widely separated locations of the homogenized subsample. Conduct the homogenization test in accordance with Bell (1993).

Step 9 Collect sufficient aliquots from each homogenized subsample to perform the appropriate preparations and analyses listed in Table 1 in duplicate.

NOTE: If there is an insufficient amount of sample available in any subsample to perform all required analyses on the half-segment, notify the Characterization Program within one business day and follow the prioritization of analyses given in Section 3.4.

Step 10 Remove at least 20 mL and up to 40 mL of each homogenized subsample for the archive sample (Bratzel 1994).

LIQUIDS PATH

Step 11 Closely inspect the liquid sample for the presence and approximate volume of any potential organic layers. Does the sample contain any immiscible (potentially organic) layers?

Yes: Proceed to Step 12A
No: Proceed to Step 13

Step 12A Report any visually observed immiscible (potential organic) layer immediately by the early notification system (Section 7.2).

Step 12B Separate and retain the potential organic layer for possible future analysis.

NOTE: Steps 13 through 17 shall be performed on the remaining (probable aqueous) liquid layer only.

Step 13 Filter the remaining liquid sample through a 0.45 micron filter.

Step 14 Is there greater than 1 gram of solid on the filter?

Yes: Proceed to Step 15
No: Proceed to Step 16

Step 15 Archive the solids for possible future analysis (Bratzel 1994).

Step 16 Remove sufficient aliquots from the segment-level liquid sample to perform the appropriate analyses listed in Table 1 in duplicate.

Step 17 Archive at least 20 mL and up to 40 mL of the segment-level drainable liquid as the segment-level liquid archive (Bratzel 1994).

PRIMARY ANALYSIS PATH

Step 18 Perform primary analyses as listed in Table 1.

Step 19 Compare the primary analysis data with notification limits.

Step 20A Do the results exceed the notification limits (Table 1)?

Yes: Proceed to Step 20B
No: Proceed to Step 23

Step 20B Report results exceeding the notification limits using Format I reporting deliverable requirements as listed in Section 7.2.

SECONDARY ANALYSIS PATH

- Step 21 Perform secondary analyses according to Table 1.
- Step 22A Do the secondary analyses exceed the notification limits?
- Yes: Proceed to Step 22B
No: Proceed to Step 23
- Step 22B Report results exceeding the notification limits using Format I reporting deliverable requirements as listed in Section 7.2.
- Step 23 Report results as listed in Section 7.0.

3.2 SPECIFIC METHODS AND ANALYSES

The analyses in Table 1, to be performed on the tank B-106 core samples, are based on the safety screening DQO referenced in Section 1.0. The laboratory procedure numbers, which shall be used for the analyses, are included in the table.

3.3 INSUFFICIENT SEGMENT RECOVERY

If the amount of material recovered from core samples taken from tank B-106 is insufficient to perform the analyses requested and to permit a minimum 20 mL archive per segment, the laboratory shall notify the Tank Cognizant Engineer, listed in Table 2, within one working day. A prioritization of the analyses requested in this document is given in Section 3.4. Any analyses prescribed by this document, but not performed, shall be identified in the appropriate data report, with justification for non-performance.

3.4 PRIORITIES OF REQUESTED ANALYSES

Confirmation of prioritization levels, or revision of sample breakdown procedures may be provided by the Characterization Program based upon the sample recovery, readily observable physical property distinctions within the sample, and the requested breakdown procedures as provided in Section 3.1. The priority of an analysis is specified by its designation as a primary or secondary analysis. Further prioritization will be determined by the program on a DQO basis.

