START

0035558

ENGINEERING CHANGE NOTICE

Page 1 of 9

1. ECN 196845

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date
Supplemental [ ] Direct Revision [X] Change ECN [ ] Temporary [ ] Standby [ ] Supersedure [ ] Cancel/Void [ ]	D.R. Herman/55300/S2-66/3-4069		4-28-93
	5. Project Title/No./Work Order No. SAP for the 183D Area Filter Backwash Facility Process Wastewater System	6. Bldg./Sys./Fac. No. 183D Filter Bldg.	7. Impact Level 3EQ
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-PLN-035, Rev. 2	9. Related ECN No(s).	10. Related PO No.

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[ ] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

I. Page D-2 Delete reference to peristaltic pump fitted with Teflon* tubing. Changed size of 5-gal glass carboy to 2.5 gal. Deleted footnote for trademark Teflon*

II. Page D-4 Deleted wording 3rd parg., "and recorded on a sample authorization form."

III. Page D-7 Deteted wording 3rd Parg. "and covered with clear plastic tape".

IV. Page D-8 Last parg., Changed 100 ml to 20ml

V. Pages E-2 Change method for ph from 9045 to 9040, Added to conductivity EPA 230.1, Changed Alkalinity from EPA 310 to EPA 310.1 & 2, changed Total phenols from EPA 420 to 9065, 9066, 9067, changed (COD) from EPA 410 to EPA 410.1, 2, 3, 4. changed Fluoride from EPA 340 to EPA 300, changed Chloride EPA 325 to EPA 300, changed Changed Nitrate from 9200 to EPA 300.0, changed Nitrite from EPA 354 to EPA 300.0. changed Sulfate from EPA 375 to 9035, 9036, 375.4. Deleted Sulfite and its method from Table E-1.

VI. Page E-3 Added method EP-10 for Gross alpha/beta

Impact Level 3EQ was chosen because the changes are Impact level 3 to an engineering

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

13b. Justification Details

I, II, III, IV Changes made to meet Sampling and Mobile Labs procedures for sampling. V and VI. Methods changed to conform with QAPP and availability of contracted labs.

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

D. R. Herman	S2-66, 1	E. Yusis	S2-66 (1)
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A-7900-013-1 (06/92)

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ENGINEERING CHANGE NOTICE	Page 2 of 9	1. ECN (use no. from pg. 1) 196845

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

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

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

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

Document Number/Revision	Document Number/Revision	Document Number Revision

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog Engineer DR Heeman	4-28-93	PE	
Cog. Mgr.	4/29/93	QA	
QA LA Bristin	4/29/93	Safety	
Safety		Design	
Security	4/30/93	Environ.	
Environ., EEM RJ Boom		Other C.D. Morrison-Beyer RM Morrison for	4/30/93
Projects/Programs Margaret Price	4-28-93	M.S. Hendrix Michelle Hendrix	4/29/93
Tank Waste Remediation System			
Facilities Operations		DEPARTMENT OF ENERGY	
Restoration & Remediation		Signature or Letter No.	
Operations & Support Services			
IRM		ADDITIONAL	
Other			

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Date Received: 4-28-93	**INFORMATION RELEASE REQUEST**	Reference: WHC-CM-3-4

Complete for all Types of Release

Purpose

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

ID Number (include revision, volume, etc.): WHC-SD-WM-PLN-035, Rev. 2A

List attachments.

