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Distribution	300 Area Liquid Effluents Process Engineering	Date 10/11/94
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Page 1 of 1

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7. Abstract

This document presents the 300 Area Treated Effluent Disposal Facility (TEDF) National Pollutant Discharge Elimination System (NPDES) Permit Compliance Monitoring Plan (MP). The MP describes how ongoing monitoring of the TEDF effluent stream for compliance with the NPDES permit will occur. The MP also includes Quality Assurance protocols to be followed.

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TABLE OF CONTENTS

Acronyms/Abbreviations 3

Executive Summary 4

1.0 Introduction 5

2.0 Program Description 5
2.1 Background 5
2.2 Facility Description 6
2.3 Objectives 10
2.4 Approach 10
2.5 Program Organization and Responsibilities 10
2.5.1 Program Management and Integration (PM&I) 11
2.5.2 300 Area Liquid Effluent Process Engineering (LEPE) . . 11
2.5.3 LEF Operations 11
2.5.4 Effluent Monitoring (EM) 15

3.0 Sampling Location and Sample Frequency 15
3.1 Location 15
3.2 Frequency 15
3.2.1 Continuous 15
3.2.2 Three Times Per Week 17
3.2.3 Biweekly 17
3.2.4 Quarterly 17
3.2.5 Annually 17

4.0 Sampling Equipment and Procedures 18
4.1 Required Measurements and Analyses 18
4.2 Sampling Equipment 18
4.3 Containers and Preservation 18
4.4 Measurement of Field Parameters 21
4.5 Flow Measurement 21
4.6 Sample Collection 21
4.7 Sample Identification 21
4.8 Site Entry 21
4.9 Health and Safety 21
4.10 Equipment Decontamination 22
4.11 Revisions to this Monitoring Plan 22

5.0 Quality Assurance 22
5.1 Field Documentation 22
5.2 Field Quality Control Sampling 23
5.3 Chain of Custody 23
5.4 Sample Transport 24
5.5 Laboratory Quality Assurance 24
5.6 Final Records 24

REFERENCES 25

FIGURES AND TABLES

Table 2-1 Facilities Connected to 300 Area Process Sewer 7
Figure 2-1 Location of the Hanford Site and the 300 Area 8
Figure 2-2 TEDF Flow Diagram 9
Figure 2-3 Sampling Location 12
Figure 2-4 TEDF Project Organization 13
Figure 2-5 Sampling Responsibilities Flow Sheet 14
Table 3-1 Sample Schedule 16
Table 4-1 Permit Mandated Analysis 19
Table 4-2 Sample Specifics 20

Acronyms/Abbreviations

COC	Chain-of-custody
DMR	Discharge Monitoring Report
DOE-RL	Department of Energy, Richland Operations
Ecology	Washington Department of Ecology
EM	Effluent Monitoring
HDPE	High Density Polyethylene
LEPE	Liquid Effluents Process Engineering
QA/QC	Quality Assurance/Quality Control
MP	Monitoring Plan
MS/MSD	Matrix Spike/ Matrix Spike Duplicate
NPDES	National Pollutant Discharge Elimination System
Operations	LEF Operations Staff
OSHA	Occupational Safety and Health Administration
PLC	Process Logic Controller
PM&I	Program Management and Integration
RPD	Relative Percent Deviation
SAF	Sample Authorization Form
SML	Sampling Mobile Laboratories
SOW	Statement of Work
STL	Sample Task Leader
TEDF	Treated Effluent Disposal Facility
TPA	Tri-Party Agreement
TSS	Total Suspended Solids
WAC	Washington Administrative Code
WHC	Westinghouse Hanford Company

Executive Summary

This monitoring plan describes the activities and methods that will be employed at the 300 Area Treated Effluent Disposal Facility (TEDF) in order to ensure compliance with the National Discharge Elimination System (NPDES) permit. Included in this document are a brief description of the project, the specifics of the sampling effort, including the physical location and frequency of sampling, the support required for sampling, and the Quality Assurance (QA) protocols to be followed in the sampling procedures.

The TEDF was constructed as project L-045H to meet one of the milestones of the Hanford Federal Facility Agreement and Consent Order (Commonly referred to as the Tri-Party Agreement (TPA) (Ecology, 1989)). TEDF consists of a series of treatment processes to reduce suspended solids, dissolved metals, and organics to NPDES permit levels for discharge into the Columbia River.

Sampling will consist of both composite samples and grab samples taken from the effluent line subject to permit constraints. LEF Operations staff will take the samples under the supervision of the 300 Area Liquid Effluent Process Engineering staff. Proper sample collection, sample identification, and field documentation procedures will maintain a high level of control over the samples for chain of custody purposes. Samples will be taken on either a biweekly or three times per week basis as required by the permit. Quarterly Whole Effluent Testing (WET) and annual river monitoring analyses will also be performed. Sample analysis will be accomplished by an offsite contract laboratory. Program Management and Integration (PM&I), the Effluent Monitoring group (EM) and the Sampling Mobile Laboratories (SML) will all provide support services to this sampling effort.

Quality Assurance protocols will be followed to maintain data integrity. These procedures include specific requirements for both field and final documentation, Quality Control samples, and proper chain of custody. Laboratory QA will also be maintained using the standards set forth in the Hanford Analytical Services Quality Assurance Plan (HASQAP, 1994) and the laboratory specific lab manuals. The laboratory specific lab manuals are maintained by the Sample Data and Contracts group as controlled documents.

1.0 Introduction

This Monitoring Plan (MP) describes the field activities and methods associated with the collection and analysis of samples for compliance activities at the 300 Area Treated Effluent Disposal Facility (TEDF). The outfall sampling is being performed at TEDF to meet the requirements of the 300 Area TEDF National Pollutant Discharge Elimination System (NPDES) Permit.

This MP documents the methods and frequency of sampling and the required analytical methods in order to determine the concentration of constituents in the TEDF treated effluent. This document also includes the quality assurance documentation intended to ensure that procedures are implemented and that the sampling and analysis work is performed to the level of control necessary in order to provide the proper level of quality for the data.

2.0 Program Description

This section gives an overview of this MP. The TEDF location and operational characteristics are discussed. This section also addresses the objectives sought from the sampling effort and the approach to be employed. Several different groups of people are involved in the implementation of this MP, with the applicable responsibilities of these groups also identified in this section.