Figure 1: Solid Analysis Flowchart

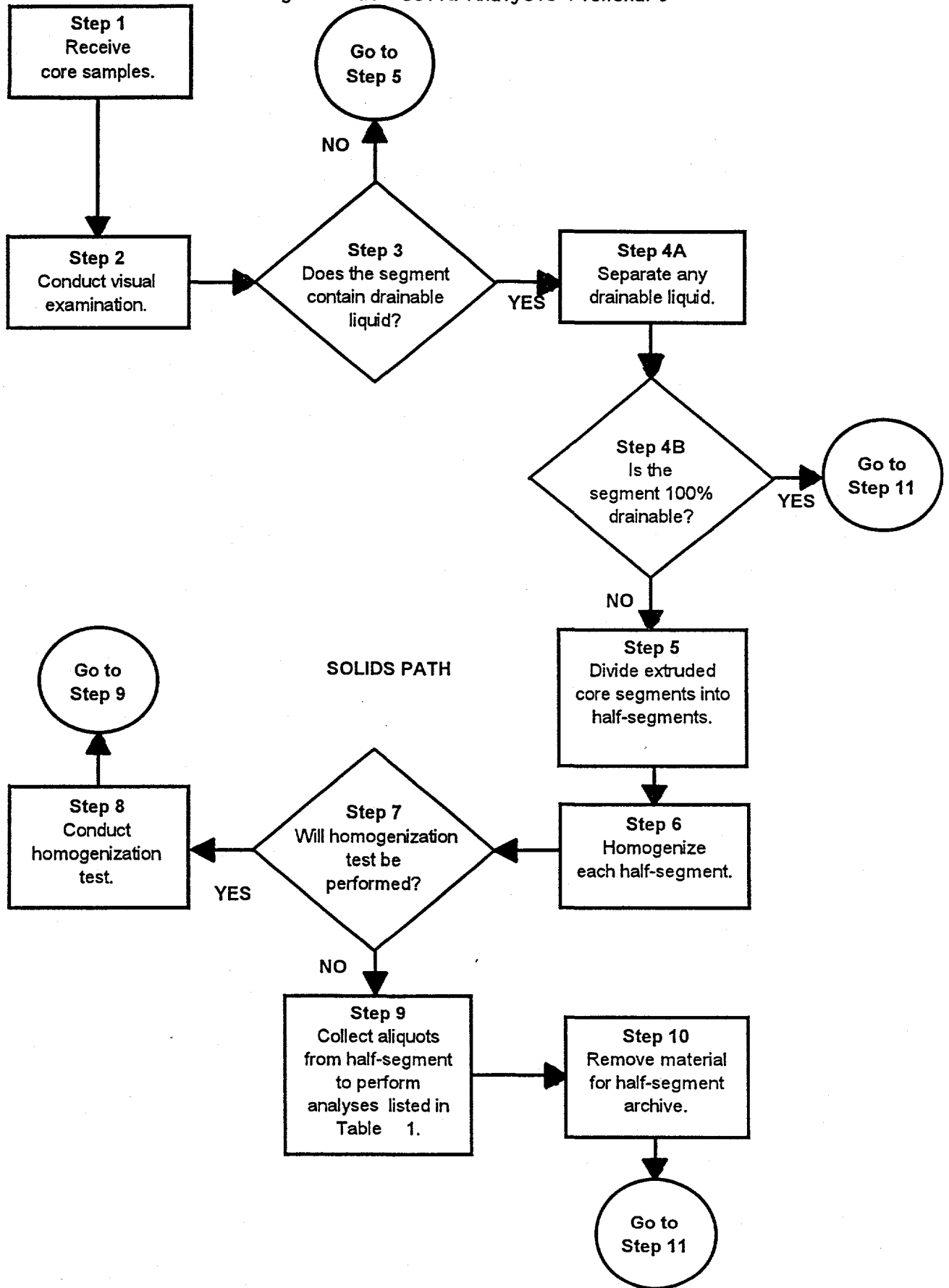


Figure 2: Liquid Analysis Flowchart
LIQUIDS PATH

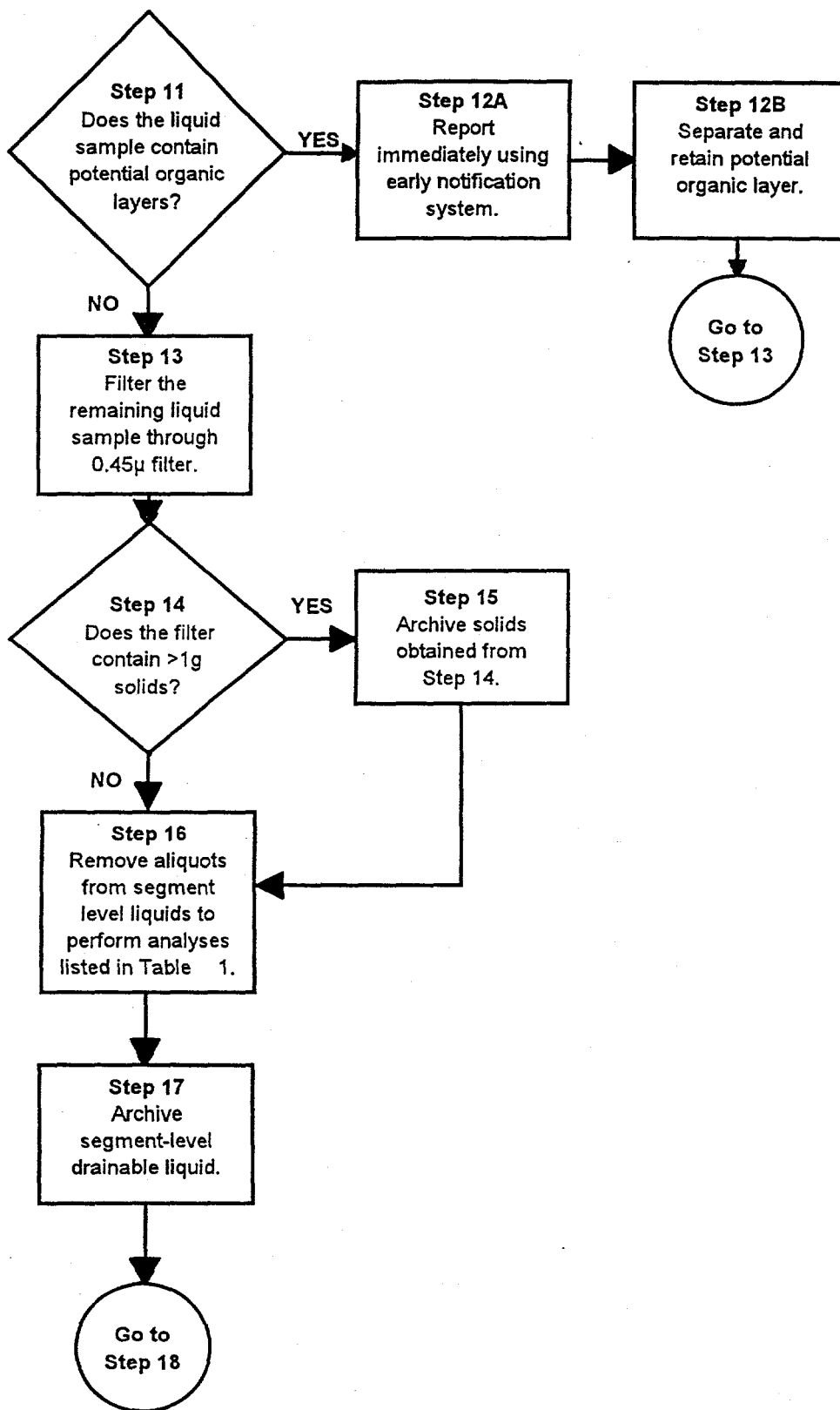


Figure 3: Sample Analysis and Reporting Flowchart
ANALYSES PATH

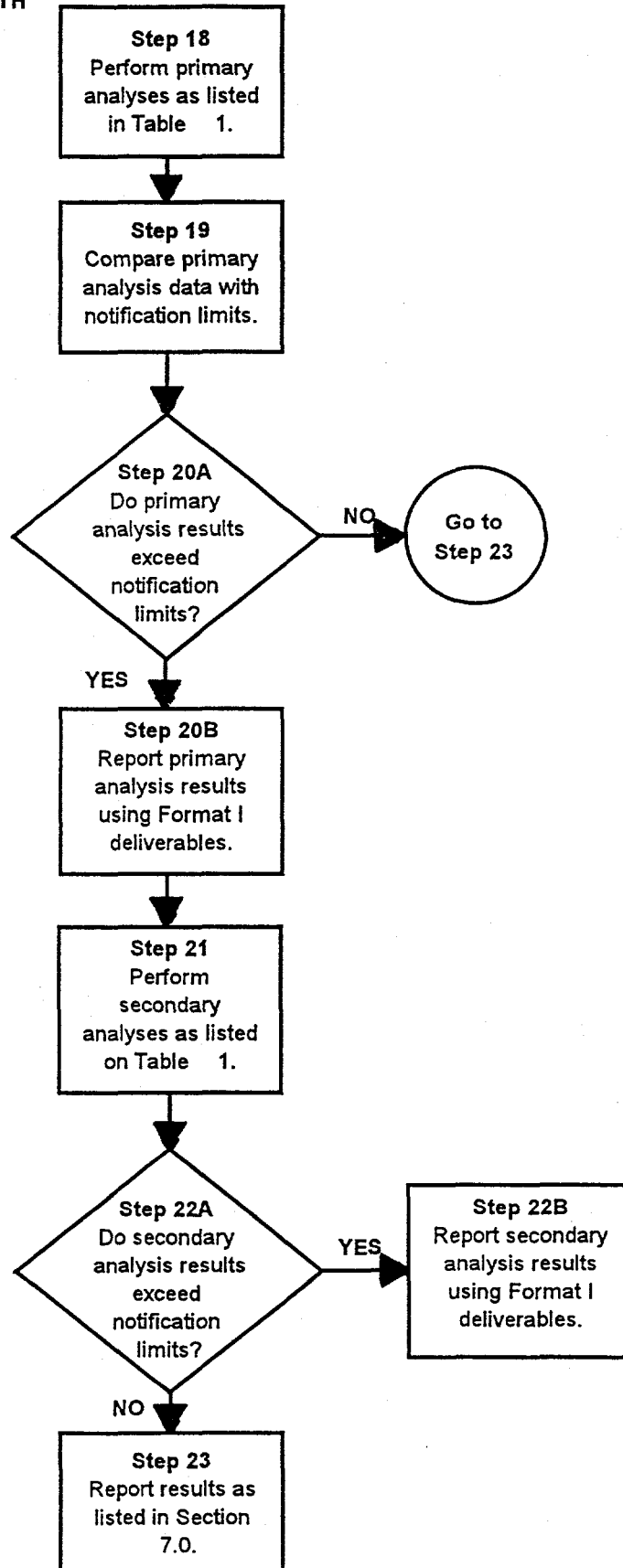


Table 1: Tank B-106 Chemical, Radiological, and Physical Analytical Requirements

SOLID ANALYSES															
Project Name	B-106 Push Mode Core Sample				COMMENTS				REPORTING LEVELS						
Plan Number	WHC-SD-WM-TSAP-002, REV. 0				Homogenization Test - Per Laboratory Discretion				FORMAT I						
PROGRAM	PROGRAM CONTACTS				Field Blank - Required				FORMAT II						
	Safety Screening E. J. Lipke				Hot Cell Blank - Not Required				FORMAT III						
A. Safety Screening	TWRS				HHF Blank - Required				FORMAT IV						
	TANK				#CORES				FORMAT V						