Date Release Required: 4-30-93

Title: Sampling & Analysis Plan for the 183D Area Filter Backwash Facitlity Process Wastewater

Unclassified Category: UC-

Impact Level: 3E.Q

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

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

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

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Title of Conference or Meeting

Group or Society Sponsoring

Date(s) of Conference or Meeting

City/State

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

Title of Journal

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval: Name (printed) / Signature / Date
Classification/Unclassified Controlled Nuclear Information	[ ]	[X]	
Patent - General Counsel	[ ]	[X]	OGC Memo 2/4/93
Legal - General Counsel	[ ]	[X]	OGC Memo 2/4/93
Applied Technology/Export Controlled Information or International Program	[ ]	[X]	
WHC Program/Project	[X]	[ ]	D. R. Speer R1-48 4-28-93
Communications	[ ]	[X]	
RL Program/Project	[ ]	[X]	
Publication Services	[X]	[X]	4/30/93
Other Program/Project	[ ]	[X]	

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

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

Author/Requestor (Printed/Signature) Date: D. R. Herman 4-28-93

Intended Audience: [ ] Internal [ ] Sponsor [X] External

Responsible Manager (Printed/Signature) Date: E. Yusis 4/28/93

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

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Date Cancelled | Date Disapproved

BD-7600-062 (08/91) WEF074

Part 1

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SUPPORTING DOCUMENT

1. Total Pages

2. Title	3. Number	4. Rev No.
Sampling and Analysis Plan for the 183D Area Filter Backwash Facility Process Wastewater Streams	WHC-SD-WM-PLN-035, Rev. 2A	Rev. 2A

5. Key Words	6. Author
SAP, 183D Filter Plant, Sampling Plan	Name: D. R. Herman
KMB 4/30/93 APPROVED FOR PUBLIC RELEASE	Signature: D R Herman
	Organization/Charge Code 55300/A2D92

7. Abstract

Pages changed as supplement to the Sampling and Analysis Plan (SAP) that wstablishes the guidelines for providing data to support a waste designation for each liquid effluent.

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9. Impact Level 3EQ

10. RELEASE STAMP

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RECORD OF REVISION	(1) Document Number WHC-SD-WM-PLN-035, ~~Rev. 2A~~ DE93 4136193	Page 1

(2) Title
Sampling and Analysis Plan for the 183D Area Filter Backwash Facility Process Wastewater Streams

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
RS 2A	(7) Page changes to document in accordance with ECN #196845	D. R. Herman DR Herman	E. Yusis 28 Sept 93

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D.0 SAMPLE COLLECTION METHODOLOGY, LOCATIONS, AND FREQUENCIES

The following sampling procedures are proposed in accordance with the Tri-Party Agreement (Ecology et al. 1990). Based on a review of available documents, process knowledge, and onsite visits, the following is known about the process. There are only two waste streams (filter backwash and settling basin washdown), the waste streams are discharged in batches at separate and discrete intervals, and the discharge piping system is used only for these operations. No significant mixing of waste streams occurs prior to discharging to the ponds, so that representative samples can be collected at the weir above the 100 D Ponds.

Sample collection and associated procedures are described in the following subsections. The 183 D Filter Backwash Facility waste water will be sampled in a manner that (1) provides representative measurements of the volume and concentrations of contaminants that may be present in the waste water and (2) is consistent with the guidance provided in Test Methods for Evaluating Solid Waste, EPA SW-846 (latest edition).

D.1 SAMPLE COLLECTION

Representative samples will be collected from the weir located at the discharge to the 100 D Ponds during the filter backwash operation. The location of the weir is shown in Figures B-1 and B-2. The backwashing operation occurs approximately once a month and takes 15 to 20 minutes to complete.

Samples from the first two filter backwashing operations will be analyzed for routine parameters and the full 40 CFR 264 Appendix IX suite of parameters. Routine analyses refers to testing for parameters expected in the waste water stream based on available data, as indicated with an R in Table B-1. Two sample events will occur during 1993 and will be repeated during 1994. Thereafter, only those parameters detected during the first four events would be analyzed along with field parameters. Finally, semiannual sampling will be conducted after the first three months to monitor the variability of the waste stream.

During the wash-down of the settling basins, which occurs once or twice a year, representative samples will be collected from the discharge to the 100 D Ponds. Samples will be analyzed for routine parameters and the full 40 CFR 264 Appendix IX suite of parameters.