2.1 Background

The TEDF is located on the northern-most boundary of the 300 Area of the Hanford Reservation. The Hanford Reservation is a U.S. Department of Energy (DOE) facility located in south-central Washington adjacent to the Columbia River (see Figure 2-1). A variety of office buildings, research laboratories, and support facilities (e.g., warehouses and shops) are located in the 300 Area. The TEDF collects and treats process wastewater which is discharged to the 300 Area Process Sewer by approximately 55 of these facilities and then discharges the treated wastewater to the Columbia River. The facilities connected to the 300 Area Process Sewer are listed in Table 2-1.

The process wastewater stream which is treated at TEDF consists primarily of potable water, equipment cooling water, steam condensate, water treatment salts, and laboratory and research wastewater. The mean daily flow rate is currently in the range of 130 to 250 gallons per minute, with maximum spikes attaining 1200 gallons per minute.

2.2 Facility Description

The 300 Area TEDF was constructed as part of the Hanford Federal Facility Agreement and Consent Order (Commonly referred to as the Tri-Party Agreement (TPA) (Ecology, 1989)), under the project number L-045H. The following is a brief description of the treatment process for the 300 Area process sewer at TEDF. A flow diagram of the facility is included as Figure 2-2.

The various contributions of 300 Area facilities to the process sewer run together and enter a main header at the north end of the 300 Area. The header dumps into the Waste Collection Sump which has a volume of 80,000 gallons. The purpose of this sump is to collect the wastewaters, monitor them for temperature, pH, conductivity, and radioactive content, and then pump them to the TEDF equalization tank. The 480,000 gallon equalization tank is the feed tank for the TEDF process. Its purpose is to dampen the variations in flow and load from the 300 Area process sewer and the various intermittent recycle streams to maintain a steady state influent stream.

From the equalization tank, the feedwater is pumped to the chemical mix tank as the first step in the iron co-precipitation process. The co-precipitation process consists of a chemical mix tank, flocculation tank, two clarifiers, and gravity filters. The waste stream enters the chemical mix tank where ferric chloride is added to the waste stream along with sodium hydroxide to control the pH at a basic level (pH 9-11). The iron co-precipitation process is based on the tendency of many heavy metals to form relatively insoluble precipitates under neutral or high pH conditions. When iron is added as a co-precipitant, it forms well-settling ferric hydroxide flocs that help settle the other metal precipitates by trapping and adsorbing them on the iron flocs.

A flocculent aid polymer is added to the waste stream as it gravity flows from the chemical mix tank to the flocculator tank. The waste stream is gently mixed in the flocculator in order to increase the size and mass of the floc. The flocculated wastewater then flows by gravity to the clarifiers where settling takes place.

From the clarifiers the wastewater flows through the gravity filters, which use a dual media bed of charcoal and sand to remove suspended solids.

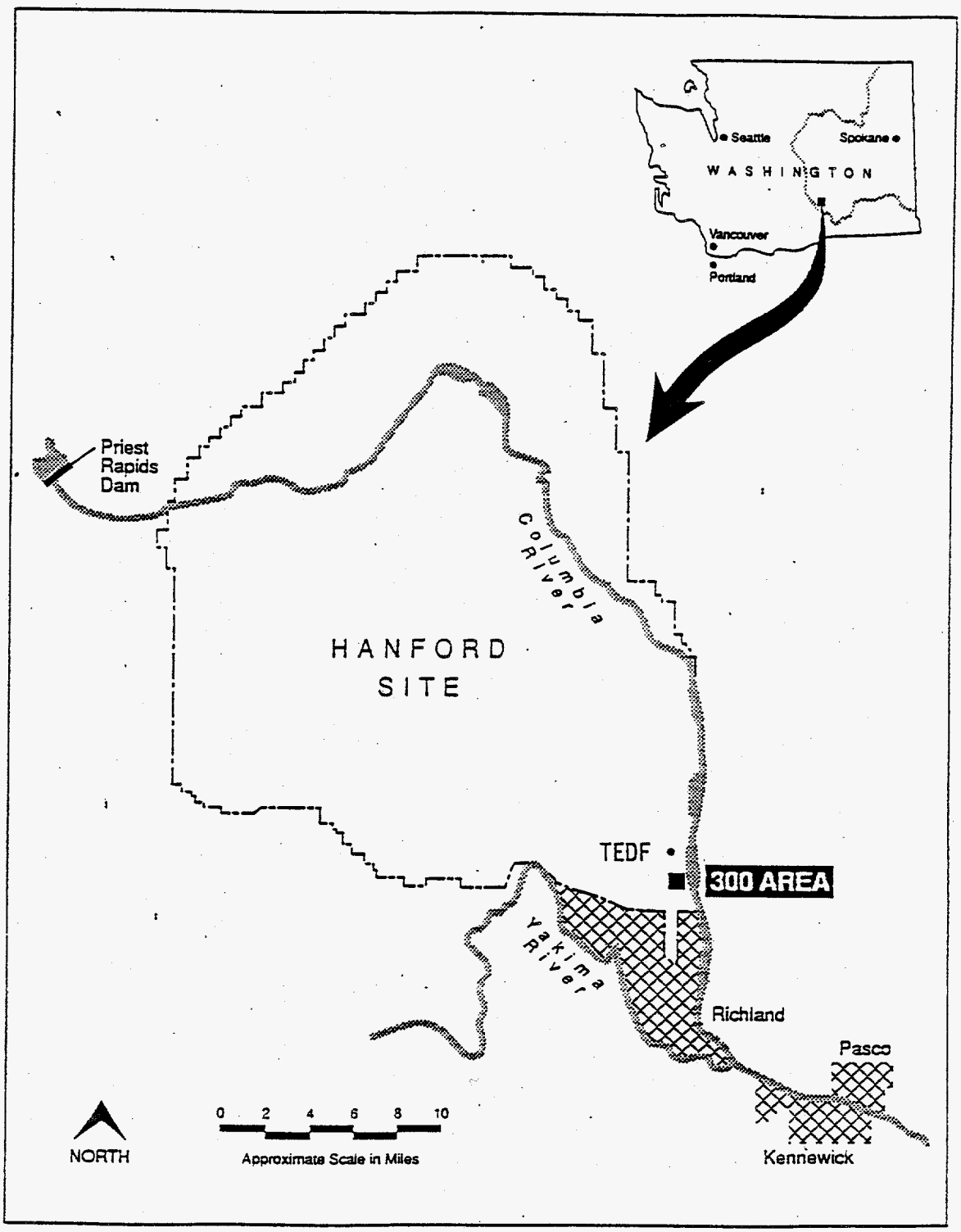
The treated water from the gravity filters flows by gravity into the ion exchange tank, from which it is pumped to the ion exchange column system. Sulfuric acid is added to the wastewater in the ion exchange feed tank to lower pH for improved efficiency in the UV/peroxide unit, which lies in-line directly after the ion exchangers. The wastewater passes through one of the two parallel trains of two ion exchange columns in series. The ion exchanger columns are packed with a resin which has an affinity for mercury and other metals that form insoluble metal sulfides.