	B-106				2				FORMAT VI						
	Special														
PROGRAM	PRIMARY ANALYSES		SAMPLE ¹	PREP ²	QUALITY CONTROL ³				CRITERIA			FOR-MAT			
	METHOD	ANAL.			WHC PROCEDURE	1/2 SEG SLDG	DUP	SPK/MSD	BLK	CALIB STD	PR		AC	UNITS	NOTIFICATION LIMIT ⁴
A	DSC	Energy	LA-514-113	X	d	ea smpl	N/A	N/A	ea AB	±10	90-110	J/g ⁵	> 481	unknown	I, III
A	TGA	% H ₂ O	LA-560-112	X	d	ea smpl	N/A	N/A	ea AB	±10	90-110	wt%	< 17	unknown	I, III
A	Alpha	Total Alpha	LA-508-101	X	f or a	ea smpl	1/mtr ⁶	ea PB	ea AB	±10	90-110	µCi/g	> 41	unknown	I, III
A	ICP ¹¹	Li	LA-505-151	X ¹¹	f or w	ea smpl	see 7	ea PB	ea AB	±10	90-110	µg/g	> 100	unknown	I, III
PROGRAM	SECONDARY ANALYSES		SAMPLE ¹	PREP ²	QUALITY CONTROL ³				CRITERIA			FOR-MAT			
	METHOD	ANAL.			WHC PROCEDURE	1/2 SEG SLDG	DUP	SPK/MSD	BLK	CALIB STD	PR		AC	UNITS	NOTIFICATION LIMIT ⁴
