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L. A. Diaz 4/27/99 Signature of EDT Originator Date	N/A Authorized Representative for Receiving Organization Date	K.M. Leonard P. F. Hardy Design Authority/Cognizant Manager Date	Ctrl. No. [ ] Approved [ ] Approved w/comments [ ] Disapproved w/comments

Sampling and Analyses Plan for Tank 103 at the 219-S Waste Handling Facility

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WASTE MANAGEMENT LABORATORY

SAMPLING AND ANALYSES PLAN FOR TANK 103 AT THE 219-S WASTE HANDLING FACILITY

Project Coordinator: Franciska H. Steen

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

222-S Laboratory
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Sampling and Analyses Plan for Tank 103 at the 219-S Waste Handling Facility

1.0 PURPOSE

This document describes the sampling and analysis activities associated with taking a Resource Conservation and Recovery Act (RCRA) protocol sample of the waste from Tank 103 at the 219-S Waste Handling Facility treatment, storage, and/or disposal (TSD) unit at the 222-S Laboratory complex. This sampling and analyses is required based on negotiations between the State of Washington Department of Ecology (Ecology) and the Department of Energy, Richland Operations, (RL) in letters concerning the TPA Change Form M-32-98-01.

In a letter from George H. Sanders, RL to Moses N. Jaraysi, Ecology, dated January 28, 1999, it was noted that "Prior to the Tank 103 waste inventory transfer, a RCRA protocol sample of the waste will be obtained and tested for the constituents contained on the Part A, Form 3 Permit Application for the 219-S Waste Handling Facility." In the April 2, 1999 letter, from Brenda L. Becher-Khaleel, Ecology to James, E. Rasmussen, RL, and William D. Adair, FDH, Ecology states that the purpose of these analyses is to provide information and justification for leaving Tank 103 in an isolated condition in the 219-S TSD unit until facility closure. The data may also be used at some future date in making decisions regarding closure methodology for Tank 103. Ecology also notes that As Low As Reasonably Achievable (ALARA) concerns may force deviations from some SW-846 protocol. Every effort will be made to accommodate requirements as specified. Deviations from SW-846 will be documented in accordance with HASQARD.

2.0 SITE DESCRIPTION AND BACKGROUND

Tank 103 is located in the 219-S Waste Handling Facility TSD unit at the 222-S Laboratory complex. The 219-S TSD unit consists of four interconnected tanks. Currently the secondary containment at the 219-S is undergoing upgrades as part of TPA interim milestone M-32-98. Completion of this interim milestone includes the removal of Tank 103 from service. Tank 103 will be isolated and a small residual heel (less than 1% of the tank capacity) will be allowed to evaporate to dryness. RCRA closure of Tank 103 will not take place until RCRA closure of the 219-S Waste Handling Facility.

3.0 CONSTITUENTS OF CONCERN

Constituents of concern for sampling and analyses are based on the Part A, form 3 for the 219-S TSD unit. Table 1, attached, lists the dangerous waste codes as noted on the Part A, form 3, the associated constituent of concern, and the SW-846 method that will be used to analyze for the specific constituent.

The document Listed Waste History at Hanford Facility TSD Units, WHC-MR-0517, Revision 0 (June 1996) provides information on the specific sources that resulted in the F-listed waste codes. Only the specific solvent which may be found in the 219-S waste will be included as a constituent of concern. Also, WHC-MR-0518 notes that F039, Leachates, have not been accepted by the 222-S laboratory complex and therefore, F039 will not be included on the constituents of concern list. It has been determined that no

F039 waste has been transferred to Tank 103, to date.

For waste codes, WP01, WP02, WT01, and WT02 no specific target compounds are identified. Analyses for semi-volatile and volatile organic compounds (SW-846 methods 8260 and 8270) are considered sufficient to detect to presence of any compounds associated with these waste codes. Therefore, since SW-846 methods 8260 and 8270 are being performed as part of this sampling and analyses effort, no additional analyses will be required.

In addition samples will be collected for Tank Waste Remediation System Waste acceptance criteria.

4.0 PERFORMANCE STANDARD

There are no specific performance standards associated with this sampling and analyses activity. Effort will be made to achieve the best detection limits possible for the analyses, however, ALARA concerns will limit the sample sizes and therefore will affect detection limits. The detection limits achieved will be noted on the final analytical report which will be maintained in the unit's operating files.

5.0 SAMPLING ACTIVITIES

The sampling activities will be conducted in accordance with the following 222-S Laboratory Complex procedures:

- LO-100-162, Sample and Treat Liquid Waste in Tank 103.
- LO-090-101, 222-S Laboratory Sample Receiving and Custodianship

All samples will be placed in new, EPA-approved, pre-cleaned polyethylene or plastic sample containers. The specific sample sizes are specified on the Sample Authorization Form (SAF) based on the contractual arrangements with the analytical laboratory conducting the analysis. The appropriate (i.e., compatible) containers and lids will be used for the samples. Each sample container will receive a unique sample number per the Hanford Environmental Information System. The appropriate sample preservation requirements are also specified on the SAF. The SAF will be prepared prior to sampling.

6.0 QUALITY CONTROL

The sample will be cooled to and maintained at 4 degrees Celsius. No additional preservations methods will be employed.