Table 2-1 Facilities Connected to 300 Area Process Sewer, June 16, 1993

Building Number	BUILDING NAME (OPERATING COMPANY)[a]
303F	Pumphouse (WHC)
303J	Material Storage Building (PNL)
303M	Uranium Oxide Facility (WHC)
304	Uranium Concretion Facility (WHC)
305	Engineering Test Facility (WHC)
305B	Hazardous Waste Storage Facility (PNL)
306E	Development, Fabrication, and Test Laboratory (WHC)
306W	Materials Development Laboratory (PNL:)
308	Fuels Development Laboratory
309	Test Engineering Facility (WHC)
311	Tank Farm (WHC)
313	N Fuels Manufacturing Support Facility (WHC)
314	Engineering Development Laboratory (PNL)
318	Radiological Calibrations Laboratory (PNL)
320	Physical Science Laboratory (PNL)
321	Hydromechanical/Seismic Facility (WHC)
323	Mechanical Properties Laboratory (PNL)
324	Waste Technology Engineering Laboratory (PNL)
325	Applied Chemistry Laboratory (RPS)(PNL)
326	Material Science Laboratory (PNL)
327	Post Irradiation Test Laboratory (PNL)
329	Chemical Science Laboratory (PNL)
331	Life Science Laboratory 1 (PNL)
331D	Biomagnetic Laboratory (PNL)
331E	Greenhouse (PNL)
331J	Incinerator (PNL)
333	N Fuels Fabrication Facility (WHC)
334	Process Sewer Monitoring Facility (WHC)
335	Sodium Testing Facility (WHC)
336	High Bay Testing Facility (PNL)
337	Technical Management Center (PNL)
337	High-Bay nd Service Wing (WHC)
338	Fabrication Shop (KEH)
382	Pumphouse (WHC)
382	A,B,C Water Storage Tanks (WHC)
384	Powerhouse (WHC)
3100	Future Facility (PNL)
3706	Communication and Documentation Services (WHC)
3707C	Safeguards and Security Maintenance Shop (WHC)
3708	Radioanalytical Laboratory (PNL)
3709	Paint Shop (WHC)
3716	Storage (WHC)
3717	Spare Parts Warehouse (WHC)
3717B	Standards Laboratory (WHC)
3718F	Sodium Storage (WHC)
3720	Chemistry and Metal Sciences Laboratory (PNL)
3722	Construction Shop (KEH)
3730	Gamma Irradiation Facility (PNL)
3732	Old Thoria Laboratory (WHC)
3745A	Electron Accelerator Facility (PNL)
3745B	Positive Ion Accelerator Facility (PNL)
3746	Radiological Physics Laboratory (PNL)
3802A	Steam Pressure Reducing Valve Station (WHC)
3902A	West Elevated Water Tank
3902B	East Elevated Water Tank

[a] WHC = Westinghouse Hanford Co., PNL = Pacific NW Laboratories, KEH = Kaiser Engineers Hanford.