A	Distillation ⁸	CN	LA-695-102	X	d	ea smpl	1/mtr ⁶	ea AB	ea AB	±10	90-110	µg/g	> 39,000	unknown	I, III
A	Sep. & α counting ⁹	Pu-239/240	LA-503-156	X	f	ea smpl	1/mtr ⁶	ea PB	ea AB	±10	90-110	µCi/g	> 41	unknown	I, III
A	ICP ⁹	Fe	LA-505-151	X	f or a	ea smpl	see 7	ea PB	ea AB	±10	90-110	µg/g	none	unknown	III
A	ICP ⁹	Mn	LA-505-151	X	f or a	ea smpl	see 7	ea PB	ea AB	±10	90-110	µg/g	none	unknown	III
A	ICP ⁹	U	LA-505-151	X	f or a	ea smpl	see 7	ea PB	ea AB	±10	90-110	µg/g	none	4,680	III
A	IC ¹⁰	Br	LA-533-105	X	w	ea smpl	1/mtr ⁶	ea PB	ea AB	±10	90-110	µg/g	> 1200	unknown	I, III
A	RSST ⁶	Energy	see 8 below	X	d	N/A	N/A	N/A	ea AB	±10	90-110	J/g ⁵	> 481	unknown	I, III
A	Hot Persulfate ⁸	TOC	LA-342-100	X	d	ea smpl	1/mtr ⁶	ea AB	ea AB	±10	90-110	µg C/g	> 30,000	unknown	I, III

¹1/2 SEG SLDG-1/2 segment, sludge

²d-direct, f-fusion, a-acid, w-water

³PR-precision, AC-accuracy, ea-each, smpl-sample, DUP-duplicate, SPK/MSD-spike and matrix spike duplicate, AB-analytical batch, PB-preparation blank, N/A-not applicable, mtrx-matrix

⁴Units for notification limits and expected range are those listed in the "units" column.

⁵Dry weight basis.

⁶Tracer or carrier may be used in place of a spike and results corrected for recovery.

⁷Either serial dilutions or matrix spikes will be performed.

⁸These analyses required if DSC exceeds notification limits. The RSST method, yet to be proceduralized, may be found in WHC-SD-WM-TP-104.

⁹Performed only if total alpha exceeds notification limit.

¹⁰Performed only if Li exceeds notification limit.

¹¹If the chain of custody form indicates that HHF fluid with LiBr tracer was used to obtain the segment, Li analysis is to be performed on that segment.