In addition, a sample of the raw water from the 182 D Reservoir (see Figure B-2) will be collected to obtain background constituent concentration levels. The samples will be analyzed for routine parameters and the full 40 CFR 264 Appendix IX suite of parameters, the same set listed above.

For both waste streams and for the 182 D Reservoir samples, the proposed sampling will consist of field parameters and the above-described laboratory analyses. Field parameters (i.e., conductivity, temperature, dissolved

oxygen, and pH) will be collected at the beginning of each sampling event. For the waste streams, flow data will be collected at the weir for each sampling event.

Grab samples to be analyzed for volatile organics (VOAs) will be collected using a dipper in accordance with EPA SW-846 (latest edition). Composite samples to be analyzed for other parameters will be collected in clean 19-L (2.5-gal) glass carboys, and then transferred to appropriate laboratory-supplied sample containers.

Field quality control samples will be collected as part of the field sampling effort. Field quality control samples will include equipment blanks, field blanks, trip blanks, and duplicate samples. The analytical schedule for the field quality control samples is shown in Table D-1. The frequency of quality control sample collection is described below and discussed further in the Liquid Effluent QAPP (WHC 1992).

- Field Duplicates--For each phase of sampling activity, a minimum of 5 percent of the total collected samples will be duplicated. Duplicate samples will be retrieved from the same sampling location using the same equipment and sampling technique and will be placed into two sets of identically prepared and preserved containers.

- Field Blanks--Field blanks will be transferred into a sample container at the site, and preserved with the reagent specified for the analytes of interest. Field blanks are used as a check on reagent and environmental contamination and will be collected at a minimum frequency of 5 percent of the total number of samples collected.

- Equipment Blanks--Equipment blanks will consist of RO/DI American Society for Testing and Materials (ASTM) II water washed through decontaminated sampling equipment and placed in containers identical to those used for actual field samples prior to the sampling event. Equipment blanks are used to verify the adequacy of sampling equipment decontamination procedures and will be collected at a minimum frequency of 5 percent of the total number of samples collected.

- Trip Blanks--Trip blanks consist of RO/DI ASTM II water added to one or two clean septum-sealed vials, accompanying each batch of containers shipped to the sampling activity. Trip blanks will be prepared by the S&ML, stored with the samples, and returned unopened to the laboratory. Trip blanks are a check on possible volatile organic compound contamination originating from container preparation methods, shipment, handling, storage, or site conditions. Trip blanks will accompany each shipment of samples scheduled for volatile organic analysis. Trip blank

Table D-1. Analytical Schedule for Field Quality Control Samples.

Parameter group	Sample type			
	Duplicates	Field blanks	Equipment blanks	Trip blanks
Volatile Organics[a]	X	X	X	X
Semivolatile Organics[a]	X		X	
Pesticides and PCBs[a]	X		X	
Metals[a]	X		X	
Herbicides[a]	X		X	
Radionuclides[b]	X		X	
Field Parameters[b]	X			
General Parameters[c]	X		X	

[a]Individual constituents in each parameter group are presented in Tables 3-1 through 3-7 in Appendix 3.
[b]See Table E-1.
[c]Table 3-7 in Appendix 3.

analysis will be conducted at a minimum frequency of 5 percent. However, the project manager or laboratory personnel may elect to analyze additional trip blanks if unusually high or otherwise unexpected concentrations of volatile organics are detected in the field samples.

D.2 FIELD PARAMETER MEASUREMENTS

Prior to sample collection, a clean glass beaker will be filled and used for field parameter measurement purposes. The field parameters monitored will be pH, temperature, conductivity, and dissolved oxygen. The monitoring probes will be rinsed with a distilled water spray prior to each measurement. The field meters used for these measurements will be calibrated daily in accordance with manufacturers' specifications (which will be kept with each instrument) using appropriate standard solutions. Field parameters and calibration measurements will be recorded in the bound field logbook. Refer to the Liquid Effluent QAPP (WHC 1992) for quality assurance procedures for calibrating field instruments.