The following types of quality control samples will be collected: field blanks, and trip blanks. The trip blank will only be used in association with the organic analyses. These blanks are defined by HASQARD as follows:

- Trip Blank - A blank sample which travels with sample containers to the sampling site and returns unopened to the laboratory with the samples to be analyzed. The trip blank usually consists of carbon free, deionized water. The blank measures contamination during sample transport and typically only

analyzed for volatile organic compounds.

- Field Blank - A blank sample prepared in the field at the sample collection site and returned to the laboratory with the samples to be analyzed. Tests for contamination from the atmosphere as well as those activities listed under trip blank.

7.0 LABORATORY ANALYSIS

Laboratory analysis will be performed to determine the concentration of the constituents of concern in the waste samples that are collected. SW-846 analytical methods (EPA 1986) will be used for the sample analysis whenever possible. Analyses will be performed using the methods listed in the attached table. ALARA requirements may result in deviations from any of these methods; any deviations will be noted and information maintained in the unit's operating record.

8.0 DATA VALIDATION

Data validation will be conducted. Validation will consist of the following:

- verification of required deliverables
- verification of requested versus reported analyses
- verification of lack transcription errors
- evaluation and qualification of results based on analytical holding times
- matrix spikes
- laboratory control samples (radiological samples only)
- laboratory duplicates
- analytical method blanks
- chemical recoveries
- tracer recoveries
- surrogate recoveries
- initial and continuing instrument calibrations
- counting instrument resolution checks
- calculation checks.

Table 1: Constituents of Concern

Waste Code	Constituent	Laboratory Procedure*
D001	IGNITABLE	LABORATORY SPECIFIC
D002	CORROSIVE	pH determination
D003	REACTIVE	CYANIDES/SULFIDES
D004	ARSENIC	6010
D005	BARIUM	6010
D006	CADMIUM	6010
D007	CHROMIUM	6010
D008	LEAD	6010
D009	MERCURY	6010
D010	SELENIUM	6010
D011	SILVER	6010
D018	BENZENE	8260
D019	CARBON TETRACHLORIDE	8260
D022	CHLOROFORM	8260
D028	1,2-DICHLOROETHANE	8260
D029	1,1-DICHLOROETHYLENE	8260
D030	2,4-DINITROTOLUENE	8270
D033	HEXACHLOROBUTADIENE	8270
D034	HEXACHLOROETHANE	8260
D035	METHYL ETHYL KETONE	8260
D036	NITROBENZENE	8260
D038	PYRIDINE	8260
D039	TETRACHLOROETHYLENE	8260
D040	TRICHLOROETHYLENE	8260
D041	2,4,5-TRICHLOROPHENOL	8270
D043	VINYL CHLORIDE	8260
WP01**	HALOGENATED HYDROCARBONS	8260/8270
WP02**	HALOGENATED HYDROCARBONS	8260/8270
WT01**	EHW	8260/8270
WT02**	DW	8260/8270
F001***	1,1,1-TRICHLOROETHANE	8260
F002***	METHYLENE CHLORIDE	8260
F003***	ACETONE	8260
	METHYL ISOBUTYL KETONE	8260
F004***	CRESOLS AND CRESYLIC ACID	8270
F005***	METHYL ETHYL KETONE	8260
F039***	LEACHATE – NON APPLICABLE	n/a
	AMMONIA	LABORATORY SPECIFIC
	ION CHROMOTOGRAPHY	LABORATORY SPECIFIC
	AM241	LABORATORY SPECIFIC
	GEA	LABORATORY SPECIFIC
	PU239	LABORATORY SPECIFIC
	SR90	LABORATORY SPECIFIC
	ICP/MS	LABORATORY SPECIFIC

Table 1: Constituents of Concern Continued

TDS	LABORATORY SPECIFIC
TSS	LABORATORY SPECIFIC
TOTAL ALPHA/BETA	LABORATORY SPECIFIC
SPECIFIC GRAVITY	LABORATORY SPECIFIC
TOTAL ORGANIC CARBON	LABORATORY SPECIFIC
HYDROXIDE	LABORATORY SPECIFIC
TGA	LABORATORY SPECIFIC
DSC	LABORATORY SPECIFIC

* SW-846 procedure or equivalent, unless otherwise noted. SW-846 method deviations are noted in the laboratory specific procedures.

** Analyses for semi-volatile and volatile organic compounds (SW-846 methods 8260 and 8270) are considered sufficient to detect to presence of any compounds associated with these waste codes.

*** Specific constituent of concern based on WHC-MR-0517, Revision 0, Listed Waste History at Hanford Facility TSD Units, June 1996. To date, no F039 waste has been transferred into Tank 103, therefore no analyses is applicable.

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Production Planning & Control	Date: 04/27/99
Project Title/Work Order **HNF-1667** Rev. 0 "Sampling and Analyses Plan for Tank 103 at the 219-S Waste Handling Facility"		EDT NO.: EDT-626137 ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Waste Management of Hanford, Inc.			
L. A. Diaz	T6-12		X*
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A. L. Prignano	H6-24	X	
F. H. Steen	T6-12	X	
LTIC	T6-03		X
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K. M. Leonard	T6-14	X	
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