Table 1: Tank B-106 Chemical, Radiological, and Physical Analytical Requirements

LIQUID ANALYSES														
Project Name	B-106 Push Mode Core Sample			COMMENTS				REPORTING LEVELS						
Plan Number	WHC-SD-WM-TSAP-002 REV. 0			Homogenization Test - Per Laboratory Discretion				FORMAT I						
PROGRAM	PROGRAM CONTACTS			Field Blank - Required				FORMAT II						
	Safety Screening E. J. Lipke			Hot Cell Blank - Not Required				FORMAT III						
A. Safety Screening	TWRS			HHF Blank - Required				FORMAT IV						
	TANK			#CORES				FORMAT V						
	B-106			2				FORMAT VI						
PROGRAM	PRIMARY ANALYSES		SAMPLE ¹	QUALITY CONTROL ³				CRITERIA						
	METHOD	ANAL.	WHC PROCEDURE	FB & S-LEV LIQ	DUP	SPK/MSD	BLK	CALIB STD	PR	AC	UNITS	NOTIFICATION LIMIT ⁴	EXPECTED RANGE ⁴	FOR-MAT
A	DSC	Energy	LA-514-113	X	d	N/A	N/A	ea AB	±10	90-110	J/g ⁵	> 481	unknown	I, III
A	TGA	% H ₂ O	LA-560-112	X	d	N/A	N/A	ea AB	±10	90-110	wt%	< 17	unknown	I, III
A	ICP ¹¹	Li	LA-505-151	X ¹¹	d ⁶	see 7	ea AB	±10	90-110	µg/mL	> 100 ¹⁰	unknown	unknown	I, III
A	Visual	Organic Layer	LA-519-151	X	d	N/A	N/A	N/A	N/A	N/A	presence	unknown	unknown	I, III
PROGRAM	SECONDARY ANALYSES		SAMPLE ¹	QUALITY CONTROL ³				CRITERIA						
	METHOD	ANAL.	WHC PROCEDURE	FB & S-LEV LIQ	DUP	SPK/MSD	BLK	CALIB STD	PR	AC	UNITS	NOTIFICATION LIMIT ⁴	EXPECTED RANGE ⁴	FOR-MAT
A	Distillation ⁸	CN	LA-695-102	X	d ⁶	1/mtrx	ea AB	±10	90-110	µg/mL	> 39,000 ¹⁰	unknown	unknown	I, III
A	IC ⁹	Br	LA-533-105	X	d ⁶	1/mtrx	ea AB	±10	90-110	µg/mL	> 1,200 ¹⁰	unknown	unknown	I, III
A	RSST ⁸	Energy	see 8 below	X	d	N/A	N/A	±10	90-110	J/g ⁵	> 481	unknown	unknown	I, III
A	Hot Persulfate ⁸	TOC	LA-342-100	X	d ⁶	1/mtrx	ea AB	±10	90-110	µg C/mL	> 30,000 ¹⁰	unknown	unknown	I, III

¹S-LEV LIQ-liquid taken from the segment level, FB-field blank

²d-direct, f-fusion, a-acid, w-water

³PR-precision, AC-accuracy, ea-each, smpl-sample, DUP-duplicate, SPK/MSD-spike and matrix spike duplicate, AB-analytical batch, PB-preparation blank, N/A-not applicable, mtrx-matrix

⁴Units for notification limits and expected range are those listed in the "units" column.

⁵Dry weight basis.

⁶Direct liquid samples may be diluted in acid or water to adjust to proper sample size and/or pH.

⁷Either serial dilutions or matrix spikes will be performed.

⁸These analyses required if DSC exceeds notification limits. The RSST method, yet to be proceduralized, may be found in WHC-SD-WM-TP-104.

⁹Performed only if Li exceeds notification limit.

¹⁰Converted from µg/g limit assuming a liquid density of 1.0 g/mL.

¹¹If the chain of custody form indicates that HHF fluid with LiBr tracer was used to obtain the segment, Li analysis is to be performed on that segment.

4.0 QUALITY ASSURANCE

4.1 LABORATORY OPERATIONS

The WHC 222-S Laboratory has a quality assurance plan (Meznarich 1995) that shall provide the primary direction for the quality assurance of analyzing the waste tank core samples at the WHC 222-S Laboratory. Additionally, the *Hanford Analytical Services Quality Assurance Plan* (DOE 1994), when implemented (currently scheduled for August 31, 1995), shall be used as quality assurance requirements.

Method-specific quality control such as calibrations and blanks are also found in the analytical procedures. Sample quality control (duplicates, spikes, standards) are identified in Table 1. If no criteria are provided in Table 1, the performing laboratory shall perform to its quality assurance plan(s).