Figure 2-1 : Location of the Hanford Site and the 300 Area



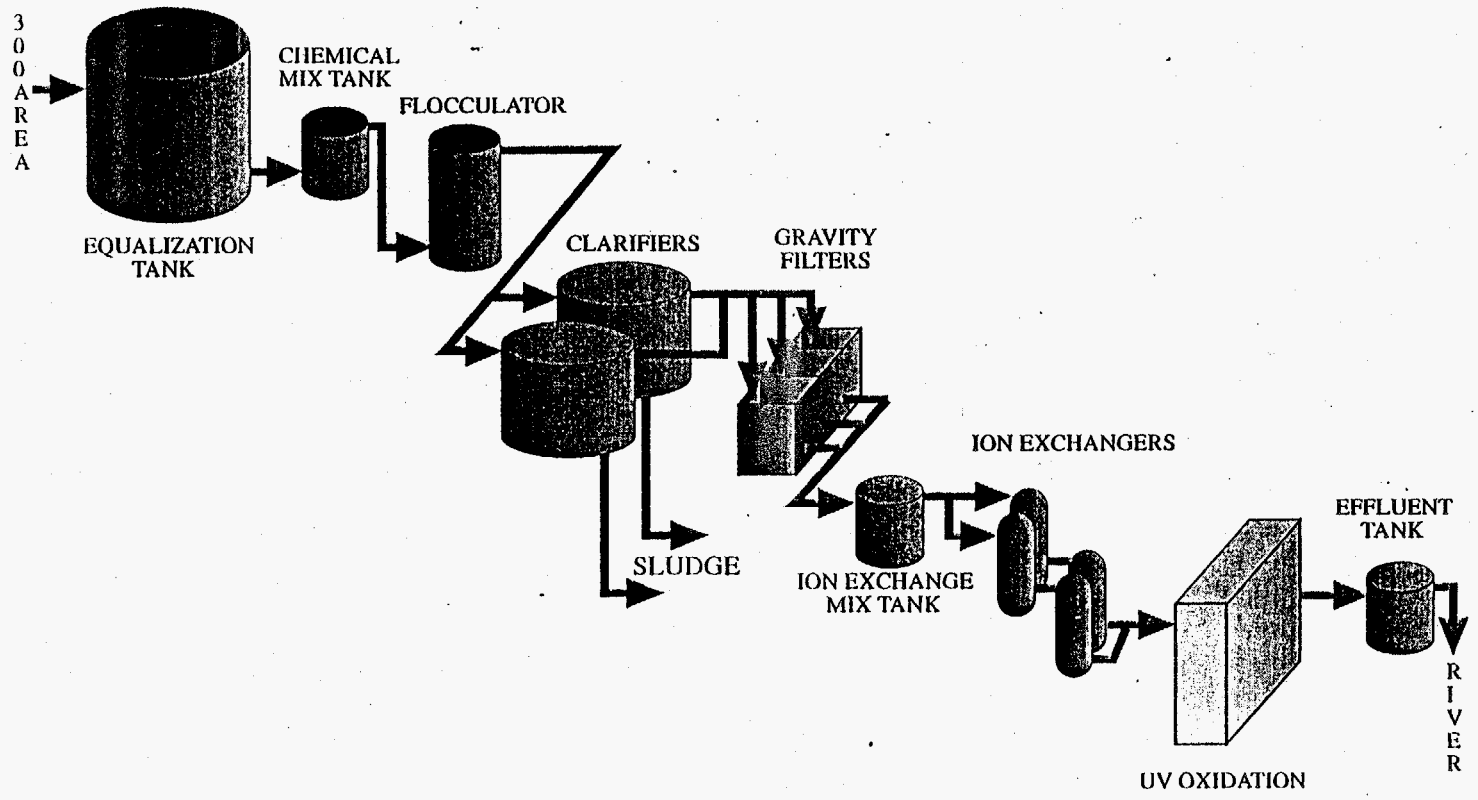


FIGURE 2-2: TEDF FLOW DIAGRAM

From the ion exchange system, the wastewater flows to the UV/peroxide treatment system. The UV/peroxide system destroys organic compounds, sulfide, nitrite, and cyanide by chemical oxidation. Ultraviolet light catalyzes the chemical oxidation reaction by its combined effect on the organic compounds and its reaction with the hydrogen peroxide that is fed to the wastewater upstream of the UV reactor. Organics are converted to carbon dioxide and water.

Following UV/peroxide treatment, the treated effluent is discharged into the effluent tank. Sodium hydroxide is added for adjustment in pH to meet regulatory requirements. The effluent then flows by gravity through the outfall pipeline to the Columbia River where it is discharged via a diffuser.

2.3 Objectives

This MP describes the effluent discharge sampling for the 300 Area Treated Effluent Disposal Facility. The objective of this effort is to produce reproducible and reliable data to ensure that the TEDF discharges are in compliance with the NPDES permit for discharge to the Columbia river.

Sampling will be conducted on a routine basis by the TEDF facility staff. These individuals will be trained in protocol sampling per Effluent Sampling Procedure 310-OP-024. Analysis of the samples will be performed by an offsite contract lab.

2.4 Approach

The discharge from the 300 Area TEDF will be sampled. Sampling will occur at the North East corner of the TEDF building, at valve TW-V-583 (Figure 2-3). This corner of the facility is used because the discharge line passes through this area after all treatment but prior to exiting the facility. Samples will be analyzed for a variety of constituents. A description of the analytes of interest, analysis methods, and the frequency of sampling can be found in Sections 3 and 4.

Grab samples will be taken on a regular basis, as described in Section 3. Temperature, pH and flow will be measured using in-line temperature and pH probes and a flow meter on a continuous basis. Grab samples will be taken manually using the valve discussed above. Analysis of samples will be performed by an off-site contract laboratory.

2.5 Program Organization and Responsibilities

The technical and management structure for sampling activities at the TEDF is shown in Figure 2-4. A flow diagram of sampling responsibilities is provided in Figure 2-5.

2.5.1 Program Management and Integration (PM&I)

PM&I will initiate a Sampling Authorization Form (SAF) which will describe the volume and necessary bottle type for each sample. PM&I will also act as the liaison between the TEDF and the contract laboratory. PM&I will receive data from the laboratory and will immediately forward these data to the TEDF and the Effluent Monitoring Group for incorporation in the Discharge Monitoring Report (DMR).

2.5.2 300 Area Liquid Effluent Process Engineering (LEPE)

300 Area LEPE will be responsible for the issuance and upkeep of the sampling plan. In order to fulfill this responsibility, LEPE will assign one of its engineers as Sample Task Leader (STL). The STL shall be responsible with the oversight of the sampling effort. The STL shall ensure that the sampling is performed per the sampling procedure and that the requirements of the NPDES Permit are being met.

2.5.3 LEF Operations

Prior to sample delivery to the contract lab the samples must be released for off-site shipment. To obtain this release the samples must be documented on an off-site property control form. This form requires property management approval and a radioanalytical screen to verify that the samples are non-radiological.

The LEF Operations staff (Operations) shall be responsible for the following tasks:

1. determine the time of sampling and to insure that sampling is completed in the required time frame.
2. Perform sampling, sample preparation and sample shipment in accordance with procedure 310-OP-024
3. Make all entries into the sampling log
4. Initiate the chain of custody forms and retain custody of the samples until they are transferred to the contract laboratory for analysis.

These individuals will be trained to routine sampling and chain of custody tasks per Effluent Sampling Procedure 310-OP-024. Training will take place during on the job training (OJT). Each operator will have completed the knowledge and performance requirements of section 18.0 of the 300 Area Treated Effluent Disposal Facility Nuclear Process Operator Training Qualification Cards prior to performing any sampling activities.