D.3 SAMPLE DESIGNATION AND FIELD DOCUMENTATION

Sample bottles will be tracked from the point of sample origin to the laboratory in accordance with a chain-of-custody system described in Section D.5, Sample Custody and Transport. A unique sample number will be obtained from HEIS.

The bottles will be labeled with these numbers. Also, each bottle will be identified with a bar code sticker attached to the bottle by the bottle manufacturer. The bar code will identify the bottle lot number and individual bottle number. Additional information recorded on the label will include:

- Time sample was collected to the nearest minute using a 24-hour clock (military time system)
- Analysis
- Preservative
- Sampler's initials and name printed
- Type of sample (i.e., grab or composite)
- Matrix (liquid/solid).

The sampling team shall maintain a written record of sampling activities and field observations in a bound field logbook. All logbook entries shall be completed in nonerasable black ballpoint ink. Any required corrections to the information in the logbook will be made by drawing a line through the erroneous information, entering the correct information, and initialing and dating the change. The erroneous information should remain legible.

At a minimum, the following information should be noted in the bound field logbook:

- All information required in the Liquid Effluent QAPP (WHC 1992)
- Sampling point and method
- Date, time, and sample identification number for each sample collected
- Type and matrix of sample being collected (i.e., grab or composite, waste water)
- Scheduled analyses for each sample collected
- Qualitative indication of sample turbidity and color
- Field parameter measurements, other sample survey information, and time they were measured
- Lot numbers and expiration dates for calibration solutions and gases

- Equipment manufacturer, model number, and serial number
- Names of sampling personnel and HPT
- Radiological screening results for each sample
- Deviations from procedure described in this SAP
- Daily signatures for each person making logbook entries
- Sketches, drawings
- Record of the vehicle number used to transport the samples and the destination of the samples
- Chain-of-custody numbers cross referenced to sample identification numbers
- Any other pertinent information (e.g., notice deviations from the intended sampling method).

All sampling personnel who enter data must sign and date each page of logbook entries. All changes to logbook entries must be initialed and dated. During field activities, the field logbook will be kept under the control of the sampling team. Upon completion of the field effort, the field logbook will be managed in accordance with QR 17.0, "Quality Assurance Records" (WHC 1989).

D.4 EQUIPMENT DECONTAMINATION

All metal and glassware used in sample collection that are not certified "precleaned" will be decontaminated prior to first use, then dedicated to a specific sampling point per WHC-CM-7-7, E11 5.5.

The isopropyl alcohol, nitric acid, wash water, and deionized water rinsate will be collected in separate labeled containers for disposal according to applicable regulations.

Field meter sensors (e.g., pH, dissolved oxygen [DO], temperature, and specific conductance probes) used to monitor the process waste water will be rinsed with deionized water after measurement.

At the end of each sampling event, all equipment exposed to the process waste water will be sent to the 1706 K-East RCRA Cleaning Facility where it will be decontaminated. This washwater will be disposed of according to applicable regulations.

D.5 SAMPLE CUSTODY AND TRANSPORT

Samples will be routed to the selected contractor or subcontractor laboratory for analysis consistent with the Liquid Effluent QAPP (WHC 1991).

Samples of the 183 D Area process waste water will be shipped by overnight air courier to a designated analytical laboratory.

All samples will be packaged for shipment in iced coolers. Radiological screening of a representative portion of each sample delivery group will be conducted by the laboratory in Building 222-S. A chain-of-custody record will be generated at the time of bottle preparation and accompany the sample to the laboratory from the field. (A copy of a typical chain-of-custody record is provided in Appendix 1.) At a minimum, the following information will be provided on the chain-of-custody record by the sample team:

- All information required under the Liquid Effluent QAPP (WHC 1992)
- Chain-of-custody number
- Project name and number
- Customer name
- Project manager
- Sampler's name and title
- Sample location
- Sample identification
- Date and time of sample collection
- Type of sample (i.e., grab or composite)
- Requested analyses
- Number of containers
- Type of container, preservative, and sample volume
- Signatures of all persons having custody of the sample from collection until receipt by the laboratory
- Inclusive dates and times of sample possession
- Courier name and airbill number (remarks column)
- Other remarks as required
- Corresponding sampling authorization form number(s).