4.2 SAMPLE COLLECTION

Two core samples are to be taken from tank B-106 and shipped to the performing laboratory by Sampling Operations in accordance with work package ES-95-00222. Those work packages shall also initiate the chain-of-custody for the samples. Approved procedure TO-080-090 ("Load/Transport Sample Cask(s)") is to be used during the sampling event. Samples shall be identified by a unique number before being shipped to the performing laboratory. The sampling team is responsible for documenting any problems and procedural changes affecting the validity of the sample in a field notebook. Sampling Operations shall enter this information in the comment section of the chain-of-custody form for addition to the data reports. As part of this sampling event, a field blank and occasionally a HHF blank are required (Section 2.2).

Sampling Operations should transport each segment collected to the performing laboratory within 1 working day of removing the segment from the tank, but must transport each segment within 3 calendar days. The field blank and HHF blank shall each count as a segment. Sampling Operations is responsible for verbally notifying the WHC 222-S Laboratory (373-2435) at least 24 hours in advance of an expected shipment.

4.3 SAMPLE CUSTODY

The chain-of-custody form is initiated by the sampling team as described in work package ES-95-00222. Core samples are shipped in a cask and sealed with a Waste Tank Sample Seal.

WASTE TANK SAMPLE SEAL	
Supervisor:	Sample No.:
Date of Sampling:	Time of Sampling:
Shipment No.:	Serial No.:

The sealed and labeled samples are shipped to the laboratory along with the chain-of-custody form. The receipt and control of samples in the WHC 222-S Laboratory are described in laboratory procedure LO-090-101.

5.0 ORGANIZATION

The organization and responsibility of key personnel involved with this tank B-106 characterization project are listed in Table 2.

Table 2: Tank B-106 Project Key Personnel List

Individual	Organization	Responsibility
J. M. Conner	TWRS Characterization Plans and Reports	Tank B-106 Tank Characterization Plan Cognizant Engineer
E. J. Lipke	WHC Safety Program	Safety Screening Point of Contact
East Tank Farm Operations Shift Manager	Tank Farm Operations	200 East Tank Farm Point of Contact if Action Limit is Exceeded (373-2689)

6.0 EXCEPTIONS, CLARIFICATIONS, AND ASSUMPTIONS

6.1 EXCEPTIONS TO DQO REQUIREMENTS

The safety screening DQO specifies that cyanide analyses are to be run on a quarter-segment level and that the notification limit for the DSC analysis is 125 cal/g (523 J/g). The revised ferrocyanide DQO (Meacham et al. 1994) has changed the requirements such that the cyanide analysis is now to be run on a half-segment level and the DSC notification limit is 115 cal/g (dry weight basis). The next revision to the safety screening DQO will incorporate

this change. This Sampling and Analysis Plan specifies that cyanide is to be run on a half-segment basis and that notification shall be made if the DSC value exceeds 481 J/g dry weight basis (115 cal/g).

6.2 CLARIFICATIONS AND ASSUMPTIONS

A number of clarifications and assumptions relating to the notification limits or decision thresholds identified in the applicable DQO efforts need to be made with respect to the analyses in Table 1. Each of these issues are discussed as follows:

- ▶ Any exotherm (in J/g or cal/g) determined by DSC must be reported on a dry weight basis as shown in equation (1) using the weight percent water determined from thermogravimetric analysis.

$$\text{Exotherm (dry wt)} = \frac{[\text{exotherm (wet wt)} \times 100]}{(100 - \% \text{ water})} \quad (1)$$

NOTE: If there is greater than 90 percent water in a sample, converting to a dry weight basis may lead to a large error in the DSC value. However, the conversion is still required.

- ▶ The safety screening DQO (Babad and Redus 1994) requires that additional analyses be performed if total alpha activity measures greater than 1 g/L. Total alpha is measured in $\mu\text{Ci/g}$ rather than g/L. To convert the notification limit for total alpha into a number more readily usable by the laboratory, it was assumed that all alpha decay originates from Pu-239. The notification limit may then be calculated as shown in equation (2):

$$\left(\frac{1 \text{ g}}{\text{L}}\right) \left(\frac{1 \text{ L}}{10^3 \text{ mL}}\right) \left(\frac{1 \text{ mL}}{\text{density g}}\right) \left(\frac{0.0615 \text{ Ci}}{1 \text{ g}}\right) \left(\frac{10^6 \mu\text{Ci}}{1 \text{ Ci}}\right) = \frac{61.5 \mu\text{Ci}}{\text{density g}} \quad (2)$$

NOTE: If a density of 1.5 g/mL is assumed for solid material, the notification limit becomes 41 $\mu\text{Ci/g}$.