Figure 2-3 : Sampling Location

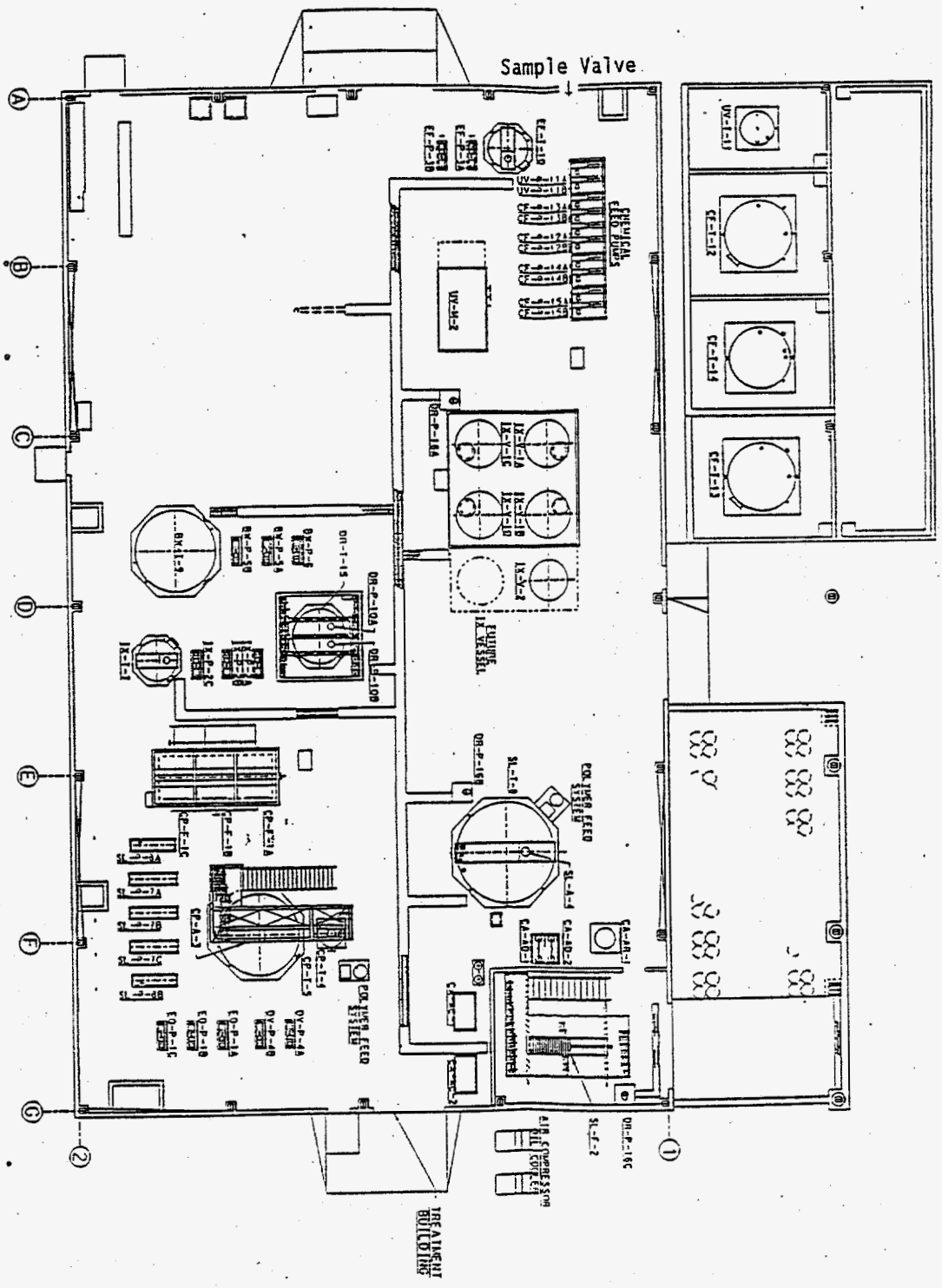


Figure 2-4 TEDF Project Organization

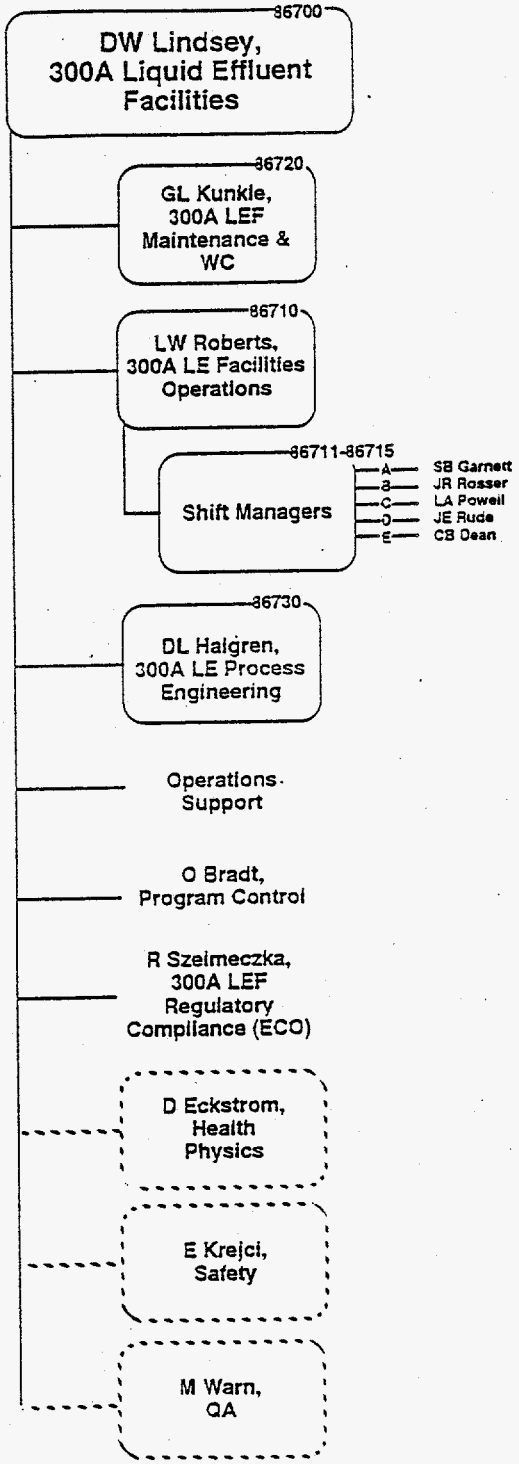
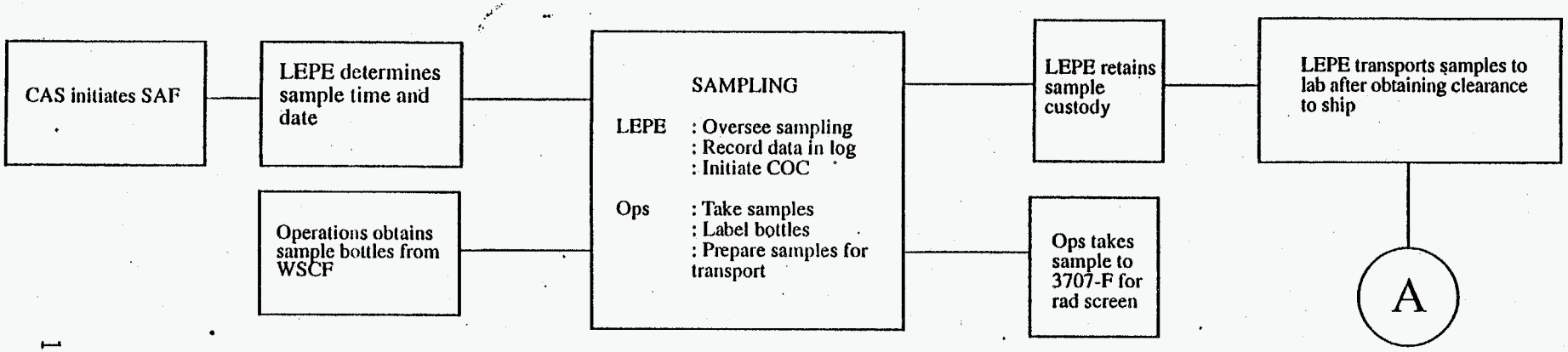
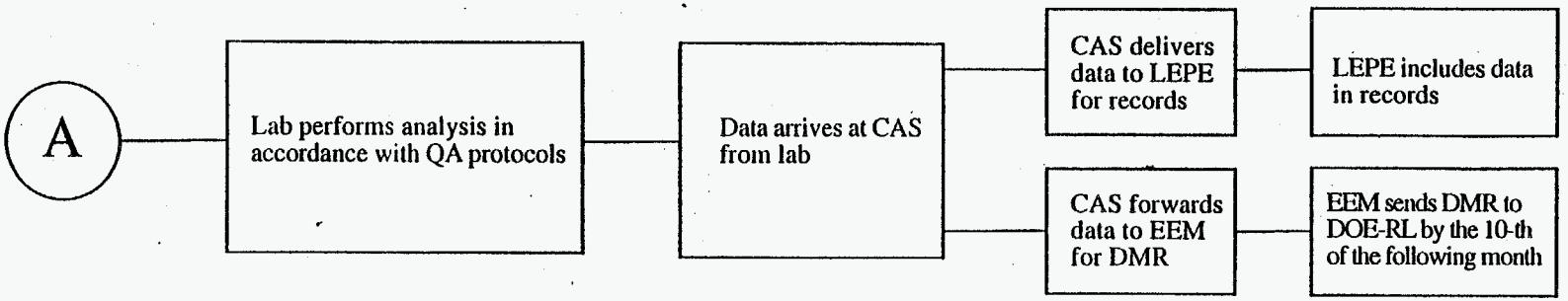


Figure 2-5 : Sampling Responsibilities Flow Sheet





2.5.4 Effluent Monitoring (EM)

Data will be returned to EM by PM&I by the 5th of the month. EM is then responsible for insuring that these data are incorporated into the proper DMR format and transmitted to DOE-RL by the 10th of the month, as required by Part II.C. of the permit.

EM will conduct Non-Radioactive Liquid Effluent Compliance Assessments twice a year in support of the TEDF to verify compliance with WHC-CM-7-5. The assessment findings will be reported to the Plant Engineering Manager to be utilized as self-assessment.

3.0 Sampling Location and Sample Frequency

This section will describe the sample location and frequency of sampling. Both sampling location and frequency were chosen to comply with NPDES permit requirements. Frequency of sampling is discussed for discharge sampling, yearly river monitoring, Whole Effluent Testing (WET), and duplicate sampling. In addition, two parameters, effluent flow and temperature will be continuously monitored as discussed in section 4.4.

3.1 Location

The 300 Area TEDF discharge will be sampled at the North East corner of the TEDF building. The location of this sampling point is shown in Figure 2-3. Part I.A. of the permit requires sampling "from the effluent stream prior to discharge into the receiving waters." In order to satisfy this requirement, this location was chosen because it is after all treatment and pH adjustment but prior to discharge.

3.2 Frequency

Discharge sampling will occur as required by the permit. Table 3-1 details the sample schedule for each analyte which will be sampled on a routine basis. This subsection describes the guidelines to be followed in determining sample day and time.

3.2.1 Continuous

Four parameters will be monitored on a continuous basis using the historical data logging ability of the TEDF computer system. Flowrate into and out of TEDF, the effluent temperature, and the effluent pH are recorded continuously via the TEDF computer system. The data will be retrieved and forwarded to the regulators.

Table 3-1 Sample Schedule

Analyte	Schedule
Bis(2-ethylhexl)phthalate	biweekly
Dichlorobromomethane	"
Chlorodiflouromethane	"
Methylene Chloride	"
Toluene	"
1,1,1,-Trichloroethane	"
Trichloroethylene	"
Chloroform	"
1,1-Dichloroethane	"
Tetrachloroethylene	"
Aluminum (Al)	"
Arsenic (As)	"
Beryllium (Be)	"
Cadmium (Cd)	"
Copper (Cu)	"
Cyanide(Cn)	"
Iron (Fe)	"
Lead (Pb)	"
Manganese (Mn)	"
Mercury (Hg)	"
Nickel (Ni)	"
Nitrite (NO3)	"
Selenium (Se)	"
Silver (Ag)	"
Zinc (Zn)	"
Radium (pci/l)	"
TSS	3 per week
Coliform	biweekly
Ammonia (as N)	"
pH (pH units)	daily

3.2.2 Three Times Per Week

Total suspended solids (TSS) samples are required to be taken three times per week. The samples may be pulled any day of the week not to exceed the frequency of one every twenty-four hours.

3.2.3 Biweekly

Samples of analytes which are required on a biweekly basis shall be taken between the first and fifth working day of each month and between the thirteenth and seventeenth working day of each month.

3.2.4 Quarterly

Whole Effluent Testing (WET) will be performed on a quarterly basis. WET testing shall consist of the 7-day fathead minnow, Pimephales promelas, test, the 7-day Ceriodaphnia dubia test, and the 4-day Selenastrum capricornutum growth test. All tests will be conducted on split samples of one 24-hour composite sample of the effluent. These three tests will be conducted four times per year, during the months of February, May, August, and November. The STL shall set sample dates within the given months. All test organisms and procedures used will be in accordance with the protocols in EPA/600/4-90/027 and EPA/600/4-89/001, in compliance with Part I.D. of the permit.

3.2.5 Annually

River Monitoring is required once per year. As per the permit, this sample shall be taken "during August of each year and the sampling day each year shall be selected to coincide with a day that effluent sampling is being conducted at the discharge." Therefore the river monitoring effort shall be completed on one of the days designated for sampling during August each year, as determined by the STL. A minimum of two sample stations will be established in the river along the approximate centerline of the discharge plume. This approximate centerline will be determined by LEPE. One station shall be immediately upstream of the TEDF discharge diffuser. The other station is to be located 71 feet downstream of the diffuser. Samples are to be collected immediately below the surface. Samples will be analyzed for all of the analytes in Table 4-1, with the addition of total hardness (as CaCO3), "dissolved", and "total recoverable" analysis on the following analytes: cadmium, copper, lead, nickel, silver, and zinc. Data from these tests are to be submitted the month after sampling with the monthly DMR. This river monitoring effort will be conducted in accordance to Part I.E. of the permit.

Duplicate samples, equipment blanks, trip blanks will be utilized as described in Section 5.2 of this MP.

4.0 Sampling Equipment and Procedures

This section addresses the sampling equipment that will be used and the procedures to be followed for the sampling effort. Items such as sample analytes and process measurements required are addressed. The equipment required for the sampling task, as well as the source of the equipment is included. Sample identification information is also included. This section will also address aspects of security and operational safety which may have a bearing on this sampling program.

4.1 Required Measurements and Analyses

The 300 Area TEDF discharge will be sampled for a variety of analytes. These include organics, inorganics, and total Radium radioactivity measurements. The required measurement and analyses for the discharge, along with the permit-mandated EPA methods, are provided in Table 4-1.

4.2 Sampling Equipment

Sampling equipment will consist of pre-prepared sample bottles. Samples will be taken directly in the sample bottles, thus limiting possible sources of sample contamination from intermediate equipment.

4.3 Containers and Preservation

Sample container, volume, preservation, and holding times are listed in Table 4-2. This table is subject to change as required by the methods and/or laboratory. All changes will be reflected on the SAF or communicated to the 300 Area TEDF by PM&I. Sample containers will be provided by Sampling Mobile Laboratories (SML). Any required preservatives will also be provided by SML.

Sample container labels will include the following information:

- Sample Identification Number
- Date
- Time (24 hour basis)
- Sample Matrix
- Sample Location
- Sample Preservation
- Scheduled Analysis (ie. EPA Method xxx.x)
- Sampler's Initials
- Remarks or Pertinent Comments

The adhesive labels will be marked with an indelible marker and fixed to the sample container and covered with clear adhesive tape. Tamperproof tape will be applied to the bottle cap to insure sample integrity.

Table 4-1 Permit Mandated Analysis

Analyte	EPA Method
Bis(2-ethylhexl)phthalate	625
Dichlorobromomethane	624
Chlorodiflouromethane	624
Methylene Chloride	624
Toluene	624
1,1,1,-Trichloroethane	624
Trichloroethylene	624
Chloroform	624
1,1-Dichloroethane	624
Tetrachloroethylene	624
Aluminum (Al)	202.2, 200.8
Arsenic (As)	206.2, 200.8
Beryllium (Be)	210.2, 200.8
Cadmium (Cd)	213.2, 200.8
Copper (Cu)	220.2, 200.8
Cyanide(Cn)	335.2 (4500 CNE.)
Iron (Fe)	236.2
Lead (Pb)	239.2, 200.8
Manganese (Mn)	243.2, 200.8
Mercury (Hg)	245.2
Nickel (Ni)	249.2, 200.8
Nitrite (NO3)	353.1
Selenium (Se)	270.2, 200.8
Silver (Ag)	272.2, 200.8
Zinc (Zn)	289.2, 200.8
Radium (pci/l)	903.0
TSS	160.2
Coliform	9221B, 9222B
Ammonia (as N)	350.1

* All analytes to be measured in ppb unless otherwise noted

Table 4-2 Sample Specifics

Analyte	Container Type	Volume	Preservation	Hold Time
Bis(2-ethylhexl)phthalate		1 l	4 C	40 d
Dichlorobromomethane	Glass	40 ml	4 C, pH<2 w/HCl	14 d
Chlorodiflouromethane	Glass	40 ml	"	14 d
Methylene Chloride	Glass	40 ml	"	14 d
Toluene	Glass	40 ml	"	14 d
1,1,1,-Trichloroethane	Glass	40 ml	"	14 d
Trichloroethylene	Glass	40 ml	"	14 d
Chloroform	Glass	40 ml	"	14 d
1,1-Dichloroethane	Glass	40 ml	"	14 d
Tetrachloroethylene	Glass	40 ml	"	14 d
Aluminum (Al)	HDPE	200 ml	HNO3 to pH<2	6 mo
Arsenic (As)	"	"	"	"
Beryllium (Be)	"	"	"	"
Cadmium (Cd)	"	"	"	"
Copper (Cu)	"	"	"	"
Cyanide(Cn)	HDPE	500 ml	NaOH to pH12 .6g Asbc Acid	14 d
Iron (Fe)	HDPE	200 ml	HNO3 to pH<2	6 mo
Lead (Pb)	"	"	"	"
Manganese (Mn)	"	"	"	"
Mercury (Hg)	HDPE	100 ml	HNO3 to pH<2	28 d
Nickel (Ni)	HDPE	200 ml	HNO3 to pH<2	6 mo
Nitrite (NO3)	HDPE	50 ml	4 C	48 hrs
Selenium (Se)	HDPE	200 ml	HNO3 to pH<2	6 mo
Silver (Ag)	"	"	"	"
Zinc (Zn)	"	"	"	"
Radium (pci/l)	HDPE	1 l	HNO3 pH<2	6 mo
TSS	HDPE	100 ml	4 C	7 d
Coliform				6 hrs
Ammonia (as N)	HDPE	500 ml	4 C, H2SO4<2	28 d

4.4 Measurement of Field Parameters

Temperature and flow will be measured on a continual basis at the facility using in line measurement equipment. Data will be recorded by the Process Logic Controller (PLC) and downloaded to a hard disk for storage. These data files will be available for viewing or use during normal business hours, or as arranged.

4.5 Flow Measurement

All flow measurements are taken using in-line flow meters. Influent flow is measured at the Waste Collection Sump. Process flow is continually measured at the 300 Area TEDF. Effluent flow is continually measured at a point between the Effluent Tank (EF-T-10) and the permit compliance sampling location. Data recording and availability are discussed in Section 4.4.

4.6 Sample Collection

As previously noted, samples will be taken in the North East corner of the facility. After samples are collected and labelled, they will be placed in an ice chest for transport and recorded in the sampling log book.

All samples will be taken manually using the sample containers provided by SML. Field duplicates will be collected in an identical manner to actual samples.

4.7 Sample Identification

Samples are to be identified by sequential identification numbers as provided by the STL. These numbers should be recorded as per Section 4.12 of this MP.