In addition, the laboratory identification number(s) will be entered on the chain-of-custody record by the laboratory sample custodian when the samples arrive at the laboratory. A copy of the signed chain-of-custody record with laboratory assigned identification numbers written in the appropriate column should be returned to the OSM or designee.

The chain-of-custody record will be completed in ink. Any required corrections to the information provided on the chain-of-custody record will be made by drawing a line through the erroneous information, entering the correct information, and initialing and dating the change. The erroneous information should remain legible. Any unused sections of the form will have zigzag lines drawn through them to indicate that information is not missing.

The original signature copy of the chain-of-custody record will be enclosed in a self-sealing plastic bag with the offsite property control form and total activity report and secured to the inside of the cooler lid. Typical sample container packaging includes the following steps. Adhesive labels on the sample bottles will be completed in waterproof ink. The glass sample containers will be packaged in bubble wrap or in customized foam packing to protect them from accidental breakage during shipment. Sample bottles will be placed in individual self-sealing-type bags to contain leakage and then placed in a cooler. Ice (packaged in self-sealing bags) will be placed around the sample containers to maintain samples at approximately 4 °C during shipment to the laboratory. Remaining cooler space will be filled with bubble wrap. A copy of the chain-of-custody record will be retained by the sample team leader and placed in the bound field logbook. The HPT in the shipping and receiving area will monitor each cooler for alpha, beta, and radon radiation of the external packaging prior to release to a courier. Final sample package preparation will include:

- Sealing the drain plug and lid seam with waterproof tape
- Attaching a minimum of two chain-of-custody seals in a way that they would be broken if the cooler was opened
- Attaching a shipping label
- Attaching the WHC offsite control form and the courier's shipping papers to the lid.

As an identifying measure, each cooler will be given a unique name written with waterproof ink on the top and side of the cooler. Each time a cooler changes possession, both the person relinquishing and the person accepting custody must sign and date the chain-of-custody record. As long as the custody record is sealed inside the sample cooler and chain-of-custody seals remain intact, representatives of courier companies will not be required to sign the custody record. Shipping papers provide documentation of custody for the courier company.

The OSM will telephone the laboratory each time a sample delivery group is shipped. The laboratory will be informed of the number of samples that will be arriving, the expected arrival time, and the analyses that will be required. Laboratory notification will be documented in the bound field

logbook by the team member. The sample custodian receiving the samples at the laboratory shall sign and date the chain-of-custody record to acknowledge receipt of the samples. Once the samples are received at the laboratory, laboratory personnel will be responsible for maintaining internal logbooks and records that document sample custody throughout sample preparation and analysis. Further details on laboratory chain-of-custody are provided in the Liquid Effluent QAPP (WHC 1992). The sample team leader will transmit all shipping documentation (i.e., chain-of-custody record, total activity report and offsite property control form, courier and air bill number) by facsimile to OSM or designee within 24 hours of sample shipment. The laboratory will transmit by facsimile to OSM or designee copies of the shipping documentation with the laboratory receipt signature within 24 hours of receiving the samples. OSM or the designee will inform the sample team leader that it was received.

D.6 SPLIT SAMPLES

EPA and Ecology may elect to collect split samples or obtain samples independent of the sampling effort described in this SAP. Advanced written request will be needed so that proper clearances can be obtained if EPA or Ecology exercises this option.

D.7 RADIOLOGICAL SCREENING

Environmental samples leaving the Hanford Site must undergo a radiological screening analysis to monitor for radiological activity exceeding the Hanford Site release limits. This requirement applies to all samples collected as part of this project. Arrangements will be made with the 222 S Laboratory to meet this requirement and to meet the shipping deadline.