- ▶ The safety screening DQO, upon which the analyses in Table 1 are based, does not sufficiently address the analyses of the field blank or any drainable liquid present. In order to characterize the tank waste adequately, all analyses performed on the solids for the safety screening DQO, with the exception of total alpha analyses, shall also be performed on any drainable liquids. To adequately determine if any contamination of the sample material has occurred, the field blank shall be analyzed for those primary analyses done on segment-level liquids.

7.0 DELIVERABLES

All analyses of tank B-106 waste material shall be reported as Format I and/or III as indicated in Table 1. Additional information regarding reporting formats is given in "Revised Interim Tank Characterization Plan Guidance" (Schreiber 1994) and "Immediate Modification of Format I Reporting" (Kristofzski 1995).

7.1 PROGRESS REPORTS

Each laboratory performing analyses on tank B-106 waste material from this core sampling project shall provide monthly status reports to the Characterization Program. This report shall contain 1) a summary of the activities on the analysis of tank B-106, 2) preliminary results to the program, and 3) schedule and cost information on a DQO basis.

Monthly and accumulative costs will be compared to the base as part of the progress report. Monthly variances greater than 10% or \$10,000, and accumulative variances greater than \$50,000 from the estimated costs or schedule must be explained in the report. Cost reporting shall consist of the following:

1. budgeted cost of work scheduled
2. monthly cost (actual cost of work performed)
3. year-to-date costs (actual cost of work performed)

Schedule reporting shall consist of the following:

1. monthly schedule
2. year-to-date schedule

7.2 FORMAT I REPORTING

Table 1 contains the notification limits for each analyte. Any results exceeding their notification limits shall be reported to the TWRS sample project coordinator the same day the test limit is exceeded (or next business day if offshift or on a weekend) (Kristofzski 1995). The TWRS sample project coordinator for Tank B-106 is J. M. Conner (373-2711). Appropriate notifications will then be made via the TWRS Characterization daily operating report and by hardcopy to programmatic points of contact within two business days. Additional analyses for verification purposes may be contracted between the performing laboratory and the contacts above by a revision to this document, or by a letter of instruction.

7.3 FORMAT III REPORTING

A Format III report, containing the results of the primary safety screening analyses shall be issued to the Safety Screening Representative, Characterization Plans and Reports, Characterization Program Office, Tank Characterization Resource Center, Process Control, and the Tank Characterization Database representative (Schreiber 1995) within 45 days of receipt of the last segment of the last core sample at the laboratory loading dock. The DSC and TGA scans have been requested due to the interpretive nature of the analysis. If analyses for the safety screening secondary

analytes are required, these results shall be provided within 90 days of receipt of the last segment of the last core sample at the laboratory loading dock. No calibration data are requested for these reports.

8.0 CHANGE CONTROL

Under certain circumstances, it may become necessary for the performing laboratory to make decisions concerning a sample without review of the data by the customer or the Characterization Program. These changes shall be documented through the use of internal characterization change notices or analytical deviation reports for minor low-impact changes and documented in applicable laboratory records. All significant changes (such as changes in scope) shall be documented by Characterization Plans and Reports via an Engineering Change Notice to this plan. All changes shall also be clearly documented in the final data package.

Additional analysis of sample material from this characterization project at the request of the Characterization Program shall be performed according to a revision of this plan.

9.0 REFERENCES

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- Whelan, T. E., 1994, *TWRS Characterization Program Quality Assurance Program Plan*, WHC-SD-WM-QAPP-025, Rev. 0, Westinghouse Hanford Company, Richland, Washington.