4.8 Site Entry

The 300 Area TEDF is a restricted facility. Proper identification must be displayed at all times. The facility will be open to authorized personnel during normal business hours. Visitors to the area must first receive authorization from LEF Operations prior to entry.

4.9 Health and Safety

The procedures of the Occupational Safety and Health Administration (OSHA) will be followed in all sampling activities to help insure the safety of all those involved. Furthermore, the STL shall serve as the person in charge of sampling activities.

4.10 Equipment Decontamination

Equipment Decontamination will not be required under this MP, due to the lack of intermediate sampling equipment. Should other equipment be used, decontamination should be performed as requested by the STL.

4.11 Revisions to this Monitoring Plan

Revisions to this MP will be made by 300 Area LEPE. Changes in sampling or analytical methodology, analytes of interest, or sampling frequency will be forwarded to EPA for approval prior to implementation. Should revisions be suspected of resulting in noncompliance, advance notice must be provided to EPA, in accordance with Part IV.C. of the permit.

5.0 Quality Assurance

This section describes the effort being undertaken to insure the quality of the sampling data. Requirements for documentation, both in field logs and in final records are included here. The use and frequency of field quality control sampling is also included in this section. Also addressed are chain of custody issues including COC documentation and sample transport. A final inclusion is a brief overview of the quality assurance program for the contract laboratory which will provide analysis of the samples.

5.1 Field Documentation

The sample log shall include the following information, to be entered immediately after sampling takes place:

1. The date of sampling
2. The exact location that sampling was performed
3. The identification number(s) of the samples taken
4. The time of sampling (in 24 hour format, ie. 4 pm is 1600)
5. The individual(s) who performed the sampling
6. The type of anlaysis to be performed

A legible photocopy of the sample log is to be placed in a file of the appropriate sample month and held, along with the analysis data and a copy of the DMR, for at least three years from the date of the DMR, as per Part II.F. of the permit.

5.2 Field Quality Control Sampling

This section will deal with the use of Quality Control (QC) samples. Such samples include duplicates and trip blanks.

DUPLICATE SAMPLES: Duplicate samples are to be collected in an identical manner to actual samples. One duplicate sample is to be taken for each sample that is to be analyzed.

TRIP BLANKS: Trip blanks will be provided by the laboratory as required.

5.3 Chain of Custody

Proper chain of custody (COC) procedures per Quality Assurance Manual, WHC-CM-4-2, QI 13.4 Rev 1, Chain of Custody for samples of Environmental Media and Wastes, will be followed regarding the samples. The sampler shall complete the COC documentation using the WHC Chain of Custody/ Sample Analysis Request Form (BC-6000-828). The sampler shall retain custody of the samples until such time as they are relinquished to the lab. Custody shall be defined as one or more of the following situations:

1. The custodian has actual physical possession of the sample.
2. After having physical possession, the custodian has the sample in view.
3. After having physical possession, the custodian has placed the sample into locked storage.
4. After having physical possession, the custodian keeps the sample within a secured area. A secured area is one that is restricted to authorized personnel only, with controlled means of access.

Before initiating the transfer of the sample, the individual who wishes to relinquish custody must verify that the individual who wishes to obtain custody of the sample is authorized to do so. In order to transfer the sample, both the individual relinquishing the sample and the individual receiving it must sign and enter the date and time on the COC form. Before each transfer of custody, the receiving custodian shall, as a minimum, inspect the chain-of-custody form and samples for deficiencies. If found, all deficiencies shall be noted on the chain-of-custody form. The minimum inspection criteria are:

a. The shipping container is not damaged
b. The outermost tamper-indication device is intact
c. The information on the form is accurate, including descriptions of any deficiencies identified by previous custodians.

Custody of the samples, as defined above, may then be given to the designated receiver of the samples. Transfer of custody is deemed to have taken place only after both of the above conditions have been met.

5.4 Sample Transport

The samples are to be transported the LEF Operations to the offsite contract laboratory. No other transfer of sample custody is permitted prior to transfer the contract lab without the express written authorization of the manager of 300 Area LEPE or a duly appointed representative.

5.5 Laboratory Quality Assurance

Analytical services shall be provided under purchase order MPV-SVV-239000. Analysis is to be requested on a priority basis with summary data package deliverable. According to the SOW, the summary deliverables shall include, but are not limited to, the following items as applicable for the analysis reported:

- Sample results
- Blank results
- MS/MSD or MS and duplicate results, recoveries, and RPDs
- Surrogate results and recoveries.

Laboratories shall employ QA procedures that have been reviewed and accepted for use by WHC. These procedures shall include, but are not limited to, the following items, as spelled out in the SOW:

- Continuing education of laboratory personnel to insure maintenance of job proficiency.
- The laboratory shall be subject to WHC QA audits and surveillances at any time for the duration of the contract. PM&I performs these audits on a once to twice yearly basis for each facility.
- The laboratory shall already be or be working to become accredited under the Washington Department of Ecology's laboratory accreditation program.
- A proprietary copy of the laboratory QA plan will be distributed to DOE-RL, via WHC, for distribution to EPA and Ecology.

5.6 Final Records

300 Area LEPE shall insure that the following information is included in the final records, in compliance with Part II.E. of the permit:

1. The date, exact place, and time indicated using the 24-hour military format (HHMM) of sampling or measurement
2. The individual(s) who performed the sampling or measurements
3. The date(s) analyses were performed
4. The individual(s) who performed the analyses
5. The analytical technique or methods used
6. The results of such analyses

These data, along with those data specified in Part II.F. of the permit, shall be retained for a sufficient time to satisfy Part II.F. of the permit.

REFERENCES

Ecology, EPA, and DOE, 1989, Hanford Federal Facility Agreement and Consent Order, Washington State Department of Ecology, U.S. Environmental Protection Agency, U.S. Department of Energy, Olympia, Washington.

SOW, 1993, Westinghouse Hanford Company Environmental and Waste Characterization Analytical Service Statement of Work, Revision 4, Westinghouse Hanford Company.

Analytical Purchase Order # MPV-SVV-239000.

NPDES Permit No. WA-002591-7

Operations Procedure, 310-OP-024, Perform Compliance Sampling

Quality Assurance Manual, WHC-CM-4-2, QI 13.4 Rev 1, Chain of Custody for Samples of Environmental Media and Wastes.