An HPT will field-screen the samples prior to the samples leaving the sample area. In addition, approximately 20 ml of the waste water sample from each sample point will be collected in plastic sample containers and delivered to the laboratory at Building 222 S. The analytical results (the total activity report) will be transmitted from the laboratory by facsimile machine to a designated Hanford Site building where the field sample team will pick it up. If the sample exhibits radioactivity at levels below the Hanford Site release limits, the sample team may take the samples (packaged in a cooler and ready for shipment in accordance with applicable Department of Transportation regulations, 49 CFR) to the Hanford Shipping and Receiving office. The resident HPT in the shipping and receiving area will monitor the sample packaging for radiation prior to the release to an overnight courier. Copies of the total activity report and offsite property control form must accompany the chain-of-custody record in the cooler (see Section D.5). Copies of all three will be retained by the sample team leader and placed in the field logbook and sample file.

E.0 SAMPLE ANALYSIS

The chemical parameters for analysis include the groundwater monitoring list (40 CFR 264, Appendix IX), and water quality parameters as required by the Liquid Effluent QAPP (WHC 1992). Table E-1 lists proposed analytical parameters. Tables 3-1 through 3-7 in Appendix 3 list specific Appendix IX parameters and the target detection limits for these parameters. Table 3-7 lists target detection limits (based on EPA SW-846, latest edition) for the other parameters; the target detection limits may be redefined after final laboratory selection by OSM or designee. Actual detection limits depend on the nature of the matrix and will be reported for each parameter. The number of analytes may be reduced after a baseline is established.

The analytical methodology will be based on standard EPA methods; the methodology has been identified in the Liquid Effluent QAPP (WHC 1992). Standard method references for the parameters are listed in Table E-1. The analytical quality control procedures will be according to the individual EPA analytical method requirements and the Liquid Effluent QAPP (WHC 1992).

Table E-1. Sample Parameters, Holding Times, Containers, and Preservatives. (2 sheets)

Parameter	R[a]	Method[b]
40 CFR 264 Appendix IX[c]		
Total and amenable cyanide		9010, 9012
Sulfide		9030
Metals[c] (Appendix IX)	R	SW 6010/7000 series
Volatile organics (Appendix IX and ethylene glycol)		SW 8240
Semivolatile organics (Appendix IX)		SW 8270
Pesticides/polychlorinated biphenyls (PCBs)		SW 8080
Organophosphate pesticides		SW 8140
Chlorinated herbicides		SW 8150
Field parameters		
pH	R	SW 9040
Conductivity	R	SW 9050, EPA 120.1
Water quality		
Total organic carbon (TOC)	R	SW 9060
Total organic halogens (TOX)		SW 9020
Turbidity	R	EPA 180
Alkalinity	R	EPA 310.1, .2
Total phenols		9065, 9066, 9067
Chemical oxygen demand (COD)	R	EPA 410.1, 2, 3, 4
Fluoride	R	EPA 300.0
Chloride	R	EPA 300.0
Sulfate	R	EPA 300.0, 9035, 9036, 375.4
Nitrate	R	EPA 300.0
Nitrite	R	EPA 300.0
Ammonia	R	EPA 350.1, .2, .3

Table E-1. Sample Parameters, Holding Times, Containers, and Preservatives. (2 sheets)

Parameter	R[a]	Method[b]
Radiological		
Gross alpha/beta	R	[d]EP - 10
Onsite radiation screen		

[a]R = Routine analysis parameter.
[b]Methods are from EPA SW-846 (latest edition), EPA 1983, APHA 1989.
[c]These parameters are sensitive to residual chlorine.
[d]Radionuclides will be analyzed by methods that meet or exceed EPA or Nuclear Regulatory Commission guidelines. Methods and requirements shall be defined by the laboratory prior to analyses